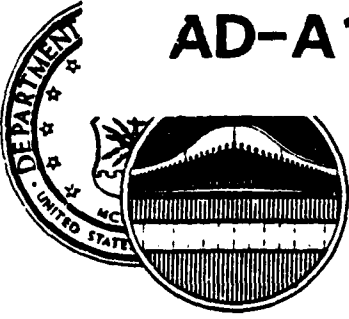


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EPI REPORT

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KEESLER TECHNICAL TRAINING CENTER
AFPT 90-EPI-490
APRIL 1984

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OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150

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PREFACE

This report presents the results of an Air Force Electronics Principles Survey of those specialties for which electronics training is provided at Keesler Technical Training Center, Keesler AFB, Mississippi. Authority for conducting electronics principles surveys is contained in AFR 35-2.

The survey instrument used to collect data from career ladder incumbents was the Electronics Principles Inventory (EPI). This survey instrument was originally developed by Dr. Hendrick W. Ruck and Major Thomas J. O'Connor in 1976. It was revised and updated in 1979 by Mr. James L. Slovak and Captain Frederick B. Bower, Jr. Mr. Slovak further refined and updated the instrument in 1981.

Second Lieutenant Mary Thomasson analyzed the data and wrote the final report. Computer support was provided by Ms. Olga Velez. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Center, Randolph AFB, Texas 78150.

Copies of this report are available to Air Staff sections, major commands, and other training and management personnel. Requests for additional copies should be addressed to the USAF Occupational Measurement Center, attention of the Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150.

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SUMMARY OF RESULTS

1. Survey Coverage: The Electronics Principles Inventory (EPI) was administered to 3,447 5- and 7-skill level members across Air Force samples of 12 specialties which receive electronics fundamentals training at Keesler Technical Training Center.

2. Five-Skill Level Use of Electronics Principles: Thirty percent or more of 5-skill level personnel in 10 of the 12 AFSCs studied answered "yes" to 96 questions, indicating they used 18 categories of electronics principles. Personnel in two AFSCs (20550 and 30750) reflected less use of electronics principles.

3. Five- and Seven-Skill Level Differences: Large differences between 5- and 7-skill level use of electronics principles were found in only 4 of the 12 specialties studied (304X0, 304X1, 305X4, and 328X2). The largest differences were found in AFS 328X2.

4. Discussion: Personnel in the 205X0 and 307X0 specialties use fewer electronics principles than the others, which may indicate the need for a different type or degree of training for personnel in these specialties. Data are provided to assist in reviewing the electronics principles requirements for all 12 specialties.

Electronics Principles Inventory Keesler Technical Training Center

INTRODUCTION

The USAF Occupational Measurement Center provides specialty task data to training personnel in the form of occupational survey reports (OSR) and training extracts. Such data are presented in task statements which are quantified according to percent members performing, relative time spent, task difficulty, and training emphasis. This task statement data provides a precise picture of the kinds of functions personnel in a specific AFS actually perform at a specific point in time. When properly applied, OSR data can be a powerful tool in the design of training content.

Generally speaking, OSR task statements are sometimes difficult to translate directly into knowledge requirements. This is especially true of tasks which require some degree of electronics knowledge. Prior to development of the Electronics Principles Inventory, training managers and command representatives had to rely on subjective judgments to arrive at the kinds of knowledge required to perform electronics-oriented tasks. A need for more objective criteria for determining the amount of electronics knowledge necessary to perform Air Force jobs resulted in the development of a new type of USAF job inventory, called the Electronics Principles Inventory.

The EPI is a knowledge-based job inventory which identifies the range of electronics principles personnel must understand to perform any electronics-oriented job. Training managers can use EPI data in conjunction with OSR data to determine precisely what specialists do and what electronics principles they employ on the job. By using EPI and OSR data in this manner, training managers satisfy one of the most important aspects of the Instructional Systems Development (ISD) process: determine what specialists do on the job before developing a course to train individuals to perform the job.

History

In 1974, the initial request to develop a method of determining electronics fundamentals used on the job was made by Major General Charles G. Cleveland, Deputy Chief of Staff, Technical Training, Air Training Command. At the time, General Cleveland needed some means of accurately measuring how much electronics fundamentals training was actually used on the job. He envisioned using EPI data to streamline training by eliminating "nice-to-know" information in the area of electronics security.

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At the General's request, Dr. Walter E. Driskill, Chief of the Occupational Analysis Branch, set up a task force to conceptualize, develop, and apply a method for measuring job usage of electronics principles. The task force was composed of personnel from the Occupational Analysis Branch who were well qualified in theoretical physics and electronics. These personnel also had considerable expertise in task analysis and survey development. With assistance by these individuals, electronics experts from 5 ATC Technical Training Centers, averaging 12 years maintenance experience and 4 years of electronics principles instruction experience, spent 3 weeks working on the development of the EPI. This tentative EPI then was reviewed and refined by over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFSC, as well as personnel at the Electronics Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory. The resulting EPI contained 1,257 items under 62 subject-matter areas covering all electronics principles training given at the 5 ATC Technical Training Centers.

During 1977, this EPI was administered to more than 11,000 airmen in 54 different Air Force specialties. Since the aim of the EPI was to determine the extent electronics fundamentals were actually used in the performance of Air Force jobs, the logical person to survey was one at the worker level with sufficient time on the job to understand all that it entailed. Consequently, only 5-skill level personnel with more than 18 months active duty service were surveyed. Results from this project were used extensively by the various training managers to refine their respective plans of instruction.

This original EPI was revised in 1978 and 1979 to more accurately reflect some of the computer-oriented and various other electronics principles. The revision was accomplished by Mr. James L. Slovak, Inventory Development Specialist, and Captain Frederick Bower, Occupational Analyst, after consultation with electronics principles instructors at each of the technical training centers. Mr. Slovak conducted a further revision of the EPI in 1981, following additional consultation with electronics principles experts. Following this extensive review, the EPI was reprinted in its current format, which includes 1,366 items.

Survey Administration

The electronics principles inventory was administered to 5- and 7- skill level personnel in those specialties for which electronics training is provided at Keesler AFB. These AFSs included:

| | |
|-------|--|
| 205X0 | Electronics Intelligence Operations |
| 304X0 | Wideband Communications Equipment |
| 304X1 | Navigation Aids Equipment |
| 304X4 | Ground Radio Communication |
| 305X4 | Electronics Computer and Switching Systems |
| 307X0 | Telecommunications Systems Control |
| 328X0 | Avionic Communications |
| 328X1 | Avionic Navigation Systems |

328X2 Airborne Warning and Control Radar
328X3 Electronics Warfare Systems
328X4 Avionic Inertial and Radar Navigation Systems
328X5 Airborne Command Post Communication Equipment

Inventories were administered to a stratified random sample of career ladder incumbents. In each specialty surveyed, booklets were sent to selected career ladder incumbents randomly selected across the 5- and 7-skill levels. No more than 500 booklets were administered to any given specialty. Table 1 shows the specialty representation of the sample. The inventories were administered between December 1982 and July 1983.

The EPI booklet differs from the usual task-oriented survey in two major respects. First, the EPI asks two general questions: "What do you do," and "What electronics knowledge do you use in performing your job?" The second difference is the EPI can be administered to anyone who works with electronics. That is, it is general in nature, unlike the usual job inventory, which is aimed at a single specialty.

TABLE 1
SPECIALTY REPRESENTATION IN KEESLER EPI SAMPLE

| <u>AFSC</u> | <u>TOTAL 5- AND 7- SKILL LEVEL ASSIGNED</u> | <u>DESIRED SAMPLE*</u> | <u>FINAL SAMPLE</u> | <u>PERCENT OF ASSIGNED IN SAMPLE</u> | <u>PERCENT OF DESIRED IN SAMPLE**</u> |
|-------------|---|----------------------------|-------------------------|--|---|
| 205X0 | 477 | 463 | 281 | 59% | 61% |
| 304X0 | 2,066 | 500 | 305 | 15% | 61% |
| 304X1 | 932 | 500 | 320 | 34% | 64% |
| 304X4 | 3,377 | 500 | 310 | 9% | 62% |
| 305X4 | 2,156 | 500 | 291 | 13% | 58% |
| 307X0 | 1,487 | 500 | 318 | 21% | 64% |
| 328X0 | 1,567 | 500 | 332 | 21% | 66% |
| 328X1 | 1,745 | 500 | 335 | 19% | 67% |
| 328X2 | 205 | 179 | 105 | 51% | 87% |
| 328X3 | 2,013 | 500 | 340 | 17% | 68% |
| 328X4 | 987 | 500 | 331 | 34% | 66% |
| 328X5 | 300 | 289 | 168 | 56% | 58% |

* For large specialties, a maximum of 500 cases was selected. Larger percentages of small population specialties were selected to ensure their representation in the final sample.

** A minimum acceptable level of 50 percent of desired sample was used as a cutoff for closing field administration.

PRESENTATION OF RESULTS

Personnel responded "yes" or "no" to the 1,366 electronics principles questions as related to their present job. Table 2 shows the specific areas covered in the inventory. Task Factor Print Program (FCPRTS) computer printouts are presented in the Appendix, beginning on page 2. The printouts display the percentage of personnel in each AFSC group who responded "yes" to each question asked in the EPI.

In accordance with ATC Regulation 52-22, electronics principles used by at least 50 percent or more 5-skill level personnel should be considered for inclusion in a basic residence course. Principles used by at least 30, but less than 50 percent, may be considered for inclusion in formal training, although not necessarily in a resident course.

The journeyman job (5-skill level) is the most appropriate target for making training decisions. Five-skill level personnel have been on the job a sufficient amount of time to know what electronics principles are used. Also, unlike 7-skill level personnel, they are still in technical jobs rather than supervisory positions.

In the following sections, electronics principles used by 5-skill level personnel are discussed. To examine what changes occur between the two skill levels, 7-skill level data were collected. The results of a comparison between 5- and 7-skill level personnel are discussed in the 5- and 7-skill level difference section.

TABLE 2
EPI SUBJECT AREAS

| <u>SEQUENCE OF SUBJECT AREAS</u> | <u>SUBJECT AREAS TITLE</u> | <u>BEGINNING ITEM NUMBER</u> |
|--------------------------------------|--|--------------------------------------|
| 1 | MATHEMATICS | A1 |
| 2 | DIRECT CURRENT | A12 |
| 3 | RESISTORS/RESISTIVE CIRCUIT | A25 |
| 4 | METER/MULTIMETER | B60 |
| 5 | ALTERNATING CURRENT | B68 |
| 6 | INDUCTORS/INDUCTIVE REACTANCE | B75 |
| 7 | CAPACITORS/CAPACITIVE REACTANCE | C97 |
| 8 | TRANSFORMERS | C126 |
| 9 | MAGNETISM | C168 |
| 10 | RCL CIRCUITS | D180 |
| 11 | TIME CONSTANTS | D226 |
| 12 | FILTERS | D233 |
| 13 | COUPLING | E249 |
| 14 | SOLDERING/SOLDERLESS CONNECTIONS | E263 |
| 15 | RELAYS | E277 |
| 16 | MICROPHONES AND SENSING DEVICES | F295 |
| 17 | SPEAKERS | F309 |
| 18 | OSCILLOSCOPES | F324 |
| 19 | SEMICONDUCTOR DIODES | G342 |
| 20 | TRANSISTORS | G383 |
| 21 | TRANSISTOR AMPLIFIERS | G407 |
| 22 | SOLID-STATE SPECIAL-PURPOSE DEVICES | H453 |
| 23 | POWER SUPPLIES | H467 |
| 24 | OSCILLATORS | H498 |
| 25 | MULTIVIBRATORS | I529 |
| 26 | LIMITERS AND CLAMPERS | I540 |
| 27 | ELECTRON TUBES | I550 |
| 28 | ELECTRON TUBE AMPLIFIERS AND CIRCUITS | J589 |
| 29 | SPECIAL-PURPOSE ELECTRON TUBES | J596 |
| 30 | HETERODYNING AND MODULATION- DEMULATION | J611 |
| 31 | AM SYSTEMS | K618 |
| 32 | FM SYSTEMS | K638 |
| 33 | NUMBERING SYSTEMS | K660 |
| 34 | LOGIC FUNCTIONS | L685 |
| 35 | BOOLEAN EQUATIONS | L718 |
| 36 | COUNTERS | L730 |
| 37 | TIMING CIRCUITS | L752 |
| 38 | USE OF SIGNAL GENERATORS | M764 |
| 39 | MOTORS AND GENERATORS | M778 |
| 40 | METER MOVEMENTS | N809 |

TABLE 2 (CONTINUED)
EPI SUBJECT AREAS

| <u>SEQUENCE OF SUBJECT AREAS</u> | <u>SUBJECT AREAS TITLE</u> | <u>ITEM NUMBER</u> |
|--------------------------------------|---|------------------------|
| 41 | SATURABLE REACTORS AND MAGNETIC AMPLIFIERS | N821 |
| 42 | WAVESHAPING CIRCUITS | N833 |
| 43 | SINGLE OR INDEPENDENT SIDEBAND SYSTEMS | O854 |
| 44 | PULSE MODULATION SYSTEMS | O884 |
| 45 | ANTENNAS | O924 |
| 46 | TRANSMISSION LINES | P969 |
| 47 | WAVEGUIDES AND CAVITY RESONATORS | P1000 |
| 48 | MICROWAVE AMPLIFIERS AND OSCILLATORS | P1044 |
| 49 | REGISTERS | Q1121 |
| 50 | STORAGE DEVICES | Q1128 |
| 51 | DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS | Q1155 |
| 52 | PHANTASTRONS | Q1177 |
| 53 | SCHMITT TRIGGERS | Q1183 |
| 54 | CABLE FABRICATION | R1186 |
| 55 | INPUT/OUTPUT (PERIPHERAL) DEVICES | S1188 |
| 56 | PHOTO SENSITIVE DEVICES | S1202 |
| 57 | SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS) | S1207 |
| 58 | INFRARED SYSTEMS | T1216 |
| 59 | LASERS | T1244 |
| 60 | DISPLAY TUBES | T1278 |
| 61 | TELEVISION | T1294 |
| 62 | COMPUTERS, MICROPROCESSORS, AND PROGRAMMING | U1304 |
| 63 | DB AND POWER RATIOS | U1361 |

5-Skill Level Use of Electronics Principles

Beginning on page 1 of the Appendix, the survey data for 5-skill level members are presented. The data reflects the percent answering "yes" to each question; that is, percent using each referenced principle. While training personnel should study the appendix data in detail, this section presents the highlights of that data.

When looking at the data, note that the 20550 and 30750 personnel do not use the electronics principles included in the inventory to the same extent as the other AFSCs. Examples of these differences can be seen in Table 3. This may indicate the need for a different type or degree of training for personnel in these specialties.

Thirty percent or more 5-skill level personnel in all AFSCs (except the 20550 and 30750) answered "yes" to 96 questions in the electronics principles survey. These 96 questions generally fell into 1 of 18 categories of electronics principles related to the following:

- mathematics
- direct current
- resistors/resistive circuits
- meters/multimeters
- alternating current
- capacitors/capacitive reactance
- transformers
- RCL circuits
- filters
- soldering/solderless connections
- relays
- oscilloscopes
- transistors
- solid-state special-purpose devices
- power supplies
- oscillators
- heterodyning and modulation-demodulation
- meter movements

Note that these 18 categories cover a wide range of electronics principles, indicating career ladder members typically need a large amount of formal training in electronics principles. Yet, the above list does not exhaust training needs. When considering each AFSC separately, many more categories are included. In fact, the only categories that have less than 30 percent of the personnel responding "yes" in all AFSCs are:

- synchronous vibrations (chopper circuits)
- infrared systems
- lasers
- display tubes
- television

This suggests that electronics principles relating to these categories should not be included in a formal training course. The data also indicate some principles are appropriate for a common electronics principles course and some should be included only in the SETS portion of a course. For example, personnel in AFSCs 30554 and 32852 are using principles related to computers, microprocessors, and programming to a greater extent than the other specialties (see page 68 of the Appendix). This suggests that these principles could be more effectively taught in the SETS portion of the 30554 and 32852 courses, rather than the common electronics principles course.

TABLE 3

EXAMPLES OF PRINCIPLES WHICH DIFFERENTIATE PERSONNEL IN AFSCs 20550 AND 30750 FROM OTHERS
(PERCENT MEMBERS USING)

| PRINCIPLES | TOTAL* SAMPLE | DAFSC 20550 | DAFSC 30750 |
|--|------------------|----------------|----------------|
| DO YOU INSPECT RESISTORS? | 78 | 0 | 8 |
| DO YOU ADJUST RESISTORS? | 78 | 0 | 10 |
| DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | 80 | 1 | 19 |
| DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES? | 83 | 2 | 20 |
| DO YOU WORK WITH CAPACITORS IN AC CIRCUITS? | 72 | 3 | 8 |
| DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC? | 71 | 3 | 8 |
| DO YOU SOLDER CONNECTIONS? | 80 | 0 | 16 |
| DO YOU DESOLDER CONNECTIONS? | 80 | 0 | 17 |
| DO YOU INSPECT POWER SUPPLIES? | 75 | 1 | 11 |
| DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | 77 | 1 | 9 |

* Represents average of personnel in AFSCs except 20550 and 30750

5- AND 7-SKILL LEVEL DIFFERENCES

To determine if variations occur between 5- and 7-skill level jobs, 7-skill level data were also examined.

Differences between the 5- and 7-skill level groups are reflected in the listings of tasks in Tables 4 through 7. The comparison of 5- and 7-skill level groups showed the differences were important in only four specialties. In general, differences were found in tasks performed by 5-skill level personnel to a greater extent than 7-skill level personnel. As seen in Tables 4 and 6, 30450 and 30554 airmen perform more principles related to power supplies and soldered connections than 30470 and 30574 personnel. Table 7 reveals the largest differences between the 5- and 7-skill level personnel are in AFS 328X2.

Although 7-skill level airmen still use electronics principles, very few were being performed to a greater extent by 7-skill level than 5-skill level personnel. Usually, 7-skill level personnel are responsible for supervisory and management tasks which were not included in the Electronics Principles Inventory.

TABLE 4

PRINCIPLES WHICH BEST DIFFERENTIATE 304X0 5- AND 7-SKILL LEVEL PERSONNEL
(PERCENT MEMBERS USING)

| PRINCIPLES | | | DAFSC 30450 (N=182) | DAFSC 30470 (N=123) | DIFFERENCE |
|------------|-------|---|---------------------------|---------------------------|------------|
| H469 | H2-3 | DO YOU CLEAN POWER SUPPLIES? | 78 | 52 | +26 |
| E283 | E3-7 | DO YOU REMOVE OR REPLACE RELAYS? | 73 | 49 | +24 |
| E264 | E2-2 | DO YOU SOLDER CONNECTIONS? | 84 | 60 | +24 |
| E265 | E2-3 | DO YOU DESOLDER CONNECTIONS? | 84 | 60 | +24 |
| H470 | H2-4 | DO YOU ALIGN OR ADJUST POWER SUPPLIES? | 82 | 59 | +23 |
| H468 | H2-2 | DO YOU INSPECT POWER SUPPLIES? | 82 | 59 | +23 |
| E267 | E2-5 | DO YOU INSPECT SOLDERED CONNECTIONS? | 83 | 60 | +23 |
| E271 | E2-9 | DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS? | 81 | 59 | +22 |
| E272 | E2-10 | DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS? | 80 | 58 | +22 |
| E269 | E2-7 | DO YOU MAKE HARDWIRE CONNECTIONS? | 80 | 58 | +22 |
| C128 | C2-3 | DO YOU CLEAN TRANSFORMERS? | 63 | 41 | +22 |
| E268 | E2-6 | DO YOU CLEAN OR TIN CONNECTIONS? | 82 | 60 | +22 |
| H474 | H2-8 | DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS? | 70 | 49 | +22 |
| H473 | H2-7 | DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | 78 | 57 | +21 |
| E263 | E2-1 | IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONICS CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? | 82 | 61 | +21 |
| F327 | F3-4 | DO YOU TROUBLESHOOT ELECTRONICS CIRCUITS USING OSCILLOSCOPES? | 80 | 59 | +21 |
| H472 | H2-6 | DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS? | 70 | 50 | +20 |
| E270 | E2-8 | DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS? | 79 | 59 | +20 |

TABLE 5

**PRINCIPLES WHICH BEST DIFFERENTIATE 304X1 5- AND 7-SKILL LEVEL PERSONNEL
(PERCENT MEMBERS USING)**

| PRINCIPLES | | | DAFSC 30451 (N=199) | DAFSC 30471 (N=122) | DIFFERENCE |
|------------|-------|--|---------------------------|---------------------------|------------|
| D242 | D3-10 | DO YOU WORK WITH BAND-REJECT FILTERS? | 73 | 47 | +27 |
| E275 | E2-13 | DO YOU PERFORM CRIMPING IN LIEU OF SOLDERING? | 68 | 43 | +25 |
| F340 | F3-17 | DO YOU USE OSCILLOSCOPES TO OBSERVE PHASE RELATIONSHIPS? | 79 | 55 | +24 |
| B91 | B3-17 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC (ALTERNATING CURRENT) INDUCTOR CIRCUITS? | 54 | 30 | +24 |
| A39 | A3-15 | DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE? | 40 | 16 | +24 |
| D241 | D3-9 | DO YOU WORK WITH BANDPASS FILTERS? | 87 | 64 | +23 |
| D245 | D3-13 | DO YOU WORK WITH T-SECTION FILTER CONFIGURATIONS? | 72 | 49 | +23 |
| A33 | A3-9 | DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY SIDE TAP? | 79 | 57 | +22 |
| D240 | D3-8 | DO YOU WORK WITH HIGH PASS FILTERS? | 82 | 61 | +22 |
| E263 | E2-1 | IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONICS CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? | 82 | 61 | +22 |
| D239 | D3-7 | DO YOU WORK WITH LOW PASS FILTERS? | 84 | 62 | +22 |
| G407 | G3-1 | DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB? | 74 | 52 | +21 |
| E269 | E2-7 | DO YOU MAKE HARDWIRE CONNECTIONS? | 79 | 58 | +21 |
| G349 | G1-8 | DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONICS COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE? | 80 | 59 | +21 |
| G348 | G1-7 | DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES? | 71 | 50 | +21 |
| D233 | D3-1 | DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB? | 84 | 63 | +21 |
| H497 | H2-31 | DO YOU WORK WITH SOLID-STATE POWER SUPPLY REGULATOR CIRCUITS? | 84 | 63 | +21 |

TABLE 6

PRINCIPLES WHICH BEST DIFFERENTIATE 305X4 5- AND 7-SKILL LEVEL PERSONNEL
(PERCENT MEMBERS USING)

| PRINCIPLES | | | DAFSC 30554 (N=156) | DAFSC 30574 (N=136) | DIFFERENCE |
|------------|-------|--|---------------------------|---------------------------|------------|
| H469 | H2-3 | DO YOU CLEAN POWER SUPPLIES? | 76 | 46 | +30 |
| Q1149 | Q2-22 | DO YOU CLEAN STORAGE DEVICES? | 72 | 44 | +28 |
| E268 | E2-6 | DO YOU CLEAN OR TIN CONNECTIONS? | 78 | 51 | +27 |
| E264 | E2-2 | DO YOU SOLDER CONNECTIONS? | 80 | 54 | +26 |
| E265 | E2-3 | DO YOU DESOLDER CONNECTIONS? | 80 | 54 | +26 |
| E267 | E2-5 | DO YOU INSPECT SOLDERED CONNECTIONS? | 80 | 54 | +26 |
| G348 | G1-7 | DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES? | 59 | 33 | +26 |
| H473 | H2-7 | DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | 79 | 54 | +25 |
| G356 | G1-15 | DO YOU DETERMINE DIRECTION OF CURRENT THROUGH A DIODE? | 76 | 51 | +25 |
| I536 | I1-8 | DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS? | 69 | 43 | +25 |
| A28 | A3-4 | DO YOU ADJUST RESISTORS? | 79 | 54 | +25 |
| A35 | A3-11 | DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | 84 | 60 | +24 |
| G383 | G2-1 | DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB? | 80 | 56 | +24 |
| I535 | I1-7 | DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS? | 65 | 41 | +24 |
| A25 | A3-1 | DO YOU WORK WITH RESISTORS OR RESISTIVE CIRCUITS IN YOUR PRESENT JOB? | 79 | 55 | +24 |
| C97 | C1-1 | DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB? | 79 | 55 | +24 |
| B71 | B2-4 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM WAVELENGTH IN YOUR PRESENT JOB? | 59 | 35 | +24 |
| H470 | H2-4 | DO YOU ALIGN OR ADJUST POWER SUPPLIES? | 79 | 56 | +24 |
| A29 | A3-5 | DO YOU MEASURE RESISTORS | 80 | 57 | +24 |

TABLE 7

PRINCIPLES WHICH BEST DIFFERENTIATE 328X2 5- AND 7-SKILL LEVEL PERSONNEL
(PERCENT MEMBERS USING)

| PRINCIPLES | | | DAFSC 32852 (N=63) | DAFSC 32872 (N=43) | DIFFERENCE |
|------------|-------|--|--------------------------|--------------------------|------------|
| P1048 | P3-5 | DO YOU USE OR REFER TO RADIO FREQUENCY (RF) LOSSES IN EXTERNAL CIRCUITRY FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 49 | 9 | +40 |
| B62 | B1-3 | DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE CURRENT? | 70 | 35 | +35 |
| P1065 | P3-22 | DO YOU REMOVE OR REPLACE COMPLETE KLYSTRONS OR TWTs | 60 | 26 | +35 |
| P1011 | P2-12 | DO YOU REMOVE OR INSTALL OTHER BENDS? | 48 | 14 | +34 |
| F333 | F3-10 | DO YOU USE OSCILLOSCOPES TO MEASURE ALTERNATING CURRENT (AC) VOLTAGES | 59 | 26 | +33 |
| P1008 | P2-9 | DO YOU REMOVE OR INSTALL DUMMY LOADS | 56 | 23 | +32 |
| P1002 | P2-3 | DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS? | 51 | 19 | +32 |
| P1004 | P2-5 | DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS | 57 | 26 | +32 |
| P1007 | P2-8 | DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS? | 57 | 26 | +32 |
| P1014 | P2-15 | DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS? | 52 | 21 | +31 |
| P1005 | P2-6 | DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS? | 59 | 26 | +30 |
| H482 | H2-16 | DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS | 56 | 26 | +30 |
| 0932 | 03-9 | DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS? | 54 | 28 | +29 |
| D189 | D1-10 | DO YOU USE OR REFER TO AVERAGE POWER (P SUB AVE) WHEN WORKING WITH RCL CIRCUITS? | 48 | 19 | +29 |
| P981 | P1-13 | DO YOU TROUBLESHOOT TRANSMISSION LINES? | 48 | 19 | +29 |
| P1006 | P2-7 | DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES? | 48 | 19 | +29 |
| B63 | B1-4 | DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE POWER? | 73 | 44 | +29 |
| P1010 | P2-11 | DO YOU REMOVE OR INSTALL H BENDS? | 38 | 9 | +29 |

DISCUSSION

This review of Electronics Principles for AFSs trained at Keesler AFB showed personnel in the 205X0 and 307X0 specialties do not use the electronics principles included in the inventory to the same extent as do the others. This may indicate the need for a different type of training for personnel in these specialties. An analysis of electronics principles used by each AFSC will be addressed in AFSC-specific occupational survey reports as they are accomplished.

The data provided in this report should be useful in reviewing both the common electronics principles training requirements for specialties trained at Keesler, as well as which AFSCs need additional electronics principles training. If additional computer products would be useful, please contact USAFOMC/OMYX, Randolph AFB, Texas 78150.

APPENDIX A

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

KEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PEPOID DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATRC 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/OMYO, AUTOVON 487-5811.

VECTOR TYPE CODES:

- (T) = 3 TIME SPENT BY ALL MEMBERS
- (M) = 4 MEMBERS PERFORMING
- (F) = TASK FACTOR
- (D) = DICHOTOMOUS SET
- (B) = 8 TIME SPENT BY MEMBERS PERFORMING
- (-) = PROGRAM GENERATED VECTOR

| NO | TYPE | VECTOR | MEAN | SD | DESCRIPTION | FACTOR # |
|----|------|--------|------|----|--------------------|----------|
| 1 | M | 304 50 | 182 | | DAFSC 30450 AIRMEN | 31 |
| 2 | M | 304 51 | 199 | | DAFSC 30451 AIRMEN | 33 |
| 3 | M | 304 54 | 184 | | DAFSC 30454 AIRMEN | 35 |
| 4 | M | 305 54 | 156 | | DAFSC 30554 AIRMEN | 37 |
| 5 | M | 328 50 | 190 | | DAFSC 32850 AIRMEN | 41 |
| 6 | M | 328 51 | 196 | | DAFSC 32851 AIRMEN | 43 |
| 7 | M | 328 52 | 63 | | DAFSC 32852 AIRMEN | 45 |
| 8 | M | 328 53 | 199 | | DAFSC 32853 AIRMEN | 47 |
| 9 | M | 328 54 | 168 | | DAFSC 32854 AIRMEN | 49 |
| 10 | M | 328 55 | 81 | | DAFSC 32855 AIRMEN | 51 |

KESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PEPOID DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATCR 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/OMYO, AUTOVON 487-5811.

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 304 (M) | 304 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 50 | 54 | 54 | 50 | 51 | 52 | 53 | 54 | 55 | | | |

A MATHEMATICS (A1), DIRECT CURRENT (A2), RESISTANCE AND RESISTIVE CIRCUITS (A3)

| | | | | | | | | | | | | | |
|------|--|------|------|------|------|------|------|-------|------|------|-------|--|--|
| A 1 | AI-1 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METER OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10? | 81.9 | 88.9 | 73.9 | 83.3 | 71.1 | 88.8 | 73.0 | 88.9 | 76.2 | 85.2 | | |
| A 2 | AI-2 DO YOU USE PUBLICATIONS, SUCH AS TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB? | 51.6 | 63.8 | 51.1 | 48.7 | 47.9 | 59.7 | 60.3 | 55.3 | 34.5 | 53.1 | | |
| A 3 | AI-3 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS? | 50.5 | 75.9 | 57.1 | 35.9 | 36.8 | 48.0 | 60.3 | 43.7 | 38.1 | 45.7 | | |
| A 4 | AI-4 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY? | 23.1 | 36.7 | 24.5 | 7.7 | 7.9 | 14.3 | 9.5 | 8.5 | 14.9 | 11.1 | | |
| A 5 | AI-5 DO YOU SOLVE FOR UNKNOWN QUANTITIES SUCH AS SOLVING FOR X IN THE EQUATION $x + 6 = 8$? | 39.6 | 59.3 | 41.8 | 22.4 | 20.0 | 35.7 | 31.7 | 27.1 | 23.8 | 22.2 | | |
| A 6 | AI-6 DO YOU USE LOGARITHM TABLES? | 34.6 | 24.6 | 16.3 | 2.6 | 5.8 | 14.8 | 33.2 | 12.1 | 11.3 | 9.9 | | |
| A 7 | AI-7 DO YOU SOLVE QUADRATIC EQUATIONS SUCH AS SOLVING FOR X IN THE EQUATION $x^2 + 4x + 4 = 0$? | 12.6 | 25.1 | 8.7 | 3.8 | 5.3 | 8.7 | 4.8 | 6.0 | 8.9 | 6.2 | | |
| A 8 | AI-8 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES? | 13.7 | 55.8 | 11.4 | 7.7 | 3.2 | 11.2 | 12.7 | 9.0 | 30.4 | 4.9 | | |
| A 9 | AI-9 DO YOU USE TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT? | 13.7 | 37.7 | 13.0 | 8.3 | 6.3 | 19.4 | 57.1 | 11.6 | 47.0 | 4.9 | | |
| A 10 | AI-10 DO YOU SOLVE OR USE PROPORTIONS? AN EXAMPLE OF A PROPORTION IS 2 : 5 :: 4 : 10. ANOTHER WAY TO EXPRESS THE SAME RELATIONSHIP IS 2/5 = 4/10. SOMETIMES, ONE OF THE QUANTITIES IS UNKNOWN AND HAS TO BE SOLVED FOR, SUCH AS 2 : X :: 4 : 10 (X IN THIS CASE IS UNKNOWN). | 34.1 | 66.3 | 42.9 | 21.8 | 28.4 | 36.2 | 28.6 | 27.6 | 17.9 | 27.2 | | |
| A 11 | AI-11 DO YOU USE MATHEMATICAL EXPONENTS OR SUBSCRIPTS IN OTHER THAN POWERS OF 10? | 35.7 | 50.3 | 29.3 | 47.4 | 24.2 | 38.8 | 79.4 | 39.2 | 32.1 | 23.5 | | |
| A 12 | AZ-1 DO YOU USE (PERHAPS IN TECHNICAL ORDERS) THE TERM VOLTAGE OR VOLT (V)? | 95.1 | 96.5 | 93.5 | 96.8 | 97.4 | 96.9 | 100.0 | 98.5 | 97.0 | 100.0 | | |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|-------|------|------|-------|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| A 13 | A2-2 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTROMOTIVE FORCE (EMF)? | 37.4 | 41.7 | 50.5 | 26.3 | 29.5 | 44.4 | 34.9 | 31.2 | 25.0 | 51.9 | | | | |
| A 14 | A2-3 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM OHM? | 93.4 | 96.5 | 90.0 | 92.3 | 95.8 | 94.4 | 98.4 | 94.5 | 96.4 | 98.0 | | | | |
| A 15 | A2-4 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ION? | 17.0 | 24.1 | 22.3 | 6.4 | 13.7 | 23.0 | 93.7 | 10.6 | 9.5 | 17.3 | | | | |
| A 16 | A2-5 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM DYNE? | 4.9 | 10.1 | 11.4 | 5.0 | 4.7 | 12.2 | 7.9 | 10.1 | 7.7 | 11.1 | | | | |
| A 17 | A2-6 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM AMPERE? | 92.3 | 93.0 | 89.7 | 91.7 | 87.4 | 92.9 | 100.0 | 90.5 | 87.5 | 93.8 | | | | |
| A 18 | A2-7 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM NEUTRON? | 18.1 | 26.6 | 23.9 | 11.5 | 15.3 | 17.3 | 17.5 | 15.6 | 6.0 | 22.2 | | | | |
| A 19 | A2-8 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM COULOMB? | 18.1 | 27.6 | 22.3 | 10.9 | 7.4 | 18.9 | 3.2 | 13.1 | 7.7 | 13.6 | | | | |
| A 20 | A2-9 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM PROTON? | 22.5 | 29.1 | 25.5 | 15.4 | 16.3 | 19.4 | 15.9 | 16.6 | 8.3 | 23.5 | | | | |
| A 21 | A2-10 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTRON? | 56.0 | 71.4 | 66.3 | 41.0 | 46.3 | 65.0 | 75.0 | 55.8 | 44.0 | 59.3 | | | | |
| A 22 | A2-11 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM CURRENT? | 92.9 | 96.0 | 94.0 | 91.7 | 91.1 | 94.9 | 98.4 | 94.5 | 90.5 | 96.3 | | | | |
| A 23 | A2-12 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM VOLTAGE? | 87.4 | 96.0 | 89.7 | 74.4 | 93.7 | 92.3 | 81.0 | 85.4 | 67.3 | 100.0 | | | | |
| A 24 | A2-13 DO YOU DETERMINE IF TWO OR MORE BATTERIES MUST BE CONNECTED IN SERIES OR PARALLEL TO ACHIEVE A SPECIFIC VOLTAGE AND/OR CURRENT? | 55.5 | 63.3 | 52.7 | 27.6 | 35.0 | 29.6 | 7.9 | 28.1 | 24.4 | 32.1 | | | | |
| A 25 | A3-1 DO YOU WORK WITH RESISTORS OR RESISTIVE CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM B1-1; IF YES, CONTINUE. | 75.8 | 77.4 | 70.7 | 78.8 | 72.6 | 77.0 | 65.1 | 71.9 | 66.1 | 71.6 | | | | |
| A 26 | A3-2 DO YOU INSPECT RESISTORS? | 84.6 | 87.4 | 81.5 | 80.8 | 74.2 | 80.1 | 65.1 | 72.4 | 64.3 | 85.2 | | | | |
| A 27 | A3-3 DO YOU CLEAN RESISTORS? | 73.6 | 71.9 | 65.8 | 58.3 | 61.1 | 68.4 | 30.2 | 52.3 | 49.4 | 67.9 | | | | |
| A 28 | A3-4 DO YOU ADJUST RESISTORS? | 86.8 | 85.9 | 77.2 | 79.5 | 74.7 | 83.2 | 60.3 | 80.4 | 67.9 | 87.7 | | | | |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| O TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| A 29 | A3-5 DO YOU MEASURE PLISTORS? | 85.2 | 86.9 | 79.3 | 80.1 | 77.4 | 82.1 | 50.8 | 68.3 | 65.5 | 84.0 |
| A 30 | A3-6 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASK YOU PERFORM? | 22.0 | 37.2 | 28.8 | 16.7 | 25.8 | 31.6 | 22.2 | 22.6 | 19.6 | 21.0 |
| A 31 | A3-7 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY CAREON? | 55.5 | 65.8 | 67.4 | 53.2 | 54.2 | 58.7 | 14.3 | 41.7 | 40.5 | 60.5 |
| A 32 | A3-8 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED WIRE? | 65.9 | 77.9 | 72.8 | 62.2 | 64.2 | 67.3 | 33.3 | 57.3 | 48.2 | 77.8 |
| A 33 | A3-9 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY SLIDE TAP? | 52.7 | 79.4 | 54.3 | 46.2 | 47.9 | 45.4 | 11.1 | 39.2 | 29.9 | 72.8 |
| A 34 | A3-10 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY RHEOSTAT? | 62.7 | 80.4 | 69.6 | 64.7 | 68.9 | 73.0 | 34.9 | 65.8 | 45.8 | 79.0 |
| A 35 | A3-11 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | 82.4 | 92.0 | 81.0 | 84.0 | 76.3 | 83.2 | 58.7 | 81.4 | 69.0 | 88.9 |
| A 36 | A3-12 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED FILM? | 33.0 | 43.7 | 33.7 | 25.6 | 22.1 | 32.1 | 4.8 | 21.6 | 19.6 | 33.3 |
| A 37 | A3-13 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE? | 44.1 | 88.9 | 79.9 | 73.7 | 72.1 | 80.1 | 22.2 | 69.8 | 57.1 | 82.7 |
| A 38 | A3-14 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE? | 75.3 | 85.4 | 74.5 | 66.0 | 60.0 | 71.9 | 19.0 | 56.3 | 49.4 | 77.8 |
| A 39 | A3-15 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE? | 31.9 | 40.2 | 29.9 | 28.2 | 27.4 | 26.5 | 7.9 | 20.6 | 19.6 | 40.7 |
| A 40 | A3-16 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES? | 87.4 | 91.0 | 82.1 | 85.9 | 80.5 | 86.2 | 73.0 | 83.4 | 69.6 | 91.4 |
| A 41 | A3-17 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 67.6 | 80.4 | 71.2 | 53.8 | 58.9 | 62.8 | 11.3 | 50.8 | 47.6 | 60.5 |
| A 42 | A3-18 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 65.4 | 78.9 | 67.4 | 50.0 | 51.1 | 60.2 | 34.9 | 48.7 | 39.3 | 51.9 |
| A 43 | A3-19 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 62.1 | 79.9 | 67.9 | 55.1 | 53.2 | 61.2 | 36.5 | 55.3 | 45.2 | 61.7 |

| D TSK | TITLES | 204 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A 44 | A3-20 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 55.5 | 68.3 | 51.1 | 32.7 | 39.5 | 45.4 | 36.5 | 39.7 | 26.2 | 50.6 | 32.8 | 32.8 | 32.8 | 32.8 |
| A 45 | A3-21 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 67.0 | 79.4 | 69.6 | 51.3 | 57.9 | 62.2 | 34.9 | 49.2 | 47.6 | 61.7 | 52 | 53 | 54 | 55 |
| A 46 | A3-22 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 64.8 | 77.4 | 66.3 | 48.7 | 50.5 | 59.7 | 36.5 | 46.2 | 39.1 | 54.3 | (M) | (M) | (M) | (M) |
| A 47 | A3-23 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 65.9 | 77.9 | 65.2 | 53.2 | 50.5 | 58.7 | 33.3 | 50.8 | 42.9 | 58.0 | | | | |
| A 48 | A3-24 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 56.6 | 70.4 | 58.2 | 39.1 | 43.2 | 49.0 | 27.0 | 40.7 | 31.5 | 45.7 | | | | |
| A 49 | A3-25 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 56.0 | 67.3 | 49.5 | 28.2 | 36.3 | 44.9 | 33.3 | 34.2 | 23.8 | 46.9 | | | | |
| A 50 | A3-26 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 66.5 | 81.4 | 70.7 | 49.4 | 53.7 | 60.7 | 28.6 | 48.2 | 46.4 | 58.0 | | | | |
| A 51 | A3-27 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 64.3 | 78.9 | 66.3 | 46.8 | 46.8 | 59.2 | 30.2 | 45.2 | 36.3 | 50.6 | | | | |
| A 52 | A3-28 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 64.3 | 77.4 | 65.8 | 51.9 | 47.9 | 55.6 | 27.0 | 46.7 | 42.3 | 50.0 | | | | |
| A 53 | A3-29 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 55.5 | 67.8 | 56.0 | 37.8 | 42.6 | 47.4 | 23.8 | 40.7 | 33.3 | 45.7 | | | | |
| A 54 | A3-30 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 54.4 | 67.8 | 48.9 | 28.2 | 35.8 | 45.4 | 27.0 | 35.2 | 23.2 | 45.7 | | | | |
| A 55 | A3-31 DO YOU CALCULATE TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 56.6 | 76.4 | 62.0 | 44.2 | 46.3 | 55.1 | 23.8 | 42.2 | 39.3 | 55.6 | | | | |
| A 56 | A3-32 DO YOU CALCULATE TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 54.4 | 73.9 | 56.5 | 41.0 | 37.9 | 53.6 | 27.0 | 41.2 | 35.1 | 44.4 | | | | |
| A 57 | A3-33 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 54.0 | 71.4 | 57.6 | 44.2 | 39.5 | 50.5 | 22.2 | 43.2 | 35.1 | 53.1 | | | | |

| D | TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|-----|--|---------|---------|---------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| A | 58 | A3-34 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 46.6 | 62.8 | 49.5 | 35.3 | 34.2 | 43.4 | 20.6 | 36.7 | 29.8 | 39.5 | | | | | |
| A | 59 | A3-35 DO YOU CALCULATE POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 46.7 | 61.3 | 43.5 | 27.6 | 30.0 | 41.3 | 27.0 | 30.7 | 20.2 | 38.3 | | | | | |
| ----- | | | B | | | METERS/MULTIMETERS (B1), ALTERNATING CURRENT (AC) (B2), INDUCTORS AND INDUCTIVE REACTANCE (B3) | | | ----- | | | | | | | | |
| B | 60 | B1-1 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE RESISTANCE? | 87.9 | 92.0 | 85.9 | 89.1 | 96.3 | 94.4 | 45.7 | 92.0 | 90.5 | 95.1 | | | | | |
| B | 61 | B1-2 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE VOLTAGE? | 92.9 | 92.5 | 86.4 | 92.3 | 96.8 | 95.9 | 88.9 | 94.5 | 93.5 | 98.8 | | | | | |
| B | 62 | B1-3 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE CURRENT? | 81.9 | 86.9 | 73.9 | 71.8 | 72.1 | 86.2 | 69.8 | 76.9 | 67.9 | 84.0 | | | | | |
| B | 63 | B1-4 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE POWER? | 76.9 | 83.4 | 78.3 | 82.3 | 88.9 | 88.3 | 73.0 | 80.4 | 52.4 | 95.1 | | | | | |
| B | 64 | B1-5 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE FREQUENCY? | 80.2 | 88.4 | 83.2 | 77.6 | 74.7 | 85.7 | 71.4 | 85.4 | 69.6 | 95.1 | | | | | |
| B | 65 | B1-6 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE TEMPERATURE? | 21.4 | 22.1 | 20.7 | 42.9 | 10.0 | 15.8 | 39.7 | 41.2 | 19.6 | 51.9 | | | | | |
| B | 66 | B1-7 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE PRESSURE? | 29.1 | 7.5 | 19.0 | 24.4 | 41.1 | 62.8 | 50.8 | 44.2 | 19.0 | 54.3 | | | | | |
| B | 67 | B1-8 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE LIGHT LEVELS? | 21.4 | 2.5 | 3.3 | 14.1 | 4.2 | 5.1 | 4.8 | 5.0 | 2.4 | 4.9 | | | | | |
| B | 68 | B2-1 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM EFFECTIVE VOLTAGE (RMS) IN YOUR PRESENT JOB? | 75.8 | 87.4 | 81.5 | 56.4 | 74.7 | 75.5 | 42.9 | 68.8 | 72.0 | 90.1 | | | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| 0 69 | 02-2 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PEAK TO PEAK VOLTAGE IN YOUR PRESENT JOB? | 83.5 | 93.0 | 84.2 | 79.5 | 72.6 | 82.7 | 74.6 | 82.4 | 73.2 | 93.0 | | | | |
| 0 70 | 02-3 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM AVERAGE VOLTAGE (DC) IN YOUR PRESENT JOB? | 73.1 | 85.9 | 75.0 | 66.7 | 68.9 | 84.2 | 57.1 | 73.4 | 71.4 | 74.1 | | | | |
| 0 71 | 02-4 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM WAVE LENGTH IN YOUR PRESENT JOB? | 60.4 | 83.4 | 57.6 | 59.0 | 60.0 | 68.9 | 69.8 | 57.3 | 53.0 | 70.4 | | | | |
| 0 72 | 02-5 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM FREQUENCY IN YOUR PRESENT JOB? | 85.2 | 92.5 | 89.7 | 85.9 | 82.6 | 90.3 | 88.9 | 93.5 | 81.0 | 96.3 | | | | |
| 0 73 | 02-6 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM INSTANTANEOUS VALUE IN YOUR PRESENT JOB? | 28.0 | 35.7 | 24.5 | 13.5 | 16.3 | 33.7 | 23.8 | 27.1 | 16.1 | 17.3 | | | | |
| 0 74 | 02-7 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PHASE RELATIONSHIPS IN YOUR PRESENT JOB? | 59.3 | 89.9 | 61.4 | 69.9 | 60.0 | 81.6 | 81.0 | 67.3 | 62.5 | 81.5 | | | | |
| 0 75 | 03-1 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKER COILS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C1-1; IF YES, CONTINUE. | 53.8 | 71.4 | 66.3 | 44.9 | 60.0 | 66.3 | 15.9 | 41.7 | 30.1 | 65.4 | | | | |
| 0 76 | 03-2 DO YOU INSPECT INDUCTORS? | 57.7 | 74.4 | 71.7 | 44.2 | 59.5 | 67.3 | 9.5 | 44.7 | 33.9 | 67.9 | | | | |
| 0 77 | 03-3 DO YOU CLEAN INDUCTORS? | 42.9 | 63.3 | 64.7 | 31.4 | 54.7 | 58.7 | 6.3 | 31.7 | 23.2 | 49.4 | | | | |
| 0 78 | 03-4 DO YOU ADJUST INDUCTORS? | 47.8 | 70.9 | 67.4 | 28.2 | 61.1 | 68.4 | 7.9 | 33.7 | 25.0 | 66.7 | | | | |
| 0 79 | 03-5 DO YOU MEASURE INDUCTORS? | 44.0 | 52.8 | 50.5 | 32.7 | 45.3 | 50.0 | 9.5 | 30.7 | 23.8 | 50.6 | | | | |
| 0 80 | 03-6 DO YOU USE OR REFER TO INDUCTANCE? | 59.3 | 76.9 | 70.1 | 38.5 | 57.9 | 66.3 | 11.1 | 42.7 | 29.8 | 67.9 | | | | |
| 0 81 | 03-7 DO YOU USE OR REFER TO HENRIES? | 44.5 | 61.3 | 60.9 | 27.6 | 37.9 | 48.0 | 7.9 | 29.6 | 18.5 | 45.7 | | | | |
| 0 82 | 03-8 DO YOU USE OR REFER TO INDUCTIVE REACTANCE? | 47.3 | 60.3 | 53.3 | 26.3 | 37.4 | 48.5 | 12.7 | 28.6 | 22.0 | 48.1 | | | | |
| 0 83 | 03-9 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS? | 2.2 | 12.1 | 14.7 | 3.2 | 5.3 | 9.7 | .0 | 8.5 | 5.4 | 4.9 | | | | |
| 0 84 | 03-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS? | 6.0 | 13.6 | 16.8 | 9.0 | 5.8 | 7.7 | 1.6 | 7.5 | 6.0 | 3.7 | | | | |
| 0 85 | 03-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS? | 2.8 | 10.1 | 13.6 | 4.5 | 5.8 | 8.7 | .0 | 5.0 | 4.8 | 7.4 | | | | |
| 0 86 | 03-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL? | 17.0 | 25.6 | 16.8 | 9.6 | 15.8 | 17.9 | 7.9 | 9.0 | 9.5 | 12.3 | | | | |

| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| C 100 | CI-4 DO YOU ADJUST CAPACITORS? | 72.0 | 82.4 | 75.0 | 40.4 | 65.8 | 69.4 | 12.7 | 39.7 | 37.5 | 70.4 | 328 |
| C 101 | CI-5 DO YOU TEST CAPACITORS? | 72.5 | 76.4 | 69.0 | 63.5 | 59.5 | 70.9 | 12.7 | 48.2 | 52.4 | 69.1 | 328 |
| C 102 | CI-6 DO YOU DISCHARGE CAPACITORS? | 72.6 | 81.4 | 72.8 | 64.1 | 51.6 | 74.0 | 25.4 | 49.2 | 44.0 | 56.8 | 55 |
| C 103 | CI-7 DO YOU MEASURE CAPACITORS? | 52.7 | 60.8 | 56.0 | 51.9 | 41.1 | 58.7 | 12.7 | 42.2 | 39.9 | 54.3 | (M) |
| C 104 | CI-8 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE? | 15.9 | 24.6 | 20.7 | 9.0 | 16.8 | 15.3 | 9.5 | 21.1 | 10.1 | 13.6 | |
| C 105 | CI-9 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC? | 5.5 | 11.1 | 4.9 | 1.9 | 3.2 | 7.1 | 6.3 | 4.5 | 1.8 | 4.9 | |
| C 106 | CI-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS? | 74.7 | 86.9 | 78.8 | 69.9 | 61.6 | 69.9 | 23.6 | 58.3 | 46.4 | 70.4 | |
| C 107 | CI-11 DO YOU USE OR REFER TO CAPACITANCE? | 77.5 | 85.9 | 77.2 | 67.9 | 65.8 | 74.0 | 28.6 | 58.3 | 53.6 | 77.8 | |
| C 108 | CI-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT? | 26.9 | 28.1 | 26.1 | 12.2 | 17.9 | 24.5 | 11.1 | 16.1 | 10.1 | 14.8 | |
| C 109 | CI-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS? | 61.5 | 72.4 | 66.3 | 46.2 | 42.6 | 49.5 | 15.9 | 37.2 | 31.5 | 54.3 | |
| C 110 | CI-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE? | 46.7 | 59.3 | 45.7 | 31.4 | 34.7 | 42.3 | 15.9 | 30.7 | 19.6 | 44.4 | |
| C 111 | CI-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES? | 28.0 | 43.2 | 33.2 | 24.4 | 29.5 | 34.7 | 4.8 | 19.6 | 13.7 | 25.9 | |
| C 112 | CI-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS? | 82.4 | 87.9 | 80.4 | 80.1 | 67.4 | 78.6 | 41.3 | 67.3 | 65.5 | 85.2 | |
| C 113 | CI-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS? | 80.2 | 85.9 | 79.9 | 69.2 | 69.5 | 78.6 | 44.4 | 66.3 | 63.1 | 84.0 | |
| C 114 | CI-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC? | 79.1 | 84.4 | 81.0 | 66.0 | 69.5 | 77.6 | 39.7 | 63.8 | 64.9 | 82.7 | |
| C 115 | CI-19 DO YOU CALCULATE CAPACITANCE IN ELECTRICAL/ELECTRONIC CIRCUITS? | 19.8 | 37.7 | 23.4 | 16.0 | 17.9 | 25.5 | 9.5 | 17.1 | 11.9 | 18.5 | |
| C 116 | CI-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT? | 14.8 | 24.6 | 23.9 | 9.6 | 14.2 | 18.9 | 4.8 | 11.6 | 6.0 | 13.6 | |
| C 117 | CI-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS? | 13.7 | 23.6 | 21.7 | 8.3 | 13.7 | 15.8 | 4.8 | 8.0 | 5.4 | 17.3 | |
| C 118 | CI-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO | 45.1 | 62.3 | 49.5 | 28.8 | 32.6 | 44.4 | 12.7 | 33.2 | 32.1 | 45.7 | |

| D | TSM | TITLES | 304 | 304 (M) | 304 (H) | 305 | 328 | 328 (M) | 328 (H) | 328 | 328 (M) | 328 (H) | 328 | 328 (M) | 328 (H) | 328 | 328 (M) | 328 (H) | | | | |
|-------|-------|---|------|------------|------------|------|------|------------|------------|------|------------|------------|------|------------|------------|------|------------|------------|------|------|------|------|
| C 119 | C1-23 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS? | 30.8 | 49.7 | 39.7 | 19.2 | 29.5 | 37.2 | 11.1 | 22.1 | 23.8 | 29.6 | 30.8 | 49.7 | 39.7 | 19.2 | 29.5 | 37.2 | 11.1 | 22.1 | 23.8 | 29.6 |
| C 121 | C1-25 | DO YOU CALCULATE CAPACITIVE REACTANCE? | 19.2 | 32.2 | 22.8 | 12.8 | 13.2 | 19.4 | 6.3 | 15.6 | 7.1 | 14.8 | 19.2 | 32.2 | 22.8 | 12.8 | 13.2 | 19.4 | 6.3 | 15.6 | 7.1 | 14.8 |
| C 122 | C1-26 | DO YOU WORK WITH VARIABLE CAPACITORS? | 75.8 | 84.9 | 79.3 | 44.2 | 69.5 | 49.9 | 27.0 | 46.7 | 39.3 | 79.0 | 75.8 | 84.9 | 79.3 | 44.2 | 69.5 | 49.9 | 27.0 | 46.7 | 39.3 | 79.0 |
| C 123 | C1-27 | DO YOU WORK WITH TRIMMER CAPACITORS? | 47.8 | 72.9 | 69.0 | 35.9 | 62.6 | 53.6 | 7.9 | 33.7 | 17.3 | 65.4 | 47.8 | 72.9 | 69.0 | 35.9 | 62.6 | 53.6 | 7.9 | 33.7 | 17.3 | 65.4 |
| C 124 | C1-28 | DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS? | 77.5 | 85.4 | 79.9 | 76.9 | 65.8 | 78.6 | 36.5 | 62.8 | 56.5 | 81.5 | 77.5 | 85.4 | 79.9 | 76.9 | 65.8 | 78.6 | 36.5 | 62.8 | 56.5 | 81.5 |
| C 125 | C1-29 | DO YOU WORK WITH OTHER FIXED CAPACITORS? | 74.7 | 82.9 | 76.6 | 69.2 | 62.6 | 74.5 | 30.2 | 59.3 | 54.2 | 79.0 | 74.7 | 82.9 | 76.6 | 69.2 | 62.6 | 74.5 | 30.2 | 59.3 | 54.2 | 79.0 |
| C 126 | C2-1 | DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C3-1; IF YES, CONTINUE. | 75.3 | 83.9 | 74.5 | 59.0 | 63.2 | 73.0 | 68.3 | 52.3 | 51.8 | 67.9 | 75.3 | 83.9 | 74.5 | 59.0 | 63.2 | 73.0 | 68.3 | 52.3 | 51.8 | 67.9 |
| C 127 | C2-2 | DO YOU INSPECT TRANSFORMERS? | 71.4 | 80.4 | 75.5 | 58.3 | 62.6 | 74.0 | 49.2 | 49.2 | 51.8 | 64.2 | 71.4 | 80.4 | 75.5 | 58.3 | 62.6 | 74.0 | 49.2 | 49.2 | 51.8 | 64.2 |
| C 128 | C2-3 | DO YOU CLEAN TRANSFORMERS? | 63.2 | 71.4 | 63.6 | 46.8 | 49.5 | 64.8 | 20.6 | 38.2 | 32.1 | 51.9 | 63.2 | 71.4 | 63.6 | 46.8 | 49.5 | 64.8 | 20.6 | 38.2 | 32.1 | 51.9 |
| C 129 | C2-4 | DO YOU ADJUST TRANSFORMERS? | 43.4 | 56.8 | 53.8 | 21.2 | 47.4 | 55.6 | 9.5 | 28.1 | 15.1 | 54.3 | 43.4 | 56.8 | 53.8 | 21.2 | 47.4 | 55.6 | 9.5 | 28.1 | 15.1 | 54.3 |
| C 130 | C2-5 | DO YOU TROUBLESHOOT TRANSFORMERS? | 64.3 | 76.4 | 67.4 | 42.3 | 56.8 | 65.8 | 50.8 | 44.7 | 42.9 | 65.4 | 64.3 | 76.4 | 67.4 | 42.3 | 56.8 | 65.8 | 50.8 | 44.7 | 42.9 | 65.4 |
| C 131 | C2-6 | DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)? | 6.6 | 10.6 | 7.1 | 3.2 | 7.9 | 5.1 | 3.2 | 4.5 | 3.0 | 6.2 | 6.6 | 10.6 | 7.1 | 3.2 | 7.9 | 5.1 | 3.2 | 4.5 | 3.0 | 6.2 |
| C 132 | C2-7 | DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M? | 5.5 | 9.0 | 7.6 | 3.2 | 7.4 | 8.2 | 4.8 | 5.5 | 2.4 | 7.4 | 5.5 | 9.0 | 7.6 | 3.2 | 7.4 | 8.2 | 4.8 | 5.5 | 2.4 | 7.4 |
| C 133 | C2-8 | DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS? | 16.5 | 24.6 | 17.9 | 7.7 | 13.7 | 15.8 | 1.6 | 14.6 | 7.7 | 12.3 | 16.5 | 24.6 | 17.9 | 7.7 | 13.7 | 15.8 | 1.6 | 14.6 | 7.7 | 12.3 |
| C 134 | C2-9 | DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS? | 19.8 | 24.1 | 18.5 | 11.5 | 15.3 | 17.3 | 7.9 | 15.1 | 7.1 | 12.3 | 19.8 | 24.1 | 18.5 | 11.5 | 15.3 | 17.3 | 7.9 | 15.1 | 7.1 | 12.3 |
| C 135 | C2-10 | DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS? | 19.8 | 27.1 | 20.7 | 7.1 | 20.5 | 17.3 | 11.1 | 13.6 | 6.5 | 16.0 | 19.8 | 27.1 | 20.7 | 7.1 | 20.5 | 17.3 | 11.1 | 13.6 | 6.5 | 16.0 |
| C 136 | C2-11 | DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS? | 11.5 | 14.6 | 10.9 | 1.9 | 7.4 | 10.2 | 4.8 | 5.5 | 4.2 | 6.2 | 11.5 | 14.6 | 10.9 | 1.9 | 7.4 | 10.2 | 4.8 | 5.5 | 4.2 | 6.2 |
| C 137 | C2-12 | DO YOU WORK WITH AUTOTRANSFORMERS? | 36.8 | 57.8 | 54.3 | 21.2 | 30.5 | 32.7 | 4.8 | 19.1 | 13.7 | 37.0 | 36.8 | 57.8 | 54.3 | 21.2 | 30.5 | 32.7 | 4.8 | 19.1 | 13.7 | 37.0 |
| C 138 | C2-13 | DO YOU WORK WITH POWER TRANSFORMERS? | 71.4 | 85.9 | 73.9 | 57.7 | 60.0 | 74.5 | 63.5 | 49.7 | 47.6 | 75.3 | 71.4 | 85.9 | 73.9 | 57.7 | 60.0 | 74.5 | 63.5 | 49.7 | 47.6 | 75.3 |
| C 139 | C2-14 | DO YOU WORK WITH AUDIO TRANSFORMERS? | 60.4 | 70.4 | 76.1 | 12.8 | 63.7 | 65.3 | 0 | 26.6 | 24.4 | 66.7 | 60.4 | 70.4 | 76.1 | 12.8 | 63.7 | 65.3 | 0 | 26.6 | 24.4 | 66.7 |
| C 140 | C2-15 | DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS? | 51.1 | 74.9 | 72.3 | 5.1 | 60.0 | 68.9 | 20.6 | 36.7 | 19.6 | 69.1 | 51.1 | 74.9 | 72.3 | 5.1 | 60.0 | 68.9 | 20.6 | 36.7 | 19.6 | 69.1 |

| D TSN | TITLES | 204 50 (M) | 304 51 (M) | 304 54 (M) | 305 54 (M) | 320 50 (M) | 320 51 (M) | 320 52 (M) | 320 53 (M) | 328 54 (M) | 328 55 (M) |
|-------|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| C 141 | C2-16 DO YOU WORK WITH SATURABLE CORE TRANSFORMERS? | 25.3 | 43.7 | 45.7 | 14.7 | 33.7 | 39.8 | 6.3 | 23.6 | 17.3 | 24.7 |
| C 142 | C2-17 DO YOU WORK WITH SENSING TRANSFORMERS? | 20.3 | 39.2 | 20.1 | 15.4 | 17.4 | 24.0 | 4.8 | 14.6 | 14.9 | 16.0 |
| C 143 | C2-18 DO YOU WORK WITH CONTROL TRANSFORMERS? | 23.6 | 48.7 | 25.5 | 17.3 | 23.2 | 48.5 | 7.9 | 21.1 | 43.5 | 23.5 |
| C 144 | C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE? | 62.6 | 75.4 | 69.0 | 48.1 | 55.3 | 70.4 | 19.0 | 43.2 | 41.7 | 63.0 |
| C 145 | C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE? | 58.8 | 70.9 | 66.8 | 46.2 | 54.2 | 67.9 | 19.0 | 38.7 | 40.5 | 58.0 |
| C 146 | C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES? | 59.3 | 68.3 | 58.7 | 46.2 | 47.9 | 64.8 | 20.6 | 38.7 | 39.7 | 56.8 |
| C 147 | C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | 25.8 | 29.6 | 22.8 | 19.2 | 23.7 | 25.5 | 4.8 | 15.6 | 13.1 | 19.8 |
| C 148 | C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | 42.3 | 50.3 | 42.9 | 27.6 | 35.8 | 39.3 | 7.9 | 30.2 | 19.0 | 39.5 |
| C 149 | C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS? | 76.9 | 86.4 | 77.7 | 59.0 | 66.3 | 76.0 | 38.1 | 54.3 | 53.0 | 71.6 |
| C 150 | C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 61.5 | 79.4 | 72.8 | 46.8 | 60.0 | 70.4 | 17.5 | 47.7 | 39.9 | 67.9 |
| C 151 | C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 65.9 | 78.4 | 71.7 | 48.1 | 63.2 | 71.4 | 19.0 | 46.7 | 42.9 | 67.9 |
| C 152 | C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 70.9 | 83.4 | 76.1 | 53.8 | 63.2 | 74.5 | 20.6 | 49.2 | 45.8 | 72.8 |
| C 153 | C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 38.5 | 51.8 | 53.8 | 17.9 | 35.8 | 42.3 | 9.5 | 28.6 | 19.0 | 46.9 |
| C 154 | C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 45.6 | 53.8 | 56.0 | 19.9 | 40.0 | 48.0 | 11.1 | 36.7 | 26.2 | 51.9 |
| C 155 | C2-30 DO YOU REFER TO VARIABLE TRANSFORMER SCHEMATIC SYMBOLS? | 56.6 | 71.4 | 63.6 | 25.6 | 54.7 | 62.8 | 6.3 | 38.2 | 33.9 | 60.5 |
| C 156 | C2-31 DO YOU REFER TO COMBINATIONS OF SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 58.2 | 70.4 | 65.8 | 35.3 | 51.1 | 66.3 | 20.6 | 38.7 | 38.7 | 66.7 |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| C 157 | C2-32 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS? | 37.4 | 61.3 | 47.8 | 26.9 | 40.0 | 56.1 | 11.1 | 30.2 | 23.2 | 34.6 | | | | | | |
| C 158 | C2-33 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH? | 21.4 | 34.7 | 35.3 | 11.5 | 22.1 | 20.4 | 7.9 | 15.6 | 7.7 | 21.0 | | | | | | |
| C 159 | C2-34 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO? | 23.6 | 32.2 | 29.3 | 14.7 | 18.4 | 20.9 | 1.6 | 21.6 | 11.3 | 21.0 | | | | | | |
| C 160 | C2-35 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS? | 40.1 | 60.3 | 53.3 | 28.2 | 28.9 | 40.3 | 12.7 | 29.1 | 20.2 | 32.1 | | | | | | |
| C 161 | C2-36 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | 14.3 | 22.6 | 18.5 | 7.1 | 12.1 | 15.8 | 1.6 | 14.1 | 6.5 | 16.0 | | | | | | |
| C 162 | C2-37 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | 9.2 | 18.1 | 13.0 | 4.5 | 8.9 | 12.8 | 1.6 | 9.0 | 5.4 | 8.6 | | | | | | |
| C 163 | C2-38 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS? | 31.9 | 63.8 | 22.3 | 24.4 | 43.2 | 33.2 | 41.3 | 38.2 | 27.4 | 66.7 | | | | | | |
| C 164 | C2-39 DO YOU INSPECT THREE PHASE TRANSFORMERS? | 27.5 | 60.3 | 20.1 | 25.6 | 40.5 | 32.1 | 34.9 | 18.7 | 23.2 | 58.0 | | | | | | |
| C 165 | C2-40 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS? | 22.0 | 45.7 | 14.1 | 17.3 | 28.4 | 24.0 | 17.5 | 22.6 | 10.7 | 32.1 | | | | | | |
| C 166 | C2-41 DO YOU ADJUST THREE PHASE TRANSFORMERS? | 14.8 | 27.1 | 9.2 | 9.6 | 18.4 | 24.0 | 4.8 | 15.6 | 5.4 | 28.4 | | | | | | |
| C 167 | C2-42 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS? | 22.5 | 53.8 | 14.7 | 20.5 | 31.6 | 28.1 | 33.3 | 33.2 | 17.9 | 58.0 | | | | | | |
| C 168 | C3-1 DO YOU USE OR REFER TO PERMANENT MAGNETS? | 37.9 | 23.1 | 33.2 | 27.6 | 21.1 | 54.6 | 17.5 | 39.2 | 26.2 | 21.0 | | | | | | |
| C 169 | C3-2 DO YOU USE OR REFER TO TEMPORARY MAGNETS? | 20.3 | 24.1 | 29.3 | 23.1 | 15.3 | 29.1 | 9.5 | 15.6 | 17.9 | 21.0 | | | | | | |
| C 170 | C3-3 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS? | 8.8 | 10.1 | 19.0 | 17.9 | 2.6 | 10.2 | 4.8 | 10.6 | 10.1 | 3.7 | | | | | | |
| C 171 | C3-4 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS? | 9.3 | 11.1 | 14.7 | 12.8 | 3.2 | 7.7 | 4.8 | 9.5 | 8.3 | 3.7 | | | | | | |
| C 172 | C3-5 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS? | 12.6 | 13.1 | 19.6 | 17.3 | 4.7 | 12.8 | 4.8 | 13.6 | 8.9 | 4.9 | | | | | | |
| C 173 | C3-6 DO YOU USE OR REFER TO RESIDUAL MAGNETISM? | 12.6 | 13.6 | 26.1 | 29.5 | 6.8 | 16.3 | 6.3 | 10.6 | 11.9 | 4.9 | | | | | | |
| C 174 | C3-7 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX? | 33.0 | 29.1 | 33.7 | 37.8 | 15.8 | 33.2 | 19.0 | 25.1 | 26.8 | 13.6 | | | | | | |

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| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| C 175 C3-8 | DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM? | 6.0 | 5.0 | 6.5 | 2.6 | 3.7 | 4.1 | 1.6 | 5.0 | 3.6 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| C 176 C3-9 | DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM? | 7.7 | 5.0 | 7.6 | 3.8 | 3.2 | 6.6 | 1.6 | 5.5 | 4.2 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| C 177 C3-10 | DO YOU USE OR REFER TO MAGNETIC INDUCTION? | 28.7 | 25.1 | 27.2 | 20.5 | 16.3 | 29.1 | 11.1 | 20.1 | 15.5 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 |
| C 178 C3-11 | DO YOU USE OR REFER TO FLUX DENSITY? | 15.9 | 15.1 | 17.4 | 19.2 | 8.4 | 14.3 | 7.9 | 12.6 | 7.7 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 |
| C 179 C3-12 | DO YOU USE OR REFER TO SATURABLE REACTANCE? | 13.7 | 29.6 | 27.2 | 13.5 | 8.9 | 20.4 | 9.5 | 18.6 | 11.3 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |

- D RCL CIRCUITS (D1), TIME CONSTANTS (D2), FILTERS (D3)

- D 180 D1-1 DO YOU WORK WITH RCL LR OR RCL CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM D2-1; IF YES, CONTINUE.
- D 181 D1-2 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS?
- D 182 D1-3 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS?
- D 183 D1-4 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS?
- D 184 D1-5 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS?
- D 185 D1-6 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS?
- D 186 D1-7 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS?
- D 187 D1-8 DO YOU USE OR REFER TO TRUE POWER (P SUB T) WHEN WORKING WITH RCL CIRCUITS?
- D 188 D1-9 DO YOU USE OR REFER TO MAXIMUM POWER (P SUB M) WHEN WORKING WITH RCL CIRCUITS?
- D 189 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (P SUB AVE) WHEN WORKING WITH RCL CIRCUITS?

| | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 61.5 | 77.4 | 65.8 | 38.5 | 47.4 | 68.9 | 46.0 | 43.7 | 41.1 | 69.1 |
| 14.3 | 48.2 | 15.8 | 7.1 | 5.8 | 11.7 | 3.2 | 9.0 | 25.0 | 8.6 |
| 12.6 | 24.6 | 10.3 | 5.1 | 4.7 | 9.7 | 4.8 | 7.0 | 13.7 | 7.4 |
| 11.5 | 30.2 | 11.4 | 9.6 | 12.1 | 20.4 | 30.2 | 9.5 | 29.8 | 7.4 |
| 9.3 | 26.1 | 8.7 | 5.8 | 7.9 | 18.9 | 33.3 | 8.0 | 28.6 | 6.2 |
| 9.9 | 25.6 | 7.1 | 3.8 | 8.4 | 11.2 | 17.5 | 6.0 | 28.4 | 6.2 |
| 47.8 | 72.4 | 52.7 | 19.9 | 47.9 | 60.7 | 36.5 | 38.7 | 29.8 | 63.0 |
| 29.7 | 48.2 | 28.8 | 7.7 | 22.6 | 38.3 | 19.0 | 23.6 | 14.3 | 24.7 |
| 31.3 | 53.8 | 34.2 | 4.3 | 27.4 | 47.4 | 22.2 | 29.1 | 17.3 | 30.9 |
| 33.5 | 62.8 | 33.7 | 8.3 | 28.9 | 58.2 | 47.6 | 30.2 | 18.5 | 24.7 |

| D TSM | TITLES | 204 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| D 190 | DI-11 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) WHEN WORKING WITH RCL CIRCUITS? | 15.9 | 25.1 | 17.9 | 5.8 | 14.7 | 17.3 | 7.9 | 14.1 | 11.3 | 12.3 | 12.3 |
| D 191 | DI-12 DO YOU USE OR REFER TO POWER FACTOR (PFI) WHEN WORKING WITH RCL CIRCUITS? | 17.0 | 33.7 | 18.5 | 7.7 | 14.7 | 23.0 | 9.5 | 15.6 | 10.7 | 12.3 | 12.3 |
| D 192 | DI-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 51.1 | 73.4 | 62.0 | 21.8 | 44.7 | 57.7 | 22.2 | 36.2 | 27.4 | 54.3 | 54.3 |
| D 193 | DI-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS? | 57.7 | 78.4 | 69.6 | 17.3 | 52.1 | 70.4 | 44.4 | 44.7 | 33.9 | 65.4 | 65.4 |
| D 194 | DI-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS? | 51.1 | 72.4 | 65.8 | 7.7 | 51.6 | 66.3 | 19.0 | 39.2 | 14.9 | 50.6 | 50.6 |
| D 195 | DI-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS? | 52.2 | 76.4 | 63.6 | 20.5 | 44.7 | 63.8 | 31.7 | 39.7 | 28.0 | 61.7 | 61.7 |
| D 196 | DI-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS? | 44.0 | 66.3 | 24.5 | 9.0 | 19.5 | 63.8 | 28.6 | 36.7 | 13.1 | 34.6 | 34.6 |
| D 197 | DI-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS? | 52.2 | 69.8 | 55.4 | 10.3 | 40.5 | 61.2 | 36.5 | 37.7 | 27.9 | 54.3 | 54.3 |
| D 198 | DI-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS? | 32.4 | 65.3 | 37.0 | 3.8 | 18.9 | 40.3 | 11.1 | 19.1 | 6.5 | 19.8 | 19.8 |
| D 199 | DI-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 54.4 | 78.4 | 60.9 | 29.5 | 48.4 | 63.3 | 7.9 | 34.2 | 23.8 | 58.0 | 58.0 |
| D 200 | DI-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS SUCH AS: SINE OF ANGLE = OPPOSITE SIDE/HYPOTENUSE? | 6.0 | 18.6 | 5.4 | 3.2 | 3.2 | 7.7 | 9.5 | 4.0 | 23.8 | 4.9 | 4.9 |
| D 201 | DI-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS? | 9.9 | 29.6 | 9.2 | 6.4 | 4.2 | 7.7 | 7.9 | 5.0 | 4.8 | 4.9 | 4.9 |
| D 202 | DI-23 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS? | 31.3 | 40.2 | 27.2 | 12.8 | 16.8 | 23.5 | 12.7 | 14.1 | 11.9 | 24.7 | 24.7 |
| D 203 | DI-24 DO YOU USE OR REFER TO PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS? | 13.2 | 26.1 | 11.4 | 5.1 | 12.6 | 15.8 | 7.9 | 9.5 | 7.1 | 14.8 | 14.8 |
| D 204 | DI-25 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS? | 34.6 | 45.7 | 30.4 | 12.8 | 18.4 | 24.0 | 9.5 | 16.1 | 9.5 | 27.2 | 27.2 |

| D TSK | TITLES | 304 | 304 | 304 | 30E | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| D 205 | DI-26 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS? | 11.0 | 22.1 | 8.7 | 3.2 | 8.9 | 10.2 | 3.2 | 7.0 | 6.0 | 6.0 | 6.0 | 6.2 |
| D 206 | DI-27 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) FOR SERIES RCL CIRCUITS? | 12.1 | 17.1 | 14.1 | 5.8 | 10.5 | 14.8 | 4.8 | 7.5 | 5.4 | 5.4 | 5.4 | 8.6 |
| D 207 | DI-28 DO YOU USE OR REFER TO TRUE POWER (P SUB T) FOR SERIES RCL CIRCUITS? | 22.0 | 33.2 | 20.7 | 5.8 | 12.6 | 23.0 | 9.5 | 12.1 | 6.5 | 6.5 | 6.5 | 13.6 |
| D 208 | DI-29 DO YOU USE OR REFER TO POWER FACTORS (PF) FOR SERIES RCL CIRCUITS? | 14.3 | 23.1 | 16.3 | 5.1 | 10.5 | 19.4 | 6.3 | 11.1 | 6.0 | 6.0 | 6.0 | 8.6 |
| D 209 | DI-30 DO YOU USE OR REFER TO TOTAL CURRENT FOR PARALLEL RCL CIRCUITS? | 33.5 | 46.7 | 27.2 | 13.5 | 20.5 | 32.1 | 9.5 | 16.1 | 12.5 | 12.5 | 12.5 | 25.9 |
| D 210 | DI-31 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS? | 10.4 | 18.6 | 7.6 | 1.9 | 9.5 | 8.7 | 6.3 | 8.0 | 4.8 | 4.8 | 4.8 | 8.6 |
| D 211 | DI-32 DO YOU USE THE ASSUMED VOLTAGE METHOD FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 11.0 | 25.1 | 14.1 | 6.4 | 8.9 | 9.7 | 4.8 | 9.0 | 4.2 | 4.2 | 4.2 | 8.6 |
| D 212 | DI-33 DO YOU USE OHM'S LAW FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 38.5 | 55.8 | 33.2 | 17.9 | 22.6 | 31.1 | 12.7 | 20.6 | 16.1 | 16.1 | 16.1 | 30.9 |
| D 213 | DI-34 DO YOU CHECK CAPACITORS USING OHMMETERS? | 54.9 | 69.8 | 65.2 | 38.5 | 46.8 | 65.8 | 19.0 | 37.7 | 36.9 | 36.9 | 36.9 | 59.3 |
| D 214 | DI-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION? | 38.5 | 47.7 | 44.0 | 27.6 | 40.0 | 55.1 | 3.2 | 23.1 | 23.8 | 23.8 | 23.8 | 49.4 |
| D 215 | DI-36 DO YOU CHECK INDUCTORS USING OHMMETERS? | 50.5 | 67.3 | 58.2 | 28.8 | 44.7 | 59.7 | 15.9 | 32.2 | 26.8 | 26.8 | 26.8 | 55.6 |
| D 216 | DI-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION? | 34.1 | 42.7 | 40.8 | 21.8 | 37.9 | 52.0 | 1.6 | 21.1 | 20.2 | 20.2 | 20.2 | 50.6 |
| D 217 | DI-38 DO YOU CHECK RESISTORS USING OHMMETERS? | 64.3 | 78.4 | 67.9 | 39.7 | 53.2 | 69.4 | 31.7 | 45.2 | 41.1 | 41.1 | 41.1 | 66.7 |
| D 218 | DI-39 DO YOU CHECK RESISTORS USING SUBSTITUTION? | 33.0 | 42.7 | 36.4 | 23.7 | 35.3 | 46.9 | 4.8 | 23.1 | 22.6 | 22.6 | 22.6 | 44.4 |
| D 219 | DI-40 DO YOU USE OR REFER TO THE RULE THAT PHASE ANGLE (THETA) = 0, POWER FACTOR (PF) = 1, AND APPARENT POWER (P SUB A) = TRUE POWER (P SUB T) FOR RESONANT CIRCUITS? | 6.0 | 18.6 | 8.7 | 1.9 | 5.3 | 7.7 | 3.2 | 5.5 | 4.2 | 4.2 | 4.2 | 2.5 |
| D 220 | DI-41 DO YOU USE OR REFER TO RESONANT FREQUENCIES FOR RCL CIRCUITS? | 47.8 | 65.3 | 51.6 | 14.1 | 37.4 | 50.5 | 19.0 | 30.7 | 20.2 | 20.2 | 20.2 | 45.7 |
| D 221 | DI-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS? | 34.6 | 57.8 | 42.9 | 9.0 | 32.6 | 36.7 | 11.1 | 21.1 | 16.1 | 16.1 | 16.1 | 28.4 |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| D 222 | 01-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS? | 31.9 | 49.7 | 36.4 | 7.7 | 30.0 | 30.6 | 9.5 | 17.6 | 13.7 | 17.3 | 17.3 | 17.3 | 17.3 | 17.3 |
| D 223 | 01-44 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 OF THE PEAK CURRENT VALUE? | 37.4 | 58.3 | 31.0 | 11.5 | 20.5 | 56.1 | 19.0 | 33.2 | 17.3 | 30.9 | 30.9 | 30.9 | 30.9 | 30.9 |
| D 224 | 01-45 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO THE QUALITY OF THE COIL (Q)? | 19.8 | 44.2 | 23.4 | 3.8 | 16.3 | 23.5 | 7.9 | 15.6 | 8.9 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 |
| D 225 | 01-46 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS? | 24.2 | 41.2 | 22.3 | 7.7 | 18.9 | 28.1 | 12.7 | 15.1 | 11.9 | 25.9 | 25.9 | 25.9 | 25.9 | 25.9 |
| D 226 | 02-1 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS? IF NO, GO TO ITEM 02-1. IF YES, CONTINUE. | 25.3 | 50.3 | 26.6 | 19.9 | 14.7 | 35.7 | 12.7 | 19.6 | 12.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 |
| D 227 | 02-2 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)? | 18.7 | 40.2 | 20.1 | 13.5 | 10.0 | 19.4 | 4.8 | 11.1 | 7.1 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 |
| D 228 | 02-3 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS? | 11.0 | 23.1 | 11.4 | 6.4 | 5.3 | 15.0 | 3.2 | 7.5 | 2.4 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 |
| D 229 | 02-4 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS? | 12.6 | 29.6 | 13.0 | 5.1 | 7.4 | 14.8 | 6.3 | 7.0 | 3.0 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 |
| D 230 | 02-5 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS? | 13.2 | 26.1 | 14.7 | 6.4 | 7.4 | 15.3 | 3.2 | 8.0 | 1.8 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 |
| D 231 | 02-6 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES? | 11.5 | 22.6 | 10.3 | 7.7 | 7.9 | 14.3 | 4.8 | 6.5 | 2.4 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 |
| D 232 | 02-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS? | 12.1 | 26.6 | 16.8 | 7.7 | 8.4 | 10.7 | 1.6 | 9.5 | 1.8 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 |

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| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| D 233 | D3-1 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM E1-1; IF YES, CONTINUE. | 69.2 | 83.9 | 75.5 | 44.2 | 68.9 | 71.9 | 73.0 | 61.3 | 47.0 | 79.0 | | | | | |
| D 234 | D3-2 DO YOU INSPECT FILTER CIRCUITS? | 62.1 | 71.4 | 70.7 | 40.4 | 61.6 | 68.9 | 33.3 | 50.8 | 39.1 | 67.9 | | | | | |
| D 235 | D3-3 DO YOU CLEAN FILTER CIRCUITS? | 56.0 | 65.3 | 60.9 | 32.1 | 51.1 | 56.6 | 14.3 | 33.2 | 25.0 | 51.9 | | | | | |
| D 236 | D3-4 DO YOU ALIGN OR ADJUST FILTER CIRCUITS? | 55.5 | 68.8 | 65.2 | 23.7 | 54.7 | 60.2 | 11.1 | 34.7 | 24.4 | 58.0 | | | | | |
| D 237 | D3-5 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL? | 62.1 | 67.8 | 67.9 | 34.0 | 58.9 | 65.8 | 42.9 | 45.2 | 33.3 | 69.1 | | | | | |
| D 238 | D3-6 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF FILTER CIRCUITS? | 55.5 | 65.3 | 64.1 | 35.3 | 55.3 | 60.2 | 22.2 | 37.2 | 28.0 | 55.6 | | | | | |
| D 239 | D3-7 DO YOU WORK WITH LOW PASS FILTERS? | 68.7 | 83.9 | 71.2 | 32.7 | 61.6 | 70.4 | 42.9 | 51.8 | 36.9 | 72.8 | | | | | |
| D 240 | D3-8 DO YOU WORK WITH HIGH PASS FILTERS? | 68.1 | 82.4 | 67.9 | 27.6 | 57.9 | 69.9 | 42.9 | 50.3 | 36.3 | 71.6 | | | | | |
| D 241 | D3-9 DO YOU WORK WITH BANDPASS FILTERS? | 69.8 | 86.9 | 75.5 | 17.9 | 66.3 | 71.4 | 65.1 | 58.8 | 32.1 | 60.2 | | | | | |
| D 242 | D3-10 DO YOU WORK WITH BAND-REJECT FILTERS? | 62.6 | 73.4 | 57.6 | 12.8 | 45.8 | 58.2 | 34.9 | 47.2 | 19.6 | 63.0 | | | | | |
| D 243 | D3-11 DO YOU WORK WITH FILTERS BUT DON'T REMEMBER WHICH TYPE? | 7.7 | 10.6 | 11.4 | 10.3 | 15.8 | 16.8 | 6.3 | 6.5 | 10.1 | 22.2 | | | | | |
| D 244 | D3-12 DO YOU WORK WITH L-SECTION FILTER CONFIGURATIONS? | 61.5 | 67.8 | 64.1 | 21.2 | 51.1 | 61.7 | 12.7 | 37.7 | 21.4 | 53.1 | | | | | |
| D 245 | D3-13 DO YOU WORK WITH T-SECTION FILTER CONFIGURATIONS? | 61.5 | 71.9 | 60.9 | 21.2 | 49.5 | 59.7 | 7.9 | 36.2 | 21.4 | 51.9 | | | | | |
| D 246 | D3-14 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATIONS? | 59.3 | 65.8 | 61.4 | 16.0 | 51.1 | 61.7 | 6.3 | 37.7 | 18.5 | 43.2 | | | | | |
| D 247 | D3-15 DO YOU WORK WITH YTTRIUM IRON GARNET (YIG) FILTERS? | 3.3 | 4.5 | 2.7 | .6 | 6.8 | 3.1 | 1.6 | 39.7 | 1.8 | 9.9 | | | | | |
| D 248 | D3-16 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS? | 12.6 | 24.6 | 15.2 | 8.3 | 11.1 | 14.8 | 3.2 | 8.0 | 1.8 | 8.6 | | | | | |

E COUPLING (E1), SOLDERING OR SOLDERLESS CONNECTIONS(E2), RELAYS (E3)

| | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|
| E 249 | E1-1 DO YOU WORK WITH COUPLING DEVICES OR CIRCUITRY IN YOUR PRESENT JOB? IF NO, GO TO ITEM E2-1; IF YES, CONTINUE. | 50.9 | 60.9 | 70.1 | 29.5 | 64.7 | 68.9 | 34.9 | 43.2 | 30.4 | 67.9 |
|-------|--|------|------|------|------|------|------|------|------|------|------|

| D TSK | TITLES | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| E 250 | E1-2 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING? | 50.0 | 79.4 | 67.4 | 22.4 | 53.7 | 66.3 | 20.6 | 39.7 | 21.4 | 56.8 | | |
| E 251 | E1-3 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING (MATCHING)? | 60.4 | 81.4 | 70.7 | 24.4 | 62.6 | 67.3 | 19.0 | 41.2 | 21.4 | 63.0 | | |
| E 252 | E1-4 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH OPTICAL COUPLING? | 7.1 | 8.0 | 8.2 | 7.7 | 5.3 | 13.3 | 17.5 | 2.5 | 1.8 | 6.2 | | |
| E 253 | E1-5 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING? | 54.9 | 79.4 | 66.3 | 21.8 | 53.2 | 65.3 | 19.0 | 39.7 | 23.2 | 65.4 | | |
| E 254 | E1-6 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING? | 44.0 | 70.4 | 64.7 | 23.1 | 52.1 | 64.3 | 17.5 | 33.7 | 18.5 | 55.6 | | |
| E 255 | E1-7 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING? | 53.8 | 70.4 | 68.5 | 21.8 | 58.4 | 62.2 | 15.9 | 34.2 | 19.6 | 61.7 | | |
| E 256 | E1-8 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING? | 49.5 | 69.3 | 63.0 | 19.9 | 51.6 | 63.8 | 15.9 | 36.7 | 22.0 | 60.5 | | |
| E 257 | E1-9 DO YOU WORK WITH DIRECT COUPLED CIRCUITS? | 56.0 | 75.9 | 67.4 | 21.8 | 56.8 | 67.3 | 22.2 | 38.2 | 25.0 | 61.7 | | |
| E 258 | E1-10 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS? | 45.6 | 76.9 | 65.8 | 19.9 | 52.6 | 63.3 | 12.7 | 35.2 | 22.0 | 54.3 | | |
| E 259 | E1-11 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS? | 43.4 | 71.9 | 64.1 | 17.3 | 53.2 | 60.2 | 15.9 | 32.7 | 20.2 | 55.6 | | |
| E 260 | E1-12 DO YOU WORK WITH OPTICAL COUPLING? | 7.7 | 8.5 | 7.1 | 7.1 | 4.2 | 11.7 | 15.9 | 2.0 | 3.0 | 6.2 | | |
| E 261 | E1-13 DO YOU WORK WITH OPTICAL COUPLING CIRCUITS? | 6.6 | 8.0 | 6.5 | 6.4 | 3.7 | 12.2 | 12.7 | 3.0 | 2.1 | 6.2 | | |
| E 262 | E1-14 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS? | 54.4 | 79.4 | 64.7 | 20.5 | 53.7 | 65.3 | 19.0 | 38.7 | 23.8 | 65.4 | | |
| E 263 | E2-1 IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONIC CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? IF NO, GO TO ITEM E3-1; IF YES, CONTINUE. | 81.9 | 82.4 | 81.0 | 76.9 | 88.4 | 89.3 | 47.6 | 81.9 | 75.0 | 87.7 | | |
| E 264 | E2-2 DO YOU SOLDER CONNECTIONS? | 84.1 | 81.9 | 81.0 | 80.1 | 91.6 | 91.8 | 47.6 | 85.4 | 75.0 | 85.2 | | |
| E 265 | E2-3 DO YOU DESOLDER CONNECTIONS? | 84.1 | 81.9 | 81.0 | 80.1 | 90.0 | 91.3 | 46.0 | 84.9 | 74.4 | 85.2 | | |

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| E 290 | E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS? | 67.0 | 70.9 | 71.7 | 55.1 | 75.8 | 77.0 | 47.6 | 67.3 | 67.3 | 75.3 | 75.3 | 75.3 |
| E 291 | E3-15 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS? | 64.8 | 75.9 | 67.9 | 51.3 | 73.7 | 75.0 | 49.2 | 65.8 | 63.1 | 75.3 | 75.3 | 75.3 |
| E 292 | E3-16 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS? | 62.6 | 74.4 | 68.5 | 49.4 | 72.6 | 74.0 | 47.6 | 66.3 | 60.1 | 76.5 | 76.5 | 76.5 |
| E 293 | E3-17 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS? | 56.6 | 71.9 | 65.8 | 49.4 | 64.2 | 70.9 | 41.3 | 57.3 | 53.0 | 72.8 | 72.8 | 72.8 |
| E 294 | E3-18 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE? | 53.8 | 69.8 | 63.6 | 48.7 | 62.6 | 73.0 | 27.0 | 49.7 | 49.4 | 69.1 | 69.1 | 69.1 |

F MICROPHONES AND SENSING DEVICES (F1), SPEAKERS (F2), OSCILLOSCOPES (F3)

| | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| F 295 | F1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES OR OTHER SENSING DEVICES SUCH AS TRANSDUCERS? IF NO, GO TO ITEM F2-1; IF YES, CONTINUE. | 33.0 | 26.1 | 70.1 | 11.5 | 86.8 | 23.5 | 25.4 | 14.6 | 17.9 | 63.0 | 63.0 | 63.0 |
| F 296 | F1-2 DO YOU CLEAN MICROPHONES? | 25.3 | 25.6 | 67.9 | 5.1 | 78.4 | 18.9 | 9.5 | 10.6 | 3.2 | 59.3 | 59.3 | 59.3 |
| F 297 | F1-3 DO YOU OPERATE MICROPHONES? | 23.1 | 20.6 | 57.6 | 4.5 | 62.6 | 15.8 | 6.3 | 8.0 | 2.4 | 39.5 | 39.5 | 39.5 |
| F 298 | F1-4 DO YOU TROUBLESHOOT MICROPHONES WIRE CONNECTIONS? | 24.2 | 26.6 | 66.8 | 4.5 | 88.9 | 24.5 | 19.0 | 11.1 | 7.1 | 61.7 | 61.7 | 61.7 |
| F 299 | F1-5 DO YOU TROUBLESHOOT MICROPHONE COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | 23.6 | 23.1 | 63.6 | 5.1 | 85.3 | 20.9 | 3.2 | 10.1 | 3.6 | 61.7 | 61.7 | 61.7 |
| F 300 | F1-6 DO YOU REMOVE AND REPLACE COMPLETE MICROPHONES? | 16.5 | 11.6 | 46.2 | 3.2 | 42.1 | 9.7 | 1.6 | 4.0 | 1.8 | 44.4 | 44.4 | 44.4 |
| F 301 | F1-7 DO YOU REMOVE OR REPLACE MICROPHONE COMPONENT PARTS? | 22.0 | 23.1 | 64.7 | 5.1 | 85.3 | 19.4 | 4.8 | 9.5 | 3.0 | 59.3 | 59.3 | 59.3 |
| F 302 | F1-8 DO YOU PERFORM TASKS ON CARBON MICROPHONES? | 15.4 | 16.1 | 47.8 | 3.2 | 37.4 | 9.2 | 1.6 | 5.5 | 1.8 | 40.7 | 40.7 | 40.7 |
| F 303 | F1-9 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES? | 15.9 | 18.1 | 65.8 | 3.2 | 69.5 | 10.2 | 3.2 | 5.5 | 1.2 | 45.7 | 45.7 | 45.7 |
| F 304 | F1-10 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES? | 2.2 | 4.0 | 17.4 | .6 | 11.1 | 1.5 | 1.6 | 2.0 | 1.2 | 13.6 | 13.6 | 13.6 |
| F 305 | F1-11 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES? | 7.7 | 4.5 | 12.5 | 1.9 | 14.7 | 3.6 | .0 | 2.0 | 1.2 | 12.3 | 12.3 | 12.3 |
| F 306 | F1-12 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES? | 12.6 | 11.6 | 64.1 | 3.2 | 77.4 | 12.2 | 3.2 | 5.5 | .6 | 51.9 | 51.9 | 51.9 |
| F 307 | F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES? | 2.2 | 1.0 | 4.3 | .0 | 6.3 | 1.0 | .0 | .6 | .6 | 3.7 | 3.7 | 3.7 |

|) TSN | TITLES | 304 | 304 | 304 | 305 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| 308 | F1-14 DO YOU PERFORM TASKS ON TRANSUCERS? | 17.0 | 6.5 | 16.8 | 8.3 | 11.1 | 5.1 | 3.2 | 4.0 | 14.1 | 2.4 | 15.5 | 7.4 |
| 309 | F2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS? IF NO, GO TO ITEM F3-1; IF YES, CONTINUE. | 43.4 | 24.6 | 66.3 | 9.0 | 78.4 | 28.6 | 4.8 | 14.1 | 2.4 | 15.5 | 7.4 | 58.0 |
| 310 | F2-2 DO YOU INSPECT SPEAKERS? | 39.6 | 23.6 | 66.3 | 9.6 | 75.8 | 21.4 | 3.2 | 9.0 | 1.2 | 56.8 | 35.8 | 56.8 |
| 311 | F2-3 DO YOU CLEAN SPEAKERS? | 34.1 | 20.6 | 60.3 | 9.0 | 58.4 | 17.3 | 1.6 | 7.5 | .6 | 35.8 | 56.8 | 56.8 |
| 312 | F2-4 DO YOU OPERATE SPEAKER? | 36.8 | 21.6 | 64.1 | 7.7 | 79.5 | 28.6 | 3.2 | 10.6 | 2.4 | 56.8 | 56.8 | 56.8 |
| 313 | F2-5 DO YOU TROUBLESHOOT SPEAKER WIRE CONNECTIONS? | 42.3 | 23.1 | 65.2 | 9.0 | 79.5 | 23.0 | 1.6 | 11.6 | 1.2 | 43.0 | 43.0 | 43.0 |
| 314 | F2-6 DO YOU TROUBLESHOOT SPEAKER COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | 20.9 | 11.6 | 44.6 | 5.1 | 34.7 | 7.1 | 1.6 | 4.0 | .0 | 35.8 | 35.8 | 35.8 |
| 315 | F2-7 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS? | 39.6 | 21.1 | 64.1 | 9.6 | 76.8 | 21.4 | .0 | 9.5 | 1.8 | 61.7 | 61.7 | 61.7 |
| 316 | F2-8 DO YOU REMOVE OR REPLACE SPEAKER PARTS? | 15.9 | 8.0 | 34.2 | 3.2 | 29.5 | 6.1 | .0 | 2.0 | .6 | 27.2 | 27.2 | 27.2 |
| 317 | F2-9 DO YOU PERFORM ANY TASKS ON CORE SPEAKER PARTS? | 4.4 | 3.0 | 15.8 | .6 | 6.8 | 1.5 | 1.6 | 1.5 | .0 | 7.4 | 7.4 | 7.4 |
| 318 | F2-10 DO YOU PERFORM ANY TASKS ON SPIDER SPEAKER PARTS? | 2.7 | 1.5 | 6.0 | .6 | 9.7 | 1.0 | .0 | 1.0 | .0 | 2.5 | 2.5 | 2.5 |
| 319 | F2-11 DO YOU PERFORM ANY TASKS ON FIELD COIL SPEAKER PARTS? | 6.0 | 3.0 | 13.0 | .6 | 6.8 | 1.5 | .0 | 1.5 | .0 | 4.9 | 4.9 | 4.9 |
| 320 | F2-12 DO YOU PERFORM ANY TASKS ON VOICE COIL SPEAKER PARTS? | 6.0 | 4.0 | 19.0 | .6 | 9.4 | 1.5 | .0 | 1.5 | .0 | 3.7 | 3.7 | 3.7 |
| 321 | F2-13 DO YOU PERFORM ANY TASKS ON PERMANENT MAGNET SPEAKER PARTS? | 4.4 | 3.0 | 13.6 | .6 | 12.1 | 2.0 | .0 | 1.5 | .0 | 4.9 | 4.9 | 4.9 |
| 322 | F2-14 DO YOU PERFORM ANY TASKS ON ELECTROMAGNET SPEAKER PARTS? | 4.4 | 2.5 | 12.0 | .6 | 10.0 | 2.6 | .0 | 1.5 | .0 | 4.9 | 4.9 | 4.9 |
| 323 | F2-15 DO YOU PERFORM ANY TASKS ON SOFT IRON CORE SPEAKER PARTS? | 2.7 | 1.5 | 7.6 | .6 | 5.3 | 1.0 | .0 | .5 | .0 | 2.5 | 2.5 | 2.5 |
| 324 | F3-1 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB? IF NO, GO TO ITEM 61-1; IF YES, CONTINUE. | 82.4 | 86.9 | 77.7 | 89.7 | 74.7 | 84.2 | 63.5 | 87.4 | 75.0 | 86.4 | 86.4 | 86.4 |
| 325 | F3-2 DO YOU PERFORM OPERATIONAL CHECKS USING OSCILLOSCOPES? | 80.8 | 84.9 | 76.6 | 84.6 | 68.4 | 78.1 | 58.7 | 83.9 | 69.6 | 86.4 | 86.4 | 86.4 |
| 326 | F3-3 DO YOU PERFORM ALIGNMENTS OR ADJUSTMENTS USING OSCILLOSCOPES? | 79.7 | 80.4 | 72.8 | 82.1 | 70.0 | 78.6 | 55.6 | 76.9 | 64.3 | 86.4 | 86.4 | 86.4 |
| 327 | F3-4 DO YOU TROUBLE 901 ELECTRONIC CIRCUITS USING OSCILLOSCOPES? | 80.2 | 76.4 | 72.8 | 83.3 | 70.0 | 79.6 | 63.5 | 75.9 | 64.9 | 72.8 | 72.8 | 72.8 |
| 328 | F3-5 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCIES? | 68.7 | 80.9 | 65.8 | 82.1 | 60.0 | 81.6 | 54.0 | 78.4 | 69.0 | 81.5 | 81.5 | 81.5 |
| 329 | F3-6 DO YOU USE OSCILLOSCOPES TO MEASURE TIME? | 54.4 | 86.9 | 54.9 | 83.3 | 38.4 | 82.7 | 50.8 | 83.4 | 58.3 | 80.2 | 80.2 | 80.2 |

| D TSN | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| F 330 | F3-7 DO YOU USE OSCILLOSCOPES TO OBSERVE LISSAJOUS PATTERNS? | 35.7 | 32.2 | 37.5 | 28.8 | 28.9 | 37.8 | 12.7 | 22.6 | 26.8 | 74.1 | | | | | |
| F 331 | F3-8 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES. | 68.1 | 84.9 | 71.7 | 69.2 | 65.8 | 81.1 | 55.6 | 76.9 | 52.4 | 76.5 | | | | | |
| F 332 | F3-9 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS? | 20.1 | 74.9 | 33.2 | 66.7 | 27.4 | 77.6 | 41.3 | 39.7 | 29.2 | 53.1 | | | | | |
| F 333 | F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGES? | 77.5 | 88.4 | 74.5 | 83.3 | 68.9 | 82.1 | 58.7 | 84.4 | 70.8 | 77.8 | | | | | |
| F 334 | F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGES? | 78.6 | 89.4 | 75.5 | 89.7 | 64.2 | 82.1 | 54.0 | 86.9 | 70.2 | 80.2 | | | | | |
| F 335 | F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS? | 52.2 | 77.4 | 50.5 | 54.5 | 44.7 | 68.4 | 27.0 | 54.8 | 44.6 | 67.9 | | | | | |
| F 336 | F3-13 DO YOU USE OSCILLOSCOPES TO OBSERVE DATA PATTERNS? | 58.8 | 45.7 | 41.3 | 80.1 | 39.5 | 45.4 | 42.9 | 47.7 | 40.5 | 69.1 | | | | | |
| F 337 | F3-14 DO YOU USE OSCILLOSCOPES TO MEASURE RIPPLE VOLTAGES? | 61.5 | 79.9 | 61.4 | 75.6 | 50.5 | 70.4 | 25.4 | 63.3 | 47.6 | 65.4 | | | | | |
| F 338 | F3-15 DO YOU USE OSCILLOSCOPES TO MEASURE PHASE JITTERS? | 36.3 | 67.8 | 22.3 | 35.3 | 18.4 | 50.0 | 25.4 | 26.6 | 20.8 | 29.6 | | | | | |
| F 339 | F3-16 DO YOU USE OSCILLOSCOPES TO DISPLAY SWEEP GENERATOR PATTERNS? | 47.3 | 72.9 | 34.8 | 54.5 | 34.7 | 73.5 | 34.9 | 54.8 | 36.9 | 63.0 | | | | | |
| F 340 | F3-17 DO YOU USE OSCILLOSCOPES TO OBSERVE PHASE RELATIONSHIPS? | 51.6 | 79.4 | 50.0 | 66.7 | 51.1 | 78.6 | 42.9 | 55.3 | 53.0 | 55.6 | | | | | |
| F 341 | F3-18 DO YOU USE OSCILLOSCOPES TO OBSERVE SAMPLING DISPLAYS? | 49.5 | 75.9 | 41.8 | 47.4 | 41.6 | 58.7 | 36.5 | 51.3 | 38.1 | 61.7 | | | | | |

6 SEMICONDUCTOR DIODES (61), TRANSISTORS (62), TRANSISTOR AMPLIFIERS (63)

| | | | | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|
| 6 342 | 61-1 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB? IF NO, GO TO ITEM 62-1; IF YES, CONTINUE. | 80.2 | 85.4 | 79.9 | 80.1 | 63.2 | 76.0 | 31.7 | 58.8 | 56.5 | 74.1 | | | | | |
| 6 343 | 61-2 DO YOU INSPECT DIODES? | 73.1 | 77.4 | 77.7 | 76.3 | 61.6 | 73.0 | 20.6 | 54.3 | 50.0 | 69.1 | | | | | |
| 6 344 | 61-3 DO YOU CHECK DIODES? | 74.2 | 75.9 | 76.6 | 77.6 | 63.2 | 74.0 | 20.6 | 53.8 | 53.6 | 74.1 | | | | | |

| ID TSK | TITLES | 304 | 304 | 304 | 305 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
|--------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 6 345 | 61-4 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES? | 6.2 | 11.1 | 3.0 | 7.1 | 9.5 | 6.6 | 6.3 | 8.0 | 3.6 | 11.1 | | | | | | | |
| 6 346 | 61-5 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE? | 19.2 | 26.1 | 15.0 | 13.5 | 11.6 | 14.0 | 6.3 | 11.6 | 6.0 | 16.0 | | | | | | | |
| 6 347 | 61-6 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES? | 25.3 | 31.7 | 23.9 | 28.0 | 23.2 | 30.1 | 6.3 | 16.6 | 11.3 | 24.7 | | | | | | | |
| 6 348 | 61-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES? | 59.3 | 70.9 | 57.6 | 59.0 | 43.2 | 62.0 | 23.0 | 42.2 | 31.5 | 53.1 | | | | | | | |
| 6 349 | 61-8 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE? | 69.2 | 79.9 | 72.3 | 73.7 | 58.4 | 69.9 | 15.9 | 51.0 | 47.0 | 65.4 | | | | | | | |
| 6 350 | 61-9 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW? | 20.3 | 19.6 | 14.1 | 9.0 | 8.9 | 12.2 | 6.3 | 11.1 | 6.0 | 13.6 | | | | | | | |
| 6 351 | 61-10 DO YOU MEASURE FORWARD BIAS RESISTANCE? | 51.1 | 56.8 | 59.2 | 62.2 | 47.9 | 61.7 | 15.9 | 36.2 | 39.9 | 55.6 | | | | | | | |
| 6 352 | 61-11 DO YOU MEASURE REVERSE BIAS RESISTANCE? | 51.1 | 56.8 | 59.8 | 62.8 | 47.4 | 62.2 | 17.5 | 36.2 | 39.3 | 54.3 | | | | | | | |
| 6 353 | 61-12 DO YOU READ DIODE COLOR CODING? | 22.5 | 27.1 | 26.6 | 22.4 | 25.3 | 26.5 | 4.8 | 19.6 | 16.1 | 27.2 | | | | | | | |
| 6 354 | 61-13 DO YOU READ DIODE NUMBERING SYSTEM, SUCH AS IN 5307 | 58.2 | 65.3 | 66.3 | 59.6 | 51.1 | 63.8 | 7.9 | 41.7 | 33.3 | 63.0 | | | | | | | |
| 6 355 | 61-14 DO YOU USE THE SYMBOL ON DIODE WHICH INDICATES THE CATHODE END? | 75.3 | 81.9 | 79.9 | 77.6 | 62.6 | 74.0 | 22.2 | 57.0 | 53.6 | 79.1 | | | | | | | |
| 6 356 | 61-15 DO YOU DETERMINE DIRECTION OF CURRENT THROUGH A DIODE? | 74.2 | 80.9 | 77.2 | 76.3 | 60.0 | 71.9 | 25.4 | 55.3 | 48.0 | 63.0 | | | | | | | |
| 6 357 | 61-16 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON? | 17.6 | 23.1 | 19.0 | 11.5 | 10.5 | 16.3 | 4.8 | 14.1 | 6.5 | 12.3 | | | | | | | |
| 6 358 | 61-17 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OR RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)? | 34.6 | 49.7 | 32.6 | 26.9 | 26.3 | 38.0 | 9.5 | 27.6 | 19.0 | 38.6 | | | | | | | |
| 6 359 | 61-18 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)? | 21.4 | 29.6 | 21.7 | 17.3 | 14.7 | 20.4 | 7.9 | 17.1 | 4.8 | 14.8 | | | | | | | |

KESSLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| O TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 6 360 | 61-19 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS? | 59.3 | 69.8 | 69.6 | 53.2 | 41.1 | 55.1 | 12.7 | 38.7 | 28.0 | 48.1 | 328 | 328 | 328 |
| 6 361 | 61-20 DO YOU NEED AN UNDERSTANDING OF VALENCE BAND IN SEMICONDUCTOR MATERIALS? | 21.4 | 21.1 | 16.3 | 7.7 | 8.4 | 13.3 | 1.6 | 16.6 | 6.5 | 13.6 | 328 | 328 | 328 |
| 6 362 | 61-21 DO YOU NEED AN UNDERSTANDING OF FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS? | 20.3 | 19.6 | 12.0 | 6.4 | 6.3 | 10.2 | 1.6 | 12.6 | 6.5 | 12.3 | 328 | 328 | 328 |
| 6 363 | 61-22 DO YOU NEED AN UNDERSTANDING OF CONDUCTION BAND IN SEMICONDUCTOR MATERIALS? | 23.1 | 24.1 | 18.5 | 10.3 | 9.5 | 16.3 | 3.2 | 14.6 | 7.7 | 13.6 | 328 | 328 | 328 |
| 6 364 | 61-23 DO YOU NEED AN UNDERSTANDING OF COVALENT BONDING IN SEMICONDUCTOR MATERIALS? | 20.9 | 20.1 | 16.8 | 7.7 | 6.3 | 13.8 | 1.6 | 13.6 | 5.4 | 14.8 | 328 | 328 | 328 |
| 6 365 | 61-24 DO YOU NEED AN UNDERSTANDING OF ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS? | 25.3 | 25.1 | 21.7 | 12.8 | 12.6 | 19.4 | 3.2 | 16.1 | 7.7 | 14.8 | 328 | 328 | 328 |
| 6 366 | 61-25 DO YOU NEED AN UNDERSTANDING OF ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS? | 40.7 | 43.7 | 37.5 | 25.6 | 19.5 | 34.2 | 9.5 | 26.6 | 15.1 | 25.9 | 328 | 328 | 328 |
| 6 367 | 61-26 DO YOU NEED AN UNDERSTANDING OF DONOR IMPURITY IN SEMICONDUCTORS? | 20.3 | 22.1 | 19.6 | 7.7 | 9.5 | 13.8 | 3.2 | 15.6 | 6.5 | 14.8 | 328 | 328 | 328 |
| 6 368 | 61-27 DO YOU NEED AN UNDERSTANDING OF ACCEPTOR IMPURITY IN SEMICONDUCTORS? | 19.8 | 20.6 | 19.0 | 8.3 | 9.5 | 13.3 | 3.2 | 15.1 | 5.4 | 14.8 | 328 | 328 | 328 |
| 6 369 | 61-28 DO YOU NEED AN UNDERSTANDING OF P-TYPE SEMICONDUCTOR MATERIAL? | 42.3 | 54.8 | 46.7 | 35.9 | 31.6 | 39.8 | 7.9 | 31.7 | 25.0 | 33.3 | 328 | 328 | 328 |
| 6 370 | 61-29 DO YOU NEED AN UNDERSTANDING OF N-TYPE SEMICONDUCTOR MATERIAL? | 41.8 | 54.8 | 46.7 | 36.5 | 31.6 | 39.8 | 7.9 | 31.7 | 24.4 | 33.3 | 328 | 328 | 328 |
| 6 371 | 61-30 DO YOU NEED AN UNDERSTANDING OF MAJORITY CARRIERS IN SEMICONDUCTORS? | 29.7 | 29.6 | 27.7 | 17.9 | 13.7 | 21.4 | 4.8 | 19.6 | 11.3 | 16.0 | 328 | 328 | 328 |
| 6 372 | 61-31 DO YOU NEED AN UNDERSTANDING OF MINORITY CARRIERS IN SEMICONDUCTORS? | 28.6 | 29.1 | 26.6 | 17.3 | 13.7 | 21.4 | 4.8 | 19.6 | 10.7 | 16.0 | 328 | 328 | 328 |
| 6 373 | 61-32 DO YOU NEED AN UNDERSTANDING OF JUNCTION RECOMBINATION IN SEMICONDUCTORS? | 24.2 | 25.6 | 21.2 | 9.6 | 8.4 | 17.3 | 6.3 | 14.1 | 7.7 | 17.3 | 328 | 328 | 328 |
| 6 374 | 61-33 DO YOU NEED AN UNDERSTANDING OF DEPLETION REGION IN SEMICONDUCTORS? | 28.0 | 27.1 | 32.1 | 17.3 | 12.1 | 20.9 | 6.3 | 23.6 | 8.9 | 22.2 | 328 | 328 | 328 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

F.C.P.T.D.L. PAGE 28

| D ISK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| 6 419 | 63-11 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)? | 6.6 | 6.0 | 4.9 | 2.6 | 5.3 | 4.1 | 3.2 | 4.0 | 1.8 | 6.2 | | | | | | | |
| 6 420 | 63-14 DO YOU USE OF REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR? | 21.4 | 38.2 | 22.8 | 12.2 | 11.6 | 21.9 | 3.2 | 14.1 | 4.8 | 7.4 | | | | | | | |
| 6 421 | 63-15 DO YOU MEASURE VOLTAGE GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 44.9 | 49.2 | 50.5 | 20.5 | 41.1 | 44.9 | 12.7 | 29.6 | 17.9 | 53.1 | | | | | | | |
| 6 422 | 63-16 DO YOU MEASURE CURRENT GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 35.2 | 34.7 | 36.4 | 13.5 | 32.1 | 34.2 | 12.7 | 22.6 | 13.1 | 43.2 | | | | | | | |
| 6 423 | 63-17 DO YOU MEASURE POWER GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 42.9 | 41.2 | 46.2 | 12.6 | 35.3 | 38.3 | 19.0 | 25.6 | 11.9 | 51.9 | | | | | | | |
| 6 424 | 63-18 DO YOU USE OR REFER TO THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE OF THE BASE COLLECTOR VOLTAGE? | 20.3 | 23.1 | 15.2 | 9.0 | 12.1 | 14.3 | 4.6 | 9.5 | 4.0 | 16.0 | | | | | | | |
| 6 425 | 63-19 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION? | 29.1 | 38.2 | 41.8 | 16.7 | 34.7 | 37.8 | 7.9 | 22.1 | 11.9 | 42.0 | | | | | | | |
| 6 426 | 63-20 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION? | 28.6 | 34.7 | 36.4 | 11.5 | 27.4 | 30.1 | 7.9 | 21.6 | 11.9 | 32.1 | | | | | | | |
| 6 427 | 63-21 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION? | 28.6 | 36.7 | 35.9 | 13.5 | 32.6 | 35.2 | 9.5 | 22.6 | 10.1 | 33.3 | | | | | | | |
| 6 428 | 63-22 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION? | 33.0 | 38.7 | 34.8 | 16.0 | 31.1 | 32.1 | 7.9 | 22.6 | 14.3 | 37.0 | | | | | | | |
| 6 429 | 63-23 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION? | 32.9 | 34.7 | 34.2 | 15.4 | 31.6 | 33.2 | 7.9 | 22.1 | 14.9 | 34.6 | | | | | | | |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT01 PAGE 30

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| G 447 | 63-41 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY AMPLIFIERS? | 26.1 | 32.1 | 4.5 | 24.2 | 34.7 | 6.3 | 18.6 | 7.7 | 37.0 |
| G 448 | 63-42 DO YOU TROUBLESHOOT OR REPAIR IF AMPLIFIERS? | 46.2 | 62.8 | 68.5 | 7.7 | 51.6 | 58.2 | 19.0 | 34.2 | 20.2 |
| G 449 | 63-43 DO YOU TROUBLESHOOT OR REPAIR DIFFERENTIATING AMPLIFIERS (DIFF AMPS)? | 36.8 | 55.8 | 27.5 | 23.7 | 22.6 | 40.8 | 9.5 | 26.1 | 17.3 |
| G 450 | 63-44 DO YOU TROUBLESHOOT OR REPAIR OPERATIONAL AMPLIFIERS (OP AMPS)? | 35.7 | 55.8 | 51.1 | 23.7 | 21.6 | 41.3 | 12.7 | 27.6 | 17.3 |
| G 451 | 63-45 DO YOU TROUBLESHOOT OR REPAIR INTEGRATING AMPLIFIERS? | 34.1 | 48.2 | 42.9 | 19.9 | 24.2 | 40.3 | 9.5 | 25.1 | 22.0 |
| G 452 | 63-46 DO YOU TROUBLESHOOT OR REPAIR SUMMING AMPLIFIERS? | 13.2 | 27.1 | 22.3 | 11.5 | 16.3 | 20.4 | 7.9 | 21.6 | 23.2 |

 W SOLID-STATE SPECIAL PURPOSE DEVICES (H1), POWER SUPPLIES (H2), OSCILLATORS (H3)

| | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|
| H 453 | M1-1 DO YOU USE OR REFER TO VARACTORS/VAPICAP COMPONENTS? | 52.2 | 41.2 | 67.9 | 17.3 | 51.6 | 48.0 | 15.9 | 39.2 | 8.3 | 71.6 |
| H 454 | M1-2 DO YOU USE OR REFER TO TUNNEL DIODE COMPONENTS? | 53.3 | 58.8 | 37.0 | 9.6 | 24.2 | 31.6 | 7.9 | 39.2 | 6.0 | 51.9 |
| H 455 | M1-3 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTOR (FET) COMPONENTS? | 38.5 | 76.9 | 61.4 | 39.1 | 30.0 | 59.7 | 9.5 | 46.2 | 19.0 | 69.1 |
| H 456 | M1-4 DO YOU USE OR REFER TO UNIUNCTION TRANSISTOR COMPONENTS? | 39.6 | 77.9 | 54.3 | 27.6 | 37.9 | 69.9 | 6.3 | 42.2 | 19.6 | 54.3 |
| H 457 | M1-5 DO YOU USE OR REFER TO ZENER DIODE COMPONENTS? | 73.1 | 85.9 | 80.4 | 76.3 | 66.8 | 79.5 | 41.3 | 58.3 | 54.2 | 76.5 |
| H 458 | M1-6 DO YOU USE OR REFER TO INTEGRATED CIRCUIT COMPONENTS? | 67.6 | 81.4 | 73.4 | 71.2 | 56.8 | 76.5 | 66.7 | 68.3 | 60.1 | 70.4 |
| H 459 | M1-7 DO YOU USE OR REFER TO PIN DIODE COMPONENTS? | 26.9 | 38.7 | 40.8 | 9.6 | 25.3 | 32.1 | 38.1 | 55.3 | 11.9 | 28.4 |
| H 460 | M1-8 DO YOU USE OR REFER TO LED'S/LCD'S COMPONENTS? | 63.7 | 76.4 | 56.0 | 69.2 | 48.4 | 58.2 | 71.4 | 53.8 | 48.2 | 69.1 |
| H 461 | M1-9 DO YOU USE OR REFER TO FANTAIL TRANSISTOR COMPONENTS? | 13.0 | 15.1 | 20.7 | 7.1 | 8.4 | 15.8 | 8.0 | 2.4 | 14.8 | |
| H 462 | M1-10 DO YOU USE OR REFER TO SILICON CONTROL RECTIFIER (SCR) COMPONENTS? | 42.4 | 77.9 | 56.5 | 41.7 | 23.2 | 54.6 | 14.3 | 44.2 | 22.6 | 64.2 |
| H 463 | M1-11 DO YOU USE OR REFER TO TRIAC COMPONENTS? | 17.6 | 39.7 | 25.0 | 12.8 | 11.1 | 14.3 | 7.9 | 12.6 | 7.1 | 28.4 |
| H 464 | M1-12 DO YOU USE OR REFER TO PROGRAMMABLE UNIUNCTION TRANSISTOR (PUT) COMPONENTS? | 8.2 | 13.1 | 9.2 | 1.3 | 6.8 | 13.8 | 4.8 | 10.1 | 4.2 | 11.1 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTCI PAGE 31

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| H 465 | M1-13 DO YOU USE OR REFER TO SILICON CONTROLLED SWITCH (SCS) COMPONENTS? | 15.4 | 38.7 | 19.6 | 7.1 | 11.6 | 30.6 | 1.6 | 10.1 | 0.3 | 23.5 | | | | | | | |
| H 466 | M1-14 DO YOU USE OR REFER TO SILICON UNILATERAL SWITCH (SUS) COMPONENTS? | 5.5 | 11.6 | 9.8 | 1.9 | 6.8 | 16.8 | 1.6 | 8.5 | 4.2 | 13.6 | | | | | | | |
| H 467 | M2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 86.3 | 89.9 | 80.4 | 85.3 | 72.1 | 81.6 | 84.1 | 79.4 | 61.9 | 91.4 | | | | | | | |
| H 468 | M2-2 DO YOU INSPECT POWER SUPPLIES? | 81.9 | 82.9 | 76.6 | 81.4 | 68.5 | 72.1 | 68.3 | 69.8 | 59.5 | 79.0 | | | | | | | |
| H 469 | M2-3 DO YOU CLEAN POWER SUPPLIES? | 78.0 | 76.4 | 71.7 | 75.6 | 60.0 | 73.0 | 23.8 | 54.8 | 45.2 | 69.1 | | | | | | | |
| H 470 | M2-4 DO YOU ALIGN OR ADJUST POWER SUPPLIES? | 82.4 | 83.4 | 70.7 | 79.5 | 61.1 | 72.6 | 34.9 | 67.3 | 52.4 | 84.0 | | | | | | | |
| H 471 | M2-5 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL? | 75.3 | 79.9 | 75.5 | 71.8 | 61.6 | 76.0 | 50.8 | 59.3 | 51.8 | 77.8 | | | | | | | |
| H 472 | M2-6 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS? | 70.3 | 77.4 | 71.2 | 64.7 | 53.2 | 62.4 | 30.2 | 41.7 | 41.7 | 67.9 | | | | | | | |
| H 473 | M2-7 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | 78.0 | 77.4 | 73.4 | 79.5 | 72.6 | 80.6 | 81.0 | 76.4 | 60.7 | 86.4 | | | | | | | |
| H 474 | M2-8 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS? | 70.3 | 73.9 | 69.0 | 60.9 | 52.1 | 69.9 | 14.3 | 41.7 | 40.5 | 67.9 | | | | | | | |
| H 475 | M2-9 DO YOU INSPECT OR SERVICE COOLANT LEVELS? | 14.3 | 15.1 | 12.5 | 15.4 | 8.4 | 11.2 | 38.1 | 35.2 | 2.4 | 23.5 | | | | | | | |
| H 476 | M2-10 DO YOU WORK WITH HALF-WAVE RECTIFIERS? | 64.3 | 81.4 | 69.0 | 57.7 | 60.5 | 70.9 | 17.5 | 47.7 | 36.9 | 69.1 | | | | | | | |
| H 477 | M2-11 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS? | 59.3 | 83.4 | 70.1 | 60.3 | 60.0 | 71.4 | 25.4 | 50.8 | 38.7 | 65.4 | | | | | | | |
| H 478 | M2-12 DO YOU WORK WITH BRIDGE RECTIFIERS? | 70.3 | 85.4 | 74.5 | 66.0 | 62.6 | 73.0 | 25.4 | 52.3 | 41.1 | 74.1 | | | | | | | |
| H 479 | M2-13 DO YOU WORK WITH IMPRECISE PHASE RECTIFIERS? | 30.2 | 53.3 | 27.2 | 37.8 | 52.1 | 37.8 | 18.1 | 48.7 | 23.8 | 64.2 | | | | | | | |
| H 480 | M2-14 DO YOU USE OR REFER TO INPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 76.4 | 87.9 | 76.1 | 75.6 | 63.7 | 75.5 | 58.7 | 64.3 | 50.6 | 79.0 | | | | | | | |
| H 481 | M2-15 DO YOU USE OR REFER TO INPUT FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | 62.6 | 70.4 | 60.9 | 60.9 | 53.2 | 63.3 | 47.6 | 49.7 | 39.9 | 67.9 | | | | | | | |
| H 482 | M2-16 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 63.7 | 78.9 | 66.3 | 64.1 | 55.3 | 69.9 | 55.6 | 51.8 | 47.0 | 67.9 | | | | | | | |
| H 483 | M2-17 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 63.7 | 78.9 | 66.3 | 59.6 | 55.3 | 66.3 | 55.6 | 54.8 | 43.5 | 65.4 | | | | | | | |
| H 484 | M2-18 DO YOU USE OR REFER TO RIPPLE AMPLITUDE IN YOUR WORK WITH RECTIFIERS? | 52.2 | 75.9 | 59.2 | 60.3 | 38.9 | 59.2 | 15.9 | 49.7 | 30.4 | 63.0 | | | | | | | |
| H 485 | M2-19 DO YOU USE OR REFER TO RIPPLE FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | 40.7 | 55.8 | 48.4 | 48.7 | 35.3 | 48.0 | 14.3 | 40.2 | 24.4 | 50.6 | | | | | | | |

| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| H 504 | H3-7 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS? | 47.3 | 65.3 | 53.3 | 31.4 | 40.0 | 49.5 | 25.4 | 28.6 | 20.8 | 60.5 | 328 | 328 | 328 |
| H 505 | H3-8 DO YOU USE OR REFER TO FEEDBACK (DEGENERATIVE OR REGENERATIVE)? | 51.6 | 76.4 | 62.5 | 34.6 | 43.2 | 60.7 | 31.7 | 41.7 | 26.8 | 53.1 | 328 | 328 | 328 |
| H 506 | H3-9 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (IFDD)? | 47.3 | 66.3 | 58.7 | 35.9 | 43.2 | 53.6 | 28.6 | 36.2 | 19.0 | 53.1 | 328 | 328 | 328 |
| H 507 | H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY? | 46.4 | 60.3 | 51.1 | 28.2 | 40.0 | 51.0 | 25.4 | 33.2 | 20.2 | 61.7 | 328 | 328 | 328 |
| H 508 | H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY? | 57.1 | 70.4 | 62.5 | 35.3 | 48.9 | 56.1 | 42.9 | 43.7 | 25.0 | 69.1 | 328 | 328 | 328 |
| H 509 | H3-12 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT (CRYSTAL OSCILLATIONS)? | 34.6 | 62.3 | 39.7 | 29.5 | 31.6 | 47.4 | 28.6 | 14.6 | 13.1 | 50.6 | 328 | 328 | 328 |
| H 510 | H3-13 DO YOU USE OR REFER TO HARMONIC DISTORTION? | 48.9 | 64.8 | 63.0 | 13.5 | 41.1 | 53.6 | 41.3 | 36.2 | 16.7 | 56.8 | 328 | 328 | 328 |
| H 511 | H3-14 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN DC TANK CIRCUITS? | 37.9 | 61.3 | 48.9 | 25.0 | 35.8 | 52.6 | 9.5 | 31.7 | 13.7 | 48.1 | 328 | 328 | 328 |
| H 512 | H3-15 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN RC NETWORKS? | 47.3 | 71.9 | 53.8 | 27.6 | 41.1 | 60.2 | 9.5 | 35.2 | 19.6 | 54.3 | 328 | 328 | 328 |
| H 513 | H3-16 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN CRYSTALS? | 57.7 | 79.9 | 57.6 | 39.7 | 49.5 | 64.8 | 49.2 | 29.6 | 21.4 | 70.4 | 328 | 328 | 328 |
| H 514 | H3-17 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN PHASE LOCK LOOPS (PLL)? | 47.3 | 41.7 | 52.7 | 14.7 | 34.2 | 30.1 | 60.3 | 17.1 | 8.3 | 59.3 | 328 | 328 | 328 |
| H 515 | H3-18 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | 18.1 | 15.1 | 14.7 | 12.2 | 9.5 | 14.3 | 7.9 | 16.6 | 11.3 | 21.0 | 328 | 328 | 328 |
| H 516 | H3-19 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS? | 20.9 | 63.3 | 38.6 | 19.9 | 33.2 | 50.5 | 8.8 | 25.6 | 8.9 | 49.4 | 328 | 328 | 328 |
| H 517 | H3-20 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS? | 17.0 | 38.2 | 33.7 | 17.9 | 31.6 | 49.5 | 4.8 | 23.1 | 8.9 | 39.5 | 328 | 328 | 328 |
| H 518 | H3-21 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS? | 19.8 | 51.8 | 42.4 | 17.3 | 33.2 | 44.4 | 3.2 | 22.6 | 7.7 | 40.7 | 328 | 328 | 328 |
| H 519 | H3-22 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS? | 9.9 | 21.1 | 16.3 | 5.1 | 12.6 | 15.8 | 3.2 | 9.5 | 4.8 | 13.6 | 328 | 328 | 328 |
| H 520 | H3-23 DO YOU WORK WITH VOLTAGE CONTROL SINUSOIDAL OSCILLATORS? | 47.8 | 41.2 | 44.6 | 14.1 | 35.3 | 52.6 | 36.5 | 35.7 | 12.5 | 46.9 | 328 | 328 | 328 |
| H 521 | H3-24 DO YOU WORK WITH CRYSTAL SINUSOIDAL OSCILLATORS? | 53.3 | 77.4 | 52.7 | 38.5 | 44.2 | 61.7 | 44.4 | 25.1 | 16.7 | 64.2 | 328 | 328 | 328 |
| H 522 | H3-25 DO YOU WORK WITH VOLTAGE CONTROL OSCILLATORS (VCO) SINUSOIDAL OSCILLATORS? | 53.3 | 41.7 | 51.5 | 14.1 | 43.7 | 52.6 | 54.0 | 43.7 | 8.9 | 54.3 | 328 | 328 | 328 |

D ISK TITLES

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|
| H 521 H3-26 DO YOU WORK WITH WIEN BRIDGE OSCILLATORS SINUSOIDAL OSCILLATORS? | 11.0 | 39.7 | 21.2 | 3.2 | 17.4 | 24.0 | 3.2 | 12.1 | 6.5 | 19.8 |
| H 524 H3-27 DO YOU WORK WITH - DON'T KNOW WHICH TYPE OF SINUSOIDAL OSCILLATOR? | 25.3 | 19.1 | 22.3 | 16.0 | 16.3 | 16.3 | 7.9 | 14.1 | 12.5 | 33.3 |
| H 525 H3-28 DO YOU WORK WITH PULSE GENERATING CIRCUITS? | 50.5 | 71.9 | 36.4 | 43.6 | 31.1 | 62.0 | 39.7 | 45.2 | 23.2 | 50.6 |
| M 526 H3-29 DO YOU WORK WITH BLOCKING OSCILLATORS? | 18.1 | 51.3 | 17.4 | 23.1 | 23.7 | 60.7 | 6.3 | 31.2 | 15.5 | 17.3 |
| H 527 H3-30 DO YOU WORK WITH BURST GENERATORS? | 13.2 | 61.8 | 7.6 | 9.0 | 7.4 | 41.8 | 4.8 | 11.1 | 6.5 | 9.9 |
| H 528 H3-31 DO YOU WORK WITH BLOCKED OSCILLATORS? | 10.4 | 39.7 | 10.3 | 10.9 | 14.2 | 40.3 | 4.8 | 13.1 | 5.0 | 12.3 |

MULTIVIBRATORS (11), LIGHTERS AND CLAMPERS (12), ELECTRON TUBES (13)

I 529 I1-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM I2-1; IF YES, CONTINUE.

I 530 I1-2 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUIT FREQUENCY DETERMINING DEVICES (FDD)?

I 531 I1-3 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORK FREQUENCY DETERMINING DEVICES (FDD)?

I 532 I1-4 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTAL FREQUENCY DETERMINING DEVICES (FDD)?

I 533 I1-5 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD?

I 534 I1-6 DO YOU WORK WITH ASTABLE (FPEE RUNNING) MULTIVIBRATORS?

I 535 I1-7 DO YOU WORK WITH MONOSTABLE (ONE SHOT) MULTIVIBRATORS?

I 536 I1-8 DO YOU WORK WITH BISTABLE (FLIP FLOP) MULTIVIBRATORS?

I 537 I1-9 DO YOU WORK WITH R-S FLIP-FLOP INTEGRATED CIRCUIT REGULATORS?

| | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|
| I 529 I1-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB? | 46.2 | 78.9 | 44.0 | 64.1 | 41.6 | 62.2 | 36.5 | 37.7 | 36.9 | 54.3 |
| I 530 I1-2 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUIT FREQUENCY DETERMINING DEVICES (FDD)? | 33.0 | 59.8 | 34.2 | 30.8 | 32.6 | 53.6 | 15.9 | 27.1 | 19.6 | 44.4 |
| I 531 I1-3 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORK FREQUENCY DETERMINING DEVICES (FDD)? | 40.1 | 69.3 | 35.9 | 41.0 | 35.3 | 57.7 | 17.5 | 32.7 | 26.8 | 45.7 |
| I 532 I1-4 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTAL FREQUENCY DETERMINING DEVICES (FDD)? | 36.3 | 55.8 | 27.7 | 34.6 | 32.1 | 56.1 | 25.4 | 23.6 | 17.9 | 42.0 |
| I 533 I1-5 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | 12.6 | 20.1 | 10.9 | 16.6 | 15.3 | 18.9 | 12.7 | 8.0 | 14.3 | 14.8 |
| I 534 I1-6 DO YOU WORK WITH ASTABLE (FPEE RUNNING) MULTIVIBRATORS? | 42.9 | 72.9 | 39.7 | 50.0 | 35.3 | 61.7 | 33.3 | 37.7 | 26.2 | 51.9 |
| I 535 I1-7 DO YOU WORK WITH MONOSTABLE (ONE SHOT) MULTIVIBRATORS? | 47.3 | 77.4 | 40.2 | 65.4 | 32.1 | 62.8 | 31.7 | 38.7 | 26.8 | 48.1 |
| I 536 I1-8 DO YOU WORK WITH BISTABLE (FLIP FLOP) MULTIVIBRATORS? | 49.5 | 79.4 | 42.4 | 68.6 | 37.4 | 63.8 | 31.7 | 40.2 | 36.3 | 54.3 |
| I 537 I1-9 DO YOU WORK WITH R-S FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | 18.7 | 40.7 | 16.3 | 41.0 | 12.1 | 23.0 | 31.7 | 26.1 | 18.5 | 37.0 |

| D ISM | TITLES | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| I 582 | 13-33 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 24.7 | 51.3 | 40.2 | 7.1 | 31.6 | 42.9 | 6.3 | 15.6 | 16.7 | 42.0 | | |
| I 583 | 13-34 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 25.8 | 57.8 | 41.0 | 10.3 | 32.1 | 46.5 | 7.9 | 21.6 | 16.7 | 43.2 | | |
| I 584 | 13-35 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 7.7 | 22.1 | 15.2 | 3.2 | 10.5 | 13.3 | 7.9 | 7.0 | 3.6 | 7.4 | | |
| I 585 | 13-36 DO YOU USE OR REFER TO TUBE SOCKET NOTATION? | 30.2 | 70.4 | 59.2 | 14.1 | 41.1 | 50.5 | 0 | 17.1 | 18.5 | 33.3 | | |
| I 586 | 13-37 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS? | 34.1 | 76.9 | 66.3 | 15.4 | 48.9 | 56.6 | 3.2 | 22.1 | 19.6 | 44.4 | | |
| I 587 | 13-38 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS? | 24.7 | 59.8 | 51.6 | 9.6 | 32.6 | 41.3 | 4.8 | 16.1 | 13.7 | 19.8 | | |
| I 588 | 13-39 DO YOU USE OR REFER TO ELECTRON TUBE DIODES? | 17.0 | 61.3 | 34.2 | 5.1 | 19.5 | 40.3 | 3.2 | 13.6 | 12.5 | 16.0 | | |

J ELECTRON TUBE AMPLIFIERS AND CIRCUITS (J1), SPECIAL PURPOSE ELECTRON TUBES (J2), METEODYNYING AND MODULATION - DEMODULATION (MODEMS) (J3)

| | | | | | | | | | | | | | |
|-------|---|------|------|------|-----|------|------|------|------|------|------|--|--|
| J 589 | J1-1 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM J2-1; IF YES, CONTINUE. | 35.2 | 70.4 | 60.2 | 8.3 | 45.8 | 56.6 | 41.3 | 22.1 | 23.2 | 50.6 | | |
| J 590 | J1-2 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? | 12.1 | 32.2 | 23.4 | 2.6 | 16.8 | 25.5 | 14.3 | 9.0 | 4.2 | 17.3 | | |
| J 591 | J1-3 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | 8.2 | 19.6 | 23.9 | 1.3 | 15.3 | 32.7 | 2.5 | 9.5 | 6.3 | 11.1 | | |
| J 592 | J1-4 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? | 18.1 | 59.3 | 48.9 | 3.8 | 35.8 | 49.0 | 7.9 | 16.1 | 12.5 | 25.9 | | |
| J 593 | J1-5 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? | 11.0 | 27.6 | 25.5 | 1.3 | 16.3 | 23.5 | 7.9 | 9.0 | 6.0 | 17.3 | | |
| J 594 | J1-6 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? | 9.3 | 49.2 | 32.1 | 2.6 | 20.0 | 42.3 | 4.8 | 17.6 | 8.3 | 18.5 | | |

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| O YSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| J 595 | J1-7 DO YOU TROUBLESHOOT OR REPAIR - DON'T KNOW WHICH TYPE OF AMPLIFIER? | 12.6 | 21.6 | 16.8 | 2.6 | 14.7 | 18.9 | 20.6 | 5.5 | 11.9 | 23.5 | | | | | | | |
| J 596 | J2-1 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)? | 15.4 | 68.8 | 27.2 | 6.4 | 24.7 | 46.9 | 22.2 | 19.6 | 15.5 | 18.5 | | | | | | | |
| J 597 | J2-2 DO YOU WORK WITH CATHODE-RAY TUBES (CRT)? | 30.2 | 49.2 | 31.0 | 63.5 | 20.0 | 70.9 | 33.3 | 65.3 | 31.5 | 29.6 | | | | | | | |
| J 598 | J2-3 DO YOU WORK WITH BEAM POWER TUBES? | 23.6 | 49.7 | 9.8 | 3.2 | 6.8 | 15.8 | 42.9 | 15.6 | 6.0 | 8.6 | | | | | | | |
| J 599 | J2-4 DO YOU WORK WITH THYRATONS? | 3.3 | 51.8 | 2.7 | 5.1 | 8.9 | 54.1 | 1.6 | 12.1 | 7.1 | 1.2 | | | | | | | |
| J 600 | J2-5 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)? | 26.9 | 16.1 | 16.3 | 41.0 | 5.8 | 54.1 | 39.1 | 41.7 | 13.7 | 12.3 | | | | | | | |
| J 601 | J2-6 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 19.8 | 15.6 | 15.2 | 37.8 | 5.3 | 53.6 | 31.7 | 40.2 | 10.1 | 9.9 | | | | | | | |
| J 602 | J2-7 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 12.6 | 13.1 | 13.6 | 29.5 | 4.2 | 49.0 | 17.5 | 33.2 | 7.7 | 9.9 | | | | | | | |
| J 603 | J2-8 DO YOU USE OR REFER TO PHOSPHOR SCREENS CONCERNING CRT'S? | 15.4 | 18.6 | 16.3 | 42.3 | 8.9 | 39.3 | 12.7 | 38.7 | 17.3 | 13.6 | | | | | | | |
| J 604 | J2-9 DO YOU USE OR REFER TO AQUADAG COATINGS CONCERNING CRT'S? | 8.2 | 10.6 | 10.3 | 30.1 | 3.2 | 31.1 | 4.8 | 35.7 | 17.3 | 4.9 | | | | | | | |
| J 605 | J2-10 DO YOU USE OR REFER TO ELECTRON OPTICS CONCERNING CRT'S? | 11.0 | 7.0 | 7.6 | 16.7 | 2.6 | 16.3 | 11.1 | 14.1 | 10.7 | 4.9 | | | | | | | |
| J 606 | J2-11 DO YOU USE OR REFER TO PERSISTENCE CONCERNING CRT'S? | 8.8 | 11.1 | 12.5 | 21.8 | 3.7 | 28.6 | 4.8 | 49.2 | 22.6 | 19.8 | | | | | | | |
| J 607 | J2-12 DO YOU USE OR REFER TO DECAY TIMES CONCERNING CRT'S? | 9.9 | 14.1 | 10.9 | 20.5 | 2.6 | 24.0 | 9.5 | 24.6 | 14.3 | 7.4 | | | | | | | |
| J 608 | J2-13 DO YOU USE OR REFER TO FLOURESCENCE CONCERNING CRT'S? | 11.5 | 13.6 | 12.5 | 23.7 | 4.7 | 31.6 | 7.9 | 32.2 | 16.1 | 11.1 | | | | | | | |
| J 609 | J2-14 DO YOU USE OR REFER TO PHOSPHORESCENCE CONCERNING CRT'S? | 11.5 | 14.6 | 13.6 | 25.0 | 6.3 | 32.7 | 6.3 | 32.7 | 16.7 | 11.1 | | | | | | | |
| J 610 | J2-15 DO YOU USE OR REFER TO SHADOW MASK CONCERNING CRT'S? | 8.2 | 9.5 | 7.1 | 10.3 | 4.2 | 16.3 | 3.2 | 12.6 | 12.5 | 6.2 | | | | | | | |
| J 611 | J3-1 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K1-1; IF YES, CONTINUE. | 65.9 | 74.9 | 75.5 | 37.8 | 87.4 | 83.7 | 76.2 | 79.9 | 44.0 | 88.9 | | | | | | | |
| J 612 | J3-2 DO YOU PERFORM TASKS ON FREQUENCY CONVERTER SYSTEMS STAGES? | 59.3 | 44.7 | 60.3 | 15.4 | 54.2 | 59.7 | 46.0 | 43.2 | 26.2 | 71.6 | | | | | | | |

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| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| J 613 | J3-3 DO YOU PERFORM TASKS ON FREQUENCY MIXER SYSTEMS STAGES? | 58.2 | 53.8 | 66.3 | 10.3 | 61.1 | 64.8 | 52.4 | 45.2 | 38.1 | 75.3 | 328 (M) |
| J 614 | J3-4 DO YOU PERFORM TASKS ON MODEM SYSTEMS STAGES? | 48.9 | 8.5 | 23.9 | 34.6 | 34.2 | 8.2 | 6.3 | 11.6 | 2.4 | 76.5 | 328 (M) |
| J 615 | J3-5 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS? | 48.9 | 63.8 | 62.0 | 16.0 | 55.3 | 64.8 | 38.1 | 45.7 | 17.3 | 70.4 | 328 (M) |
| J 616 | J3-6 DO YOU PERFORM TASKS ON REACTANCE MODULATOR SYSTEM STAGES? | 24.2 | 19.6 | 31.5 | 6.4 | 23.7 | 25.5 | 6.3 | 9.0 | 6.5 | 39.5 | 328 (M) |
| J 617 | J3-7 DO YOU PERFORM TASKS ON MODULATED OSCILLATOR SYSTEM STAGES? | 50.5 | 46.7 | 40.6 | 14.1 | 44.7 | 50.5 | 20.6 | 36.7 | 23.2 | 63.0 | 328 (M) |

K A4 SYSTEMS (K1), FM SYSTEMS (K2), NUMBERING SYSTEMS (K3)

| | | | | | | | | | | | | |
|-------|---|------|------|------|-----|------|------|-----|------|-----|------|---------|
| K 618 | K1-1 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K2-1; IF YES, CONTINUE. | 20.9 | 51.8 | 63.6 | 1.9 | 82.6 | 69.3 | 4.8 | 44.7 | 5.4 | 82.7 | 328 (M) |
| K 619 | K1-2 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS? | 15.9 | 48.2 | 63.6 | 1.9 | 82.6 | 62.2 | 3.2 | 41.2 | 4.2 | 75.3 | 328 (M) |
| K 620 | K1-3 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS? | 14.3 | 45.7 | 62.0 | 1.9 | 70.0 | 55.6 | .0 | 37.2 | 3.0 | 64.2 | 328 (M) |
| K 621 | K1-4 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS? | 15.9 | 49.2 | 62.0 | 1.9 | 69.5 | 55.6 | .0 | 37.2 | 4.2 | 81.5 | 328 (M) |
| K 622 | K1-5 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS? | 15.9 | 48.2 | 62.5 | 1.9 | 84.7 | 63.8 | 3.2 | 41.2 | 5.4 | 82.7 | 328 (M) |
| K 623 | K1-6 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS? | 14.3 | 46.7 | 62.0 | .6 | 72.6 | 55.6 | 1.6 | 34.2 | 3.0 | 69.1 | 328 (M) |
| K 624 | K1-7 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS? | 15.4 | 43.7 | 60.3 | 1.9 | 83.7 | 62.8 | .0 | 38.2 | 4.8 | 79.0 | 328 (M) |
| K 625 | K1-8 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS? | 13.7 | 44.2 | 61.4 | .6 | 72.6 | 57.1 | 3.2 | 33.7 | 3.0 | 70.4 | 328 (M) |
| K 626 | K1-9 DO YOU PERFORM TASKS ON RF OSCILLATORS/SYNTHESIZERS? | 14.3 | 46.2 | 61.4 | .6 | 58.4 | 48.0 | 3.2 | 31.7 | 3.0 | 64.2 | 328 (M) |
| K 627 | K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 14.3 | 48.7 | 61.4 | .6 | 61.1 | 51.0 | 3.2 | 34.7 | 3.6 | 66.7 | 328 (M) |
| K 628 | K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 15.4 | 44.2 | 61.4 | 1.3 | 62.1 | 52.6 | 1.6 | 24.1 | 3.6 | 65.4 | 328 (M) |
| K 629 | K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 14.3 | 48.7 | 57.6 | 1.3 | 61.1 | 49.0 | 3.2 | 32.7 | 2.4 | 69.1 | 328 (M) |
| K 630 | K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS? | 15.9 | 45.2 | 58.7 | .6 | 56.8 | 53.6 | 3.2 | 33.7 | 3.0 | 59.6 | 328 (M) |

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| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| K 631 | K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 15.4 | 46.2 | 60.3 | .0 | 61.6 | 52.6 | 3.2 | 30.2 | 3.6 | 64.2 | 3.6 | 64.2 | 3.6 | 64.2 |
| K 632 | K1-15 DO YOU PERFORM TASKS ON DETECTORS? | 16.5 | 47.7 | 58.7 | 1.3 | 57.9 | 51.0 | 3.2 | 34.7 | 3.0 | 61.7 | 3.0 | 61.7 | 3.0 | 61.7 |
| K 633 | K1-16 DO YOU PERFORM TASKS ON MIXER AMPLIFIERS? | 16.5 | 43.7 | 59.8 | .0 | 57.4 | 51.5 | 3.2 | 27.1 | 4.2 | 60.5 | 4.2 | 60.5 | 4.2 | 60.5 |
| K 634 | K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS? | 12.1 | 35.7 | 40.8 | .0 | 49.5 | 35.2 | 3.2 | 17.6 | 3.6 | 48.1 | 3.6 | 48.1 | 3.6 | 48.1 |
| K 635 | K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS? | 15.9 | 40.7 | 50.0 | .6 | 62.1 | 40.8 | 3.2 | 20.6 | 3.6 | 60.5 | 3.6 | 60.5 | 3.6 | 60.5 |
| K 636 | K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS? | 18.1 | 48.7 | 62.0 | 1.3 | 75.3 | 61.2 | 3.2 | 38.2 | 4.2 | 77.8 | 4.2 | 77.8 | 4.2 | 77.8 |
| K 637 | K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS? | 16.5 | 45.7 | 61.4 | 1.3 | 68.4 | 59.2 | 3.2 | 34.7 | 4.8 | 72.8 | 4.8 | 72.8 | 4.8 | 72.8 |
| K 638 | K2-1 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K3-1; IF YES, CONTINUE. | 64.3 | 50.3 | 33.2 | 4.5 | 52.1 | 57.3 | 19.0 | 53.3 | 20.8 | 90.1 | 20.8 | 90.1 | 20.8 | 90.1 |
| K 639 | K2-2 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS? | 59.3 | 46.7 | 29.3 | 4.5 | 42.5 | 67.3 | 14.3 | 49.7 | 18.5 | 81.5 | 18.5 | 81.5 | 18.5 | 81.5 |
| K 640 | K2-3 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS? | 54.9 | 44.7 | 27.2 | 4.5 | 40.0 | 59.7 | 4.8 | 43.7 | 16.1 | 67.9 | 16.1 | 67.9 | 16.1 | 67.9 |
| K 641 | K2-4 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS? | 60.4 | 46.2 | 26.6 | 3.8 | 35.3 | 60.2 | 9.5 | 43.2 | 15.5 | 87.7 | 15.5 | 87.7 | 15.5 | 87.7 |
| K 642 | K2-5 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS? | 59.3 | 46.2 | 27.2 | 4.5 | 50.0 | 69.9 | 15.9 | 48.2 | 19.6 | 87.7 | 19.6 | 87.7 | 19.6 | 87.7 |
| K 643 | K2-6 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS? | 52.2 | 45.2 | 26.1 | 3.8 | 37.4 | 62.2 | 14.3 | 40.7 | 16.1 | 74.1 | 16.1 | 74.1 | 16.1 | 74.1 |
| K 644 | K2-7 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS? | 54.4 | 43.2 | 27.2 | 4.5 | 48.9 | 69.4 | 9.5 | 46.2 | 18.5 | 82.7 | 18.5 | 82.7 | 18.5 | 82.7 |
| K 645 | K2-8 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS? | 52.7 | 44.7 | 26.1 | 4.5 | 35.8 | 63.3 | 14.3 | 40.7 | 17.9 | 75.3 | 17.9 | 75.3 | 17.9 | 75.3 |
| K 646 | K2-9 DO YOU PERFORM LINK PERFORMANCE ASSESSMENTS? | 53.8 | 11.1 | 9.2 | 2.6 | 17.4 | 17.9 | 4.8 | 14.6 | 7.1 | 72.8 | 7.1 | 72.8 | 7.1 | 72.8 |
| K 647 | K2-10 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 51.6 | 41.2 | 26.6 | 1.3 | 30.5 | 53.1 | 3.2 | 22.6 | 13.7 | 64.2 | 13.7 | 64.2 | 13.7 | 64.2 |
| K 648 | K2-11 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS? | 54.4 | 44.2 | 24.5 | 1.3 | 28.4 | 57.1 | 11.1 | 27.1 | 12.5 | 66.7 | 12.5 | 66.7 | 12.5 | 66.7 |
| K 649 | K2-12 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)? | 52.2 | 43.2 | 25.0 | 3.2 | 27.9 | 54.6 | 14.3 | 32.2 | 11.3 | 70.4 | 11.3 | 70.4 | 11.3 | 70.4 |
| K 650 | K2-13 DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 53.3 | 44.7 | 25.0 | 2.6 | 30.5 | 57.1 | 14.3 | 33.2 | 13.1 | 72.8 | 13.1 | 72.8 | 13.1 | 72.8 |
| K 651 | K2-14 DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 54.0 | 44.2 | 26.6 | .6 | 29.5 | 58.7 | 12.7 | 38.2 | 12.5 | 70.4 | 12.5 | 70.4 | 12.5 | 70.4 |
| K 652 | K2-15 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS? | 52.7 | 36.2 | 22.3 | 2.6 | 26.8 | 53.1 | 11.1 | 32.2 | 12.5 | 65.4 | 12.5 | 65.4 | 12.5 | 65.4 |
| K 653 | K2-16 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 56.0 | 44.2 | 26.6 | .6 | 29.5 | 59.2 | 12.7 | 32.2 | 15.1 | 65.4 | 15.1 | 65.4 | 15.1 | 65.4 |

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| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| L 693 | L1-9 DO YOU USE OR REFER TO TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS? | 29.1 | 54.3 | 26.1 | 57.1 | 19.5 | 25.0 | 50.8 | 29.1 | 25.0 | 42.0 |
| L 694 | L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'AND' GATES? | 39.0 | 65.3 | 35.9 | 77.6 | 26.8 | 47.4 | 66.7 | 37.7 | 31.0 | 44.9 |
| L 695 | L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'OR' GATES? | 39.0 | 65.8 | 35.9 | 77.6 | 27.9 | 47.4 | 66.7 | 37.7 | 31.0 | 44.9 |
| L 696 | L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'NAND' OR 'MOR' GATES? | 39.0 | 65.8 | 35.3 | 71.8 | 27.9 | 45.9 | 65.1 | 37.7 | 30.4 | 44.9 |
| L 697 | L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'EXCLUSIVE OR' GATES? | 34.6 | 61.8 | 29.9 | 69.9 | 27.9 | 36.7 | 66.7 | 36.2 | 29.8 | 44.9 |
| L 698 | L1-14 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR INHIBITED 'AND' GATES? | 34.6 | 60.3 | 29.9 | 58.3 | 23.7 | 44.9 | 49.2 | 34.2 | 25.0 | 40.7 |
| L 699 | L1-15 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'B' BARS? | 3.3 | 6.0 | 4.9 | 6.4 | 7.9 | 6.6 | 3.2 | 4.5 | 6.0 | 12.3 |
| L 700 | L1-16 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'M' BARS? | 3.3 | 6.0 | 4.3 | 5.1 | 7.9 | 6.1 | 3.2 | 4.5 | 4.8 | 12.3 |
| L 701 | L1-17 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR COMBINERS? | 17.0 | 19.6 | 12.5 | 14.1 | 9.5 | 8.7 | 17.5 | 19.6 | 4.5 | 24.7 |
| L 702 | L1-18 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS? | 35.7 | 66.3 | 30.4 | 71.2 | 22.6 | 45.4 | 46.0 | 31.7 | 26.2 | 42.0 |
| L 703 | L1-19 DO YOU USE OR REFER TO ONE-SHOT MULTIVIBRATOR SYMBOLS? | 34.1 | 64.3 | 29.9 | 71.2 | 17.4 | 45.4 | 46.0 | 32.2 | 22.0 | 42.0 |
| L 704 | L1-20 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT OR SCHEMATIC DIAGRAMS? | 36.3 | 65.3 | 32.6 | 73.7 | 22.6 | 45.9 | 52.4 | 33.2 | 28.0 | 43.2 |
| L 705 | L1-21 DO YOU USE OR REFER TO ONE-SHOT CIRCUIT OR SCHEMATIC DIAGRAMS? | 33.5 | 62.8 | 30.4 | 69.2 | 17.4 | 44.9 | 44.4 | 33.7 | 19.6 | 42.0 |
| L 706 | L1-22 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES? | 28.6 | 54.3 | 28.3 | 55.1 | 17.4 | 27.6 | 44.4 | 26.6 | 20.2 | 35.8 |
| L 707 | L1-23 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | 21.4 | 46.2 | 20.7 | 55.8 | 15.8 | 29.1 | 30.2 | 22.1 | 23.2 | 28.4 |
| L 708 | L1-24 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS? | 21.4 | 46.2 | 20.7 | 53.8 | 15.8 | 29.1 | 30.2 | 22.1 | 22.6 | 27.2 |
| L 709 | L1-25 DO YOU USE OR REFER TO NONCOMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | 18.7 | 38.7 | 19.6 | 48.7 | 14.2 | 25.0 | 30.2 | 19.6 | 19.6 | 24.7 |
| L 710 | L1-26 DO YOU CONSTRUCT TRUTH TABLES FOR 'B' BARS? | 3.3 | 4.0 | 2.7 | 3.8 | 6.3 | 2.0 | 1.6 | 2.5 | 3.6 | 8.6 |
| L 711 | L1-27 DO YOU CONSTRUCT TRUTH TABLES FOR 'M' BARS? | 3.3 | 4.0 | 2.7 | 3.2 | 6.3 | 2.0 | 1.6 | 2.5 | 3.0 | 8.6 |
| L 712 | L1-28 DO YOU CONSTRUCT TRUTH TABLES FOR COMBINERS? | 9.3 | 10.1 | 4.3 | 6.4 | 8.4 | 4.1 | 4.8 | 5.0 | 4.2 | 11.1 |

| D TSK | TITLES | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| L 713 | L1-29 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS? | 32.4 | 49.7 | 23.4 | 65.4 | 22.6 | 35.7 | 31.7 | 30.2 | 19.0 | 33.3 | 33.3 | 33.3 | 33.3 |
| L 714 | L1-30 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS? | 25.8 | 43.7 | 23.4 | 54.5 | 17.9 | 28.1 | 39.7 | 22.1 | 23.2 | 34.6 | 34.6 | 34.6 | 34.6 |
| L 715 | L1-31 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | 24.2 | 43.7 | 23.4 | 53.2 | 16.8 | 28.6 | 38.1 | 21.6 | 19.6 | 29.6 | 29.6 | 29.6 | 29.6 |
| L 716 | L1-32 DO YOU TRACE DATA FLOW THROUGH NONCOMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | 21.4 | 38.2 | 20.7 | 52.6 | 15.8 | 23.5 | 36.5 | 19.1 | 17.3 | 30.9 | 30.9 | 30.9 | 30.9 |
| L 717 | L1-33 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS? | 16.5 | 33.7 | 16.3 | 35.9 | 8.4 | 8.7 | 31.7 | 16.1 | 10.1 | 27.2 | 27.2 | 27.2 | 27.2 |
| L 718 | L2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS? IF NO, GO TO ITEM L3-1; IF YES, CONTINUE. | 15.4 | 27.1 | 16.8 | 50.0 | 18.4 | 26.5 | 30.2 | 21.1 | 20.2 | 21.0 | 21.0 | 21.0 | 21.0 |
| L 719 | L2-2 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS? | 6.6 | 10.6 | 7.1 | 17.3 | 8.4 | 9.6 | 11.1 | 7.5 | 4.8 | 8.6 | 8.6 | 8.6 | 8.6 |
| L 720 | L2-3 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | 3.8 | 5.0 | 5.4 | 5.8 | 5.8 | 3.6 | 1.6 | 4.5 | 3.0 | 7.4 | 7.4 | 7.4 | 7.4 |
| L 721 | L2-4 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS? | 6.0 | 8.5 | 6.5 | 21.8 | 11.1 | 7.1 | 12.7 | 9.5 | 8.9 | 9.9 | 9.9 | 9.9 | 9.9 |
| L 722 | L2-5 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES? | 13.2 | 23.1 | 15.8 | 46.8 | 15.8 | 24.5 | 22.2 | 21.1 | 17.3 | 14.8 | 14.8 | 14.8 | 14.8 |
| L 723 | L2-6 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS? | 6.0 | 10.6 | 7.6 | 28.2 | 11.1 | 8.2 | 17.5 | 11.6 | 10.1 | 11.1 | 11.1 | 11.1 | 11.1 |
| L 724 | L2-7 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA? | 6.6 | 12.6 | 7.6 | 29.5 | 13.2 | 8.7 | 19.0 | 12.6 | 12.5 | 11.1 | 11.1 | 11.1 | 11.1 |
| L 725 | L2-8 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES? | 10.4 | 17.1 | 10.9 | 26.9 | 10.0 | 11.2 | 12.7 | 10.1 | 8.3 | 13.6 | 13.6 | 13.6 | 13.6 |
| L 726 | L2-9 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | 5.5 | 7.5 | 6.0 | 9.0 | 5.8 | 5.1 | 9.5 | 6.5 | 4.2 | 9.9 | 9.9 | 9.9 | 9.9 |
| L 727 | L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE? | 13.7 | 25.6 | 15.2 | 48.1 | 15.8 | 22.4 | 28.6 | 22.1 | 17.9 | 17.3 | 17.3 | 17.3 | 17.3 |
| L 728 | L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS? | 6.0 | 13.6 | 9.8 | 19.9 | 8.9 | 9.7 | 17.5 | 10.6 | 8.3 | 16.0 | 16.0 | 16.0 | 16.0 |

| D TSK | TITLES | 304 (M) | 304 (P) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 326 (M) | 326 (M) | 326 (M) | 326 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 355 (M) | 355 (M) | 355 (M) |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| L 729 | L2-J2 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS? | 8.2 | 18.6 | 12.5 | 27.6 | 10.0 | 9.7 | 19.0 | 11.6 | 8.9 | 16.0 | 32.8 | 32.8 | 32.8 | 32.8 | 32.8 | 32.8 | 32.8 |
| L 730 | L3-1 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M1-1; IF YES, CONTINUE. | 33.5 | 64.8 | 30.4 | 65.4 | 26.3 | 37.2 | 55.6 | 38.7 | 32.7 | 53.1 | | | | | | | |
| L 731 | L3-2 DO YOU USE OR REFER TO UP-COUNTERS? | 29.1 | 55.3 | 27.7 | 63.5 | 26.8 | 38.3 | 58.7 | 36.7 | 29.8 | 49.4 | | | | | | | |
| L 732 | L3-3 DO YOU USE OR REFER TO DOWN-COUNTERS? | 28.6 | 50.8 | 25.5 | 62.2 | 25.8 | 35.2 | 58.7 | 36.7 | 27.4 | 44.4 | | | | | | | |
| L 733 | L3-4 DO YOU USE OR REFER TO SERIAL COUNTERS? | 24.2 | 43.2 | 26.1 | 62.2 | 23.7 | 34.7 | 52.4 | 31.7 | 28.0 | 48.1 | | | | | | | |
| L 734 | L3-5 DO YOU USE OR REFER TO PARALLEL COUNTERS? | 23.1 | 37.7 | 23.9 | 59.0 | 22.1 | 25.5 | 49.2 | 29.6 | 22.0 | 40.7 | | | | | | | |
| L 735 | L3-6 DO YOU USE OR REFER TO RING COUNTERS? | 11.0 | 31.7 | 15.8 | 46.2 | 7.9 | 11.7 | 30.2 | 21.1 | 11.3 | 17.3 | | | | | | | |
| L 736 | L3-7 DO YOU USE OR REFER TO DECADE (MOD 10) COUNTERS? | 22.5 | 56.3 | 17.9 | 34.6 | 16.3 | 12.8 | 31.7 | 25.6 | 14.3 | 23.5 | | | | | | | |
| L 737 | L3-8 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS? | 18.7 | 47.7 | 19.6 | 58.3 | 13.2 | 17.3 | 38.1 | 24.6 | 19.0 | 32.1 | | | | | | | |
| L 738 | L3-9 DO YOU USE OR REFER TO DOWN CLOCKS? | 26.9 | 61.3 | 27.2 | 60.9 | 23.2 | 31.1 | 57.1 | 35.2 | 26.8 | 44.4 | | | | | | | |
| L 739 | L3-10 DO YOU USE OR REFER TO UP CLOCKS? | 26.9 | 60.8 | 26.6 | 60.9 | 22.6 | 31.1 | 57.1 | 35.2 | 26.8 | 44.4 | | | | | | | |
| L 740 | L3-11 DO YOU USE OR REFER TO OTHER MODULOUS COUNTERS? | 18.1 | 26.6 | 12.5 | 34.6 | 9.5 | 13.3 | 30.2 | 20.6 | 13.7 | 25.9 | | | | | | | |
| L 741 | L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS? | 26.4 | 46.2 | 26.1 | 60.9 | 14.2 | 30.1 | 44.4 | 27.6 | 16.1 | 43.2 | | | | | | | |
| L 742 | L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DOWN-COUNTERS? | 26.4 | 43.7 | 23.9 | 59.0 | 13.7 | 28.6 | 44.4 | 27.1 | 16.1 | 38.3 | | | | | | | |
| L 743 | L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-DOWN COUNTERS? | 20.9 | 35.2 | 20.1 | 50.0 | 10.5 | 20.9 | 38.1 | 25.1 | 14.1 | 37.0 | | | | | | | |
| L 744 | L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS? | 22.0 | 47.7 | 17.9 | 34.6 | 10.5 | 12.2 | 23.8 | 23.6 | 11.9 | 27.2 | | | | | | | |
| L 745 | L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS? | 11.5 | 26.1 | 13.6 | 40.4 | 4.7 | 7.7 | 22.2 | 18.6 | 7.1 | 16.0 | | | | | | | |
| L 746 | L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF COUNTERS FEEDING STORAGE REGISTERS? | 19.8 | 31.7 | 18.5 | 52.6 | 11.6 | 15.8 | 28.6 | 24.6 | 12.5 | 38.1 | | | | | | | |
| L 747 | L3-18 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS? | 24.2 | 29.1 | 22.3 | 60.9 | 13.7 | 14.3 | 42.9 | 26.1 | 14.9 | 40.7 | | | | | | | |
| L 748 | L3-19 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS? | 19.2 | 28.1 | 14.1 | 39.1 | 7.4 | 15.3 | 30.2 | 20.1 | 8.9 | 29.6 | | | | | | | |

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| D TSM | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| L 749 | L3-20 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS? | 11.0 | 23.1 | 8.7 | 12.8 | 4.7 | 6.1 | 14.3 | 9.5 | 7.1 | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 |
| L 750 | L3-21 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES? | 12.6 | 30.7 | 14.1 | 35.9 | 5.8 | 9.7 | 20.6 | 16.1 | 7.7 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 |
| L 751 | L3-22 DO YOU DETERMINE THE APPROPRIATE 'AND' GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT? | 17.0 | 39.2 | 18.5 | 46.8 | 10.5 | 15.3 | 23.8 | 17.1 | 10.1 | 25.9 | 25.9 | 25.9 | 25.9 | 25.9 |
| M | TIMING CIRCUITS (M1), USE OF SIGNAL GENERATORS (M2), MOTORS AND GENERATORS (M3) | | | | | | | | | | | | | | |
| M 752 | M1-1 DO YOU WORK WITH SAWTOOTH WAVE GENERATOR TIMING CIRCUITS? | 32.4 | 54.3 | 33.7 | 30.8 | 26.3 | 66.3 | 19.0 | 55.3 | 24.4 | 55.6 | 55.6 | 55.6 | 55.6 | 55.6 |
| M 753 | M1-2 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATOR TIMING CIRCUITS? | 13.7 | 28.1 | 17.4 | 12.2 | 15.3 | 64.3 | 7.9 | 30.2 | 10.1 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 |
| M 754 | M1-3 DO YOU WORK WITH PULSED OSCILLATOR TIMING CIRCUITS? | 30.8 | 53.8 | 22.8 | 44.9 | 22.1 | 60.2 | 33.3 | 39.7 | 23.2 | 44.4 | 44.4 | 44.4 | 44.4 | 44.4 |
| M 755 | M1-4 DO YOU WORK WITH BLOCKING OSCILLATOR TIMING CIRCUITS? | 12.1 | 42.7 | 13.0 | 25.0 | 16.3 | 64.3 | 11.1 | 28.6 | 13.1 | 17.3 | 17.3 | 17.3 | 17.3 | 17.3 |
| M 756 | M1-5 DO YOU WORK WITH MASTER STATION TIMING CIRCUITS? | 25.3 | 21.1 | 16.3 | 35.3 | 11.1 | 32.7 | 27.0 | 12.6 | 5.5 | 24.7 | 24.7 | 24.7 | 24.7 | 24.7 |
| M 757 | M1-6 DO YOU USE OR REFER TO RISE TIME? | 32.4 | 79.4 | 28.8 | 69.2 | 20.0 | 67.9 | 46.0 | 49.7 | 29.2 | 48.1 | 48.1 | 48.1 | 48.1 | 48.1 |
| M 758 | M1-7 DO YOU USE OR REFER TO FALL OR FLYBACK TIME? | 31.9 | 70.9 | 25.5 | 62.2 | 17.9 | 59.7 | 41.3 | 48.2 | 23.2 | 42.0 | 42.0 | 42.0 | 42.0 | 42.0 |
| M 759 | M1-8 DO YOU USE OR REFER TO SWEEP TIME? | 38.5 | 67.8 | 33.2 | 60.3 | 24.7 | 70.4 | 36.5 | 62.8 | 37.5 | 54.3 | 54.3 | 54.3 | 54.3 | 54.3 |
| M 760 | M1-9 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS? | 22.5 | 36.7 | 20.1 | 28.8 | 16.3 | 64.8 | 12.7 | 38.2 | 20.8 | 32.1 | 32.1 | 32.1 | 32.1 | 32.1 |
| M 761 | M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS? | 20.9 | 34.7 | 20.7 | 27.6 | 16.3 | 63.3 | 12.7 | 45.2 | 22.0 | 32.1 | 32.1 | 32.1 | 32.1 | 32.1 |
| M 762 | M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS? | 16.5 | 30.7 | 19.0 | 22.4 | 13.2 | 49.0 | 12.7 | 39.2 | 16.1 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 |
| M 763 | M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS? | 19.2 | 40.7 | 20.7 | 26.3 | 14.2 | 61.2 | 15.9 | 33.2 | 22.0 | 28.4 | 28.4 | 28.4 | 28.4 | 28.4 |

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| D | TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|---|-----|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| M | 784 | M3-7 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS? | 17.0 | 43.7 | 42.4 | 44.2 | 38.9 | 57.7 | 6.3 | 30.7 | 32.1 | 45.7 | | | | | | | |
| M | 785 | M3-8 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS? | 7.1 | 13.6 | 19.6 | 19.9 | 12.6 | 13.3 | 3.2 | 11.1 | 4.8 | 13.6 | | | | | | | |
| M | 786 | M3-9 DO YOU PERFORM TASKS ON MOTOR FIELD COILS? | 3.8 | 6.0 | 9.2 | 10.3 | 5.3 | 7.7 | .0 | 2.5 | 3.6 | 7.4 | | | | | | | |
| M | 787 | M3-10 DO YOU PERFORM ANY TASKS ON MOTOR ARMATURES? | 7.7 | 9.5 | 12.0 | 13.5 | 7.4 | 11.2 | .0 | 7.5 | 3.0 | 6.2 | | | | | | | |
| M | 788 | M3-11 DO YOU PERFORM ANY TASKS ON MOTOR ROTORS? | 7.1 | 9.0 | 11.4 | 14.7 | 6.8 | 12.0 | .0 | 7.5 | 3.6 | 6.2 | | | | | | | |
| M | 789 | M3-12 DO YOU PERFORM ANY TASKS ON MOTOR BRUSHES? | 7.7 | 7.0 | 17.9 | 22.4 | 11.6 | 16.3 | 1.6 | 11.6 | 3.6 | 7.0 | | | | | | | |
| M | 790 | M3-13 DO YOU PERFORM ANY TASKS ON MOTOR SLIP RINGS? | 4.4 | 5.0 | 11.4 | 10.3 | 5.8 | 17.3 | 1.6 | 5.5 | 3.6 | 4.9 | | | | | | | |
| M | 791 | M3-14 DO YOU PERFORM ANY TASKS ON MOTOR COMMUTATORS? | 3.8 | 3.5 | 11.4 | 11.5 | 6.3 | 8.7 | .0 | 5.5 | 1.8 | 3.7 | | | | | | | |
| M | 792 | M3-15 DO YOU PERFORM ANY TASKS ON MOTOR POLE PIECES? | 3.3 | 3.5 | 8.7 | 9.0 | 6.8 | 5.6 | .0 | 2.0 | 1.2 | 3.7 | | | | | | | |
| M | 793 | M3-16 DO YOU DETERMINE OR MEASURE FORCE OR TORQUE CREATED BY A MOTOR? | 2.2 | 1.0 | 7.6 | 7.1 | 5.8 | 14.8 | .0 | 4.0 | 2.4 | 2.5 | | | | | | | |
| M | 794 | M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR? | 3.8 | 10.6 | 10.9 | 10.9 | 10.0 | 18.9 | 1.6 | 6.0 | 7.7 | 7.4 | | | | | | | |
| M | 795 | M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS? | 2.7 | 6.0 | 6.5 | 8.3 | 6.3 | 14.3 | .0 | 2.5 | 9.3 | 8.6 | | | | | | | |
| M | 796 | M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS? | 8.8 | 15.6 | 23.4 | 23.7 | 15.3 | 48.5 | .0 | 7.5 | 23.2 | 17.3 | | | | | | | |
| M | 797 | M3-20 DO YOU WORK WITH INDUCTION MOTORS? | 6.6 | 17.1 | 23.4 | 15.4 | 13.2 | 37.2 | 4.8 | 11.1 | 12.5 | 9.9 | | | | | | | |
| M | 798 | M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS? | 7.7 | 21.1 | 12.5 | 10.9 | 8.9 | 34.2 | 1.6 | 6.5 | 10.1 | 7.4 | | | | | | | |
| M | 799 | M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS? | 8.2 | 21.1 | 21.7 | 21.2 | 14.7 | 34.7 | 3.2 | 11.6 | 12.5 | 16.0 | | | | | | | |
| M | 800 | M3-23 DO YOU WORK WITH SERVOS OR SYNCHROS MOTORS? | 12.6 | 13.1 | 33.2 | 29.5 | 32.1 | 57.7 | .0 | 12.6 | 36.3 | 45.7 | | | | | | | |
| M | 801 | M3-24 DO YOU WORK WITH SHADED-POLE MOTORS? | 1.6 | 2.5 | 1.6 | 4.5 | 3.2 | 4.1 | .0 | 2.0 | 1.8 | 1.2 | | | | | | | |
| M | 802 | M3-25 DO YOU INSPECT GENERATORS OR ALTERNATORS? | 9.9 | 18.1 | 12.0 | 12.8 | 6.8 | 12.2 | 1.6 | 6.0 | 10.1 | 6.2 | | | | | | | |
| M | 803 | M3-26 DO YOU CLEAN OR LUBRICATE GENERATORS OR ALTERNATORS? | 6.6 | 8.5 | 8.2 | 11.5 | 5.3 | 9.7 | 1.6 | 5.0 | 5.4 | 6.2 | | | | | | | |
| M | 804 | M3-27 DO YOU OPERATE GENERATORS OR ALTERNATORS? | 11.0 | 20.6 | 12.0 | 8.3 | 7.4 | 12.2 | 1.6 | 7.0 | 8.3 | 6.2 | | | | | | | |
| M | 805 | M3-28 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS OR ALTERNATORS? | 3.8 | 5.0 | 6.0 | 6.4 | 6.8 | 10.2 | 1.6 | 4.0 | 9.5 | 4.9 | | | | | | | |
| M | 806 | M3-29 DO YOU REMOVE OR REPLACE GENERATOR, ALTERNATOR, OR PARTS? | 3.3 | 5.5 | 5.4 | 6.4 | 4.2 | 8.2 | 1.6 | 2.0 | 5.4 | 3.7 | | | | | | | |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|-----|-----|-----|
| M 807 | M3-30 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS OR ALTERNATORS? | 5.5 | 9.0 | 6.2 | 6.3 | 6.3 | 10.2 | 1.6 | 6.0 | 10.1 | 9.9 | | | | |
| M 808 | M3-31 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS OR ALTERNATORS? | 2.2 | 3.0 | 4.3 | 3.0 | 2.1 | 6.1 | 1.6 | 1.5 | .0 | 2.5 | | | | |

N METER MOVEMENTS (N1), SATURABLE REACTORS AND MAGNETIC AMPLIFIERS (N2), WAVESHAPING CIRCUITS (N3)

| | | | | | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|--|--|--|--|
| N 809 | N1-1 DO YOU WORK WITH METERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM N2-1; IF YES, CONTINUE. | 80.8 | 84.9 | 79.9 | 74.4 | 85.8 | 85.7 | 68.3 | 83.9 | 79.2 | 81.5 | | | | |
| N 810 | N1-2 DO YOU CONSIDER THE FUNCTIONS OF PERMANENT MAGNET INTERNAL METER PARTS? | 16.5 | 26.1 | 23.9 | 12.8 | 15.8 | 30.1 | 9.8 | 18.1 | 14.1 | 21.0 | | | | |
| N 811 | N1-3 DO YOU CONSIDER THE FUNCTIONS OF MOVING COIL INTERNAL METER PARTS? | 23.1 | 34.2 | 26.1 | 19.2 | 14.7 | 36.7 | 9.5 | 17.1 | 16.1 | 23.5 | | | | |
| N 812 | N1-4 DO YOU CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS INTERNAL METER PARTS? | 15.9 | 25.1 | 20.1 | 17.9 | 13.7 | 24.0 | 11.1 | 14.1 | 14.9 | 16.0 | | | | |
| N 813 | N1-5 DO YOU READ METER SCALES? | 81.3 | 84.9 | 80.4 | 73.1 | 84.2 | 86.7 | 61.9 | 83.9 | 76.8 | 80.2 | | | | |
| N 814 | N1-6 DO YOU EXTEND THE RANGE OF AMMETERS? | 30.8 | 35.7 | 27.7 | 24.4 | 34.7 | 39.3 | 15.9 | 34.7 | 28.0 | 27.2 | | | | |
| N 815 | N1-7 DO YOU EXTEND THE RANGE OF VOLTMETERS? | 42.3 | 49.2 | 39.1 | 34.0 | 44.2 | 52.6 | 27.0 | 41.2 | 41.1 | 38.3 | | | | |
| N 816 | N1-8 DO YOU ZERO OHMMETERS? | 79.7 | 84.4 | 79.9 | 71.8 | 83.2 | 86.2 | 65.1 | 84.4 | 78.6 | 82.7 | | | | |
| N 817 | N1-9 DO YOU ZERO AMMETERS? | 41.0 | 51.8 | 41.8 | 32.1 | 45.8 | 50.5 | 33.3 | 40.7 | 37.5 | 46.9 | | | | |
| N 818 | N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)? | 41.2 | 55.3 | 57.6 | 30.8 | 41.6 | 52.0 | 23.8 | 47.2 | 43.5 | 55.6 | | | | |
| N 819 | N1-11 DO YOU CONSIDER BALLASTIC RESPONSE OF METER MOVEMENTS? | 9.3 | 8.0 | 9.2 | 5.1 | 11.6 | 10.2 | 7.9 | 8.0 | 3.6 | 14.8 | | | | |
| N 820 | N1-12 DO YOU CONSIDER OTHER METER MOVEMENTS? | 28.0 | 34.7 | 29.9 | 24.4 | 30.0 | 36.7 | 25.4 | 33.7 | 22.6 | 42.0 | | | | |
| N 821 | N2-1 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM N3-1; IF YES, CONTINUE. | 8.8 | 33.7 | 9.2 | 10.9 | 6.8 | 15.3 | 1.6 | 15.1 | 9.5 | 1.2 | | | | |

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| N 822 | N2-2 DO YOU INSPECT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 6.0 | 32.2 | 6.0 | 7.7 | 4.7 | 14.3 | .0 | 12.6 | 7.7 | .0 | .0 | 328 | 328 |
| N 823 | N2-3 DO YOU CLEAN SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 5.5 | 27.1 | 4.3 | 6.4 | 3.2 | 12.8 | .0 | 10.1 | 5.4 | .0 | .0 | 328 | 328 |
| N 824 | N2-4 DO YOU ADJUST SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 5.5 | 23.6 | 3.3 | 3.8 | 3.7 | 12.2 | .0 | 8.0 | 3.6 | .0 | .0 | 328 | 328 |
| N 825 | N2-5 DO YOU TROUBLESHOOT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 4.9 | 28.1 | 4.3 | 5.8 | 3.7 | 12.2 | .0 | 11.1 | 7.1 | .0 | .0 | 328 | 328 |
| N 826 | N2-6 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS? | 6.0 | 25.1 | 5.4 | 6.4 | 4.7 | 12.8 | .0 | 10.1 | 7.7 | .0 | .0 | 328 | 328 |
| N 827 | N2-7 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS? | 3.3 | 19.6 | 3.8 | 4.5 | 3.2 | 8.2 | .0 | 6.0 | 3.6 | .0 | .0 | 328 | 328 |
| N 828 | N2-8 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS? | 2.7 | 5.0 | 2.7 | 3.2 | 3.2 | 2.0 | .0 | 3.5 | 3.0 | .0 | .0 | 328 | 328 |
| N 829 | N2-9 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | 5.5 | 16.6 | 4.3 | 3.8 | 3.2 | 8.7 | .0 | 7.5 | 3.0 | .0 | .0 | 328 | 328 |
| N 830 | N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | 6.0 | 16.6 | 3.8 | 3.8 | 3.2 | 9.2 | .0 | 8.5 | 5.4 | .0 | .0 | 328 | 328 |
| N 831 | N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS? | 4.4 | 13.1 | 4.3 | 3.8 | 2.6 | 7.7 | .0 | 6.5 | 3.0 | .0 | .0 | 328 | 328 |
| N 832 | N2-12 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS? | 7.7 | 29.1 | 6.5 | 5.1 | 4.2 | 11.2 | .0 | 12.6 | 6.0 | .0 | .0 | 328 | 328 |
| N 833 | N3-1 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 01-1; IF YES, CONTINUE. | 39.0 | 78.4 | 26.6 | 55.1 | 22.1 | 63.3 | 66.7 | 51.3 | 29.8 | 39.5 | .0 | 328 | 328 |
| N 834 | N3-2 DO YOU USE OR REFER TO TRANSIENT INTERVALS, RISE TIME AND FALL TIME? | 30.8 | 71.4 | 19.0 | 50.6 | 14.2 | 54.1 | 52.4 | 41.2 | 20.2 | 35.8 | .0 | 328 | 328 |
| N 835 | N3-3 DO YOU USE OR REFER TO PULSE WIDTH (PW)? | 36.3 | 76.9 | 22.8 | 55.1 | 17.9 | 63.3 | 65.1 | 49.7 | 25.0 | 38.3 | .0 | 328 | 328 |
| N 836 | N3-4 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)? | 25.3 | 71.4 | 21.2 | 53.8 | 14.7 | 62.8 | 58.7 | 48.7 | 22.0 | 32.1 | .0 | 328 | 328 |
| N 837 | N3-5 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)? | 21.4 | 65.8 | 21.2 | 50.0 | 14.7 | 63.8 | 65.1 | 49.2 | 21.4 | 29.6 | .0 | 328 | 328 |
| N 838 | N3-6 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS? | 28.6 | 68.3 | 21.2 | 46.4 | 14.2 | 48.0 | 25.4 | 29.6 | 17.3 | 25.9 | .0 | 328 | 328 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSM | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| N 839 | M3-7 DO YOU USE OR REFER TO INTEGRATING CIRCUITS? | 29.1 | 65.8 | 21.2 | 44.9 | 15.3 | 48.5 | 41.3 | 34.2 | 22.0 | 25.9 | | | | | | | |
| N 840 | M3-8 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT? | 20.3 | 48.7 | 16.3 | 27.6 | 11.1 | 40.8 | 22.2 | 27.6 | 12.5 | 19.8 | | | | | | | |
| N 841 | M3-9 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION? | 13.7 | 31.2 | 13.0 | 19.2 | 7.4 | 23.0 | 14.3 | 10.1 | 4.8 | 11.1 | | | | | | | |
| N 842 | M3-10 DO YOU WORK WITH SQUARE WAVE GENERATOR SOLID STATE CIRCUITS? | 36.3 | 63.8 | 16.8 | 37.2 | 18.4 | 56.1 | 30.2 | 42.2 | 18.5 | 43.2 | | | | | | | |
| N 843 | M3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATOR SOLID STATE CIRCUITS? | 20.9 | 45.2 | 9.2 | 21.2 | 11.6 | 43.9 | 11.1 | 28.1 | 10.7 | 24.7 | | | | | | | |
| N 844 | M3-12 DO YOU WORK WITH TRIANGULAR (SAWTOOTH) WAVE GENERATOR SOLID STATE CIRCUITS? | 25.8 | 43.7 | 14.1 | 22.4 | 14.2 | 55.1 | 11.1 | 40.7 | 14.3 | 32.1 | | | | | | | |
| N 845 | M3-13 DO YOU WORK WITH RAMP (TRAPEZOIDAL) GENERATOR SOLID STATE CIRCUITS? | 10.4 | 35.2 | 10.9 | 12.8 | 10.0 | 51.5 | 7.9 | 30.2 | 8.9 | 14.8 | | | | | | | |
| N 846 | M3-14 DO YOU WORK WITH FUNCTION GENERATOR SOLID STATE CIRCUITS? | 18.7 | 31.2 | 10.9 | 21.8 | 11.1 | 30.6 | 11.1 | 21.1 | 13.7 | 27.2 | | | | | | | |
| N 847 | M3-15 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS? | 30.2 | 62.3 | 16.8 | 39.1 | 12.6 | 52.0 | 17.5 | 28.1 | 14.3 | 27.2 | | | | | | | |
| N 848 | M3-16 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS? | 28.6 | 61.8 | 16.3 | 36.5 | 12.6 | 54.1 | 19.0 | 34.7 | 13.7 | 28.4 | | | | | | | |
| N 849 | M3-17 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS? | 15.9 | 46.2 | 12.0 | 23.7 | 8.4 | 39.3 | 14.3 | 25.1 | 9.5 | 21.0 | | | | | | | |
| N 850 | M3-18 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS? | 29.7 | 60.3 | 15.2 | 38.5 | 13.2 | 52.6 | 31.7 | 33.2 | 14.9 | 27.2 | | | | | | | |
| N 851 | M3-19 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS? | 27.5 | 53.3 | 15.2 | 33.3 | 10.0 | 44.9 | 19.0 | 21.1 | 11.9 | 23.5 | | | | | | | |
| N 852 | M3-20 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS? | 28.6 | 54.3 | 16.3 | 32.1 | 13.2 | 51.0 | 30.2 | 30.2 | 16.7 | 25.9 | | | | | | | |
| N 853 | M3-21 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS? | 25.8 | 51.8 | 15.2 | 32.1 | 9.5 | 44.4 | 14.3 | 18.6 | 10.7 | 24.7 | | | | | | | |

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT01 PAGE 52

| D TSK | TITLES | 304 (H) | 304 (M) | 304 (H) | 305 (M) | 305 (H) | 304 (M) | 304 (H) | 305 (M) | 305 (H) | 304 (M) | 304 (H) | 305 (M) | 305 (H) |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0 | SINGLE OR INDEPENDENT SIDEBAND SYSTEMS (01), PULSE MODULATION SYSTEMS (02), ANTENNAS (03) | | | | | | | | | | | | | |
| 0 054 | 01-1 DO YOU WORK ON SINGLE OR INDEPENDENT SIDEBAND SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 02-1; IF YES, CONTINUE. | 33.5 | 29.1 | 54.3 | 1.9 | 72.1 | 12.8 | 12.7 | 14.6 | 13.1 | 39.5 | | | |
| 0 055 | 01-2 DO YOU INSPECT SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 31.9 | 27.1 | 53.3 | .6 | 70.0 | 12.2 | 12.7 | 12.1 | 13.1 | 40.7 | | | |
| 0 056 | 01-3 DO YOU CLEAN SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 30.2 | 27.1 | 50.5 | .6 | 61.6 | 10.7 | 4.8 | 10.6 | 11.3 | 32.1 | | | |
| 0 057 | 01-4 DO YOU ALIGN SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 31.9 | 27.6 | 49.5 | .6 | 61.1 | 11.7 | 9.5 | 11.1 | 11.3 | 34.6 | | | |
| 0 058 | 01-5 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 31.9 | 26.6 | 51.1 | .6 | 71.6 | 12.8 | 11.1 | 12.1 | 13.1 | 40.7 | | | |
| 0 059 | 01-6 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS? | 28.0 | 26.6 | 48.9 | .6 | 64.2 | 11.7 | 11.1 | 10.1 | 11.3 | 30.9 | | | |
| 0 060 | 01-7 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 28.0 | 26.6 | 48.4 | .6 | 71.1 | 12.8 | 11.1 | 12.6 | 13.1 | 37.0 | | | |
| 0 061 | 01-8 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS? | 28.6 | 26.1 | 50.0 | .6 | 63.7 | 12.2 | 9.5 | 10.6 | 11.9 | 29.6 | | | |
| 0 062 | 01-9 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM AUDIO AMPLIFIER STAGE? | 29.1 | 24.1 | 50.5 | 1.3 | 55.8 | 9.7 | 3.2 | 6.5 | 7.7 | 23.5 | | | |
| 0 063 | 01-10 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM BALANCED MODULATOR STAGE? | 29.1 | 21.6 | 46.2 | .0 | 51.1 | 8.7 | 3.2 | 4.5 | 8.9 | 19.8 | | | |
| 0 064 | 01-11 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM CARRIER OSCILLATOR STAGE? | 28.6 | 24.1 | 45.1 | 1.9 | 44.7 | 8.7 | 6.3 | 6.0 | 7.1 | 18.5 | | | |
| 0 065 | 01-12 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM LC FILTER STAGE? | 24.7 | 24.6 | 45.1 | 1.9 | 44.7 | 8.2 | 6.3 | 6.5 | 7.7 | 16.0 | | | |
| 0 066 | 01-13 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM CRYSTAL FILTER STAGE? | 22.0 | 22.1 | 40.2 | 1.3 | 37.9 | 8.7 | 7.9 | 6.5 | 7.1 | 13.6 | | | |
| 0 067 | 01-14 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM MECHANICAL FILTER STAGE? | 19.8 | 14.1 | 44.6 | .6 | 45.8 | 6.6 | 6.3 | 5.0 | 6.0 | 14.8 | | | |
| 0 068 | 01-15 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM OSCILLATOR STAGE? | 29.7 | 26.1 | 50.0 | 1.3 | 53.2 | 10.7 | 11.1 | 8.0 | 9.5 | 24.7 | | | |
| 0 069 | 01-16 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM MIXER STAGE? | 29.7 | 25.1 | 49.5 | .0 | 51.6 | 9.7 | 11.1 | 8.5 | 11.3 | 22.2 | | | |
| 0 070 | 01-17 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM DRIVER STAGE? | 26.9 | 26.1 | 46.7 | 1.9 | 52.1 | 8.7 | 11.1 | 8.0 | 7.1 | 21.0 | | | |
| 0 071 | 01-18 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM POWER AMPLIFIER STAGES? | 29.1 | 26.1 | 46.7 | .6 | 56.3 | 10.2 | 11.1 | 9.5 | 10.1 | 23.5 | | | |
| 0 072 | 01-19 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM PF AMPLIFIER STAGE? | 30.2 | 26.1 | 48.9 | .6 | 55.3 | 10.2 | 11.1 | 10.1 | 8.3 | 24.7 | | | |
| 0 073 | 01-20 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM FREQUENCY CONVERTER STAGES? | 27.5 | 21.6 | 44.6 | 1.3 | 45.8 | 10.2 | 9.5 | 8.5 | 8.3 | 22.2 | | | |
| 0 074 | 01-21 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM IF AMPLIFIER STAGE? | 29.7 | 24.1 | 50.5 | .0 | 54.2 | 10.7 | 9.5 | 8.5 | 13.7 | 22.2 | | | |
| 0 075 | 01-22 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM DEMODULATOR STAGE? | 30.2 | 20.1 | 42.4 | 1.3 | 43.7 | 8.2 | 7.9 | 8.5 | 8.3 | 22.2 | | | |
| 0 076 | 01-23 DO YOU USE OR REFER TO SELECTIVE FADING WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 18.1 | 5.5 | 20.7 | .0 | 19.5 | 4.1 | 1.6 | 1.5 | 2.4 | 9.9 | | | |

| O TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0 961 | 03-38 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS? | 4.4 | 14.1 | 18.5 | .0 | 12.1 | 4.6 | 1.6 | 1.5 | 1.2 | 1.1 | 1.1 | 1.2 | 11.1 |
| 0 962 | 03-39 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS? | 5.5 | 60.8 | 9.2 | .0 | 3.2 | 14.8 | 4.8 | 6.5 | 6.5 | 2.5 | 2.5 | 6.5 | 2.5 |
| 0 963 | 03-40 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS? | 8.2 | 64.8 | 7.1 | .0 | 4.2 | 25.5 | 1.6 | 6.0 | 8.3 | 1.2 | 1.2 | 8.3 | 1.2 |
| 0 964 | 03-41 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN - DON'T KNOW WHAT KIND OF ELEMENT? | 14.8 | 21.1 | 18.5 | .0 | 43.7 | 42.9 | 39.7 | 38.2 | 23.2 | 38.3 | 38.3 | 23.2 | 38.3 |
| 0 965 | 03-42 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS? | 29.7 | 61.3 | 25.5 | .0 | 33.7 | 72.4 | 25.4 | 41.7 | 11.3 | 29.6 | 29.6 | 11.3 | 29.6 |
| 0 966 | 03-43 DO YOU WORK ON BIDIRECTIONAL ANTENNAS? | 8.2 | 30.7 | 26.6 | .0 | 24.2 | 67.9 | 4.8 | 23.1 | 13.7 | 33.3 | 33.3 | 13.7 | 33.3 |
| 0 967 | 03-44 DO YOU WORK ON OMNIDIRECTIONAL ANTENNAS? | 2.7 | 76.9 | 45.7 | .6 | 73.2 | 83.2 | 33.3 | 64.3 | 20.8 | 61.7 | 61.7 | 20.8 | 61.7 |
| 0 968 | 03-45 DO YOU WORK WITH ROTARY ANTENNA ARRAYS? | 2.7 | 59.8 | 10.9 | .0 | 27.9 | 61.2 | 73.0 | 6.0 | 17.3 | 8.6 | 8.6 | 17.3 | 8.6 |

P TRANSMISSION LINES (P1), WAVEGUIDES AND CAVITY RESONATORS (P2), MICROWAVE AMPLIFIERS AND OSCILLATORS (P3)

P 969 P1-1 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES? (DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES.) IF NO, GO TO ITEM P2-1; IF YES, CONTINUE.

P 970 P1-2 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE COPPER LOSS OR 'I SUB 2' R' LOSS IN TRANSMISSION LINES?

P 971 P1-3 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES?

P 972 P1-4 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE RADIATION LOSS?

P 973 P1-5 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE DIELECTRIC LOSS?

P 974 P1-6 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE LEAKAGE LOSSES?

P 975 P1-7 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE FARADAY SHIELD?

P 976 P1-8 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES?

P 977 P1-9 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES?

P 978 P1-10 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES?

P 979 P1-11 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES?

P 980 P1-12 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES?

P 981 P1-13 DO YOU TROUBLESHOOT TRANSMISSION LINES?

P 982 P1-14 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)?

P 983 P1-15 DO YOU SELECT APPROPRIATE TRANSMISSION LINE TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS?

| | | | | | | | | | |
|------|------|------|-----|------|------|------|------|------|------|
| 33.0 | 57.8 | 33.7 | 7.1 | 68.4 | 45.4 | 54.0 | 44.7 | 16.7 | 50.6 |
| 8.8 | 13.1 | 8.2 | 2.6 | 6.8 | 7.7 | 4.8 | 9.0 | 3.6 | 2.5 |
| 8.8 | 17.1 | 10.9 | 1.9 | 13.7 | 16.3 | 9.5 | 12.1 | 3.0 | 4.9 |
| 13.7 | 32.2 | 17.4 | 1.3 | 30.0 | 23.0 | 31.7 | 26.1 | 5.4 | 16.0 |
| 13.2 | 20.1 | 9.8 | 2.6 | 13.7 | 16.8 | 19.0 | 14.6 | 4.2 | 7.4 |
| 16.5 | 25.1 | 13.6 | 2.6 | 27.4 | 21.9 | 25.4 | 23.6 | 6.5 | 16.0 |
| 6.0 | 8.5 | 3.8 | .6 | 10.0 | 5.6 | 4.8 | 5.5 | .6 | 1.2 |
| 20.3 | 13.6 | 12.5 | 2.6 | 12.6 | 10.7 | 17.5 | 14.1 | 1.2 | 13.6 |
| 16.5 | 16.6 | 11.4 | 3.8 | 8.4 | 10.2 | 6.3 | 9.5 | 1.8 | 3.7 |
| 11.0 | 10.6 | 8.2 | .6 | 8.4 | 7.1 | 3.2 | 6.0 | 1.2 | 8.6 |
| 31.3 | 53.3 | 33.7 | 3.2 | 66.3 | 45.4 | 54.0 | 42.7 | 16.1 | 43.2 |
| 17.6 | 43.2 | 17.4 | 1.3 | 36.3 | 32.7 | 50.8 | 31.2 | 6.0 | 28.4 |
| 26.4 | 49.2 | 28.3 | 2.6 | 66.3 | 43.4 | 47.6 | 37.7 | 13.7 | 40.7 |
| 12.6 | 33.2 | 10.9 | 3.8 | 32.1 | 29.1 | 27.0 | 18.1 | 9.9 | 13.6 |
| 9.3 | 29.6 | 7.6 | 2.6 | 12.1 | 15.3 | 19.0 | 9.5 | 4.2 | 7.4 |

| D TSK | TITLES | 304 | 304 | 305 | 328 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
|-------|---|------|------|------|-----|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| P 984 | PI-16 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS? | 16.5 | 34.7 | 17.4 | 3.8 | 24.7 | 23.5 | 22.2 | 16.6 | 6.0 | 13.6 | | | | | | | |
| P 985 | PI-17 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | 15.4 | 51.3 | 26.6 | .0 | 60.5 | 33.2 | 31.7 | 22.1 | 6.0 | 34.6 | | | | | | | |
| P 986 | PI-18 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | 7.7 | 46.2 | 18.5 | .0 | 34.2 | 21.4 | 22.2 | 11.1 | 3.0 | 14.8 | | | | | | | |
| P 987 | PI-19 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS? | 4.9 | 27.6 | 8.2 | 1.3 | 12.6 | 4.1 | 7.9 | 3.0 | 1.2 | 9.9 | | | | | | | |
| P 988 | PI-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS? | 17.6 | 37.2 | 20.7 | 3.2 | 20.5 | 18.9 | 15.9 | 9.5 | 3.0 | 24.7 | | | | | | | |
| P 989 | PI-21 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING? | 2.2 | 17.1 | 3.8 | .0 | 5.8 | 5.6 | 7.9 | 4.0 | .6 | 7.4 | | | | | | | |
| P 990 | PI-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | 15.4 | 29.1 | 14.1 | .6 | 18.4 | 14.8 | 7.9 | 8.5 | 3.6 | 11.1 | | | | | | | |
| P 991 | PI-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | 4.4 | 14.1 | 4.3 | .6 | 4.7 | 7.1 | 3.2 | 2.0 | 1.8 | 2.5 | | | | | | | |
| P 992 | PI-24 DO YOU USE OR REFER TO THE TERM CUT OFF FREQUENCY OF TRANSMISSION LINES? | 10.4 | 11.6 | 8.2 | 2.6 | 7.4 | 7.7 | 14.3 | 9.0 | 1.2 | 8.6 | | | | | | | |
| P 993 | PI-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES? | 3.8 | 16.6 | 3.8 | .6 | 3.2 | 3.1 | 6.3 | 4.0 | .6 | 6.2 | | | | | | | |
| P 994 | PI-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES? | 6.0 | 40.2 | 8.2 | .6 | 13.7 | 10.7 | 12.7 | 5.5 | .6 | 9.9 | | | | | | | |
| P 995 | PI-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTHS FOR GIVEN FREQUENCIES? | 7.7 | 38.2 | 7.6 | .6 | 10.0 | 8.2 | 9.5 | 3.0 | .0 | 2.5 | | | | | | | |
| P 996 | PI-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES? | 7.1 | 36.7 | 10.3 | .0 | 21.1 | 7.1 | 9.5 | 6.0 | 1.8 | 7.4 | | | | | | | |
| P 997 | PI-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES? | 9.3 | 10.6 | 11.4 | 1.3 | 14.7 | 9.7 | 1.6 | 7.0 | 4.2 | 11.1 | | | | | | | |
| P 998 | PI-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES? | 9.3 | 27.1 | 9.8 | .6 | 22.1 | 23.0 | 17.5 | 15.1 | 3.0 | 13.6 | | | | | | | |
| P 999 | PI-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING? | 7.7 | 30.2 | 3.8 | 1.3 | 15.3 | 9.7 | 7.9 | 4.5 | 1.8 | 7.4 | | | | | | | |
| P1000 | PI-1 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM P3-1; IF YES, CONTINUE. | 42.4 | 26.1 | 12.0 | 1.3 | 4.7 | 71.9 | 77.8 | 59.3 | 30.4 | 24.7 | | | | | | | |
| P1001 | P2-2 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS? | 40.1 | 25.6 | 8.2 | .0 | 2.1 | 70.9 | 73.0 | 56.8 | 29.2 | 18.5 | | | | | | | |
| P1002 | P2-3 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS? | 34.1 | 23.6 | 8.2 | .0 | 2.1 | 61.2 | 50.8 | 45.7 | 24.4 | 17.3 | | | | | | | |
| P1003 | P2-4 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS? | 23.1 | 1.5 | 1.6 | .0 | 1.1 | 63.8 | 60.3 | 25.6 | 10.1 | 14.8 | | | | | | | |
| P1004 | P2-5 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS? | 14.8 | 2.0 | 1.1 | .0 | 1.1 | 26.5 | 57.1 | 11.6 | 5.4 | 13.6 | | | | | | | |
| P1005 | P2-6 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS? | 24.7 | 22.1 | 6.0 | .0 | 2.1 | 62.2 | 58.7 | 36.2 | 22.6 | 16.0 | | | | | | | |
| P1006 | P2-7 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES? | 24.2 | 12.6 | 1.6 | .0 | .5 | 66.3 | 47.6 | 50.3 | 29.2 | 7.4 | | | | | | | |
| P1007 | P2-8 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS? | 29.7 | 12.6 | 2.2 | .0 | .5 | 67.3 | 57.1 | 48.7 | 23.8 | 7.4 | | | | | | | |
| P1008 | P2-9 DO YOU REMOVE OR INSTALL DUMMY LOADS? | 31.3 | 21.6 | 5.4 | .0 | 1.6 | 67.9 | 55.6 | 51.8 | 19.0 | 17.3 | | | | | | | |
| P1009 | P2-10 DO YOU REMOVE OR INSTALL E BENDS? | 9.3 | 3.0 | .5 | .0 | .0 | 35.2 | 36.5 | 16.6 | 5.4 | 3.7 | | | | | | | |
| P1010 | P2-11 DO YOU REMOVE OR INSTALL H BENDS? | 8.8 | 3.5 | .5 | .0 | .0 | 35.2 | 38.1 | 15.1 | 4.2 | 4.9 | | | | | | | |
| P1011 | P2-12 DO YOU REMOVE OR INSTALL OTHER BENDS? | 11.0 | 9.0 | 2.2 | .0 | .5 | 49.0 | 47.6 | 23.1 | 15.5 | 7.4 | | | | | | | |

| D TSK | TITLES | 304 (M) | 304 51 (M) | 304 54 (M) | 305 (M) | 328 50 (M) | 328 51 (M) | 328 52 (M) | 328 53 (M) | 328 54 (M) | 328 55 (M) |
|-------|--|------------|------------------|------------------|------------|------------------|------------------|------------------|------------------|------------------|------------------|
| P1012 | P2-13 DO YOU REMOVE OR INSTALL CHOKE JOINTS? | 6.6 | 4.0 | 1.1 | .0 | .0 | 28.1 | 11.1 | 8.0 | 6.5 | 6.2 |
| P1013 | P2-14 DO YOU REMOVE OR INSTALL ROTATING JOINTS? | 6.6 | 4.5 | 1.6 | .0 | .0 | 25.5 | 42.9 | 5.5 | 8.3 | 3.7 |
| P1014 | P2-15 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS? | 26.9 | 22.6 | 6.5 | .0 | 2.1 | 57.7 | 52.4 | 43.2 | 19.0 | 13.6 |
| P1015 | P2-16 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS? | 12.1 | 19.1 | 1.1 | .0 | .5 | 44.4 | 25.4 | 17.1 | 7.1 | 7.4 |
| P1016 | P2-17 DO YOU REMOVE OR INSTALL DUPLEXERS OR MIXERS? | 19.8 | 23.1 | 2.2 | .0 | 1.1 | 57.7 | 31.7 | 25.1 | 16.1 | 11.1 |
| P1017 | P2-18 DO YOU REMOVE OR INSTALL WAVEGUIDE SHUTTERS? | 14.3 | 4.5 | .0 | .0 | .0 | 43.9 | 12.7 | 5.0 | 3.0 | 2.5 |
| P1018 | P2-19 DO YOU REMOVE OR INSTALL TRANSMIT (TR) OR ANTITRANSMIT (ATR) TUBES? | 7.8 | 6.5 | 1.6 | .0 | 1.6 | 52.0 | 4.8 | 8.5 | 11.3 | 6.2 |
| P1019 | P2-20 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES? | 9.3 | 2.5 | 1.1 | .0 | .0 | 15.8 | 22.2 | 5.5 | 4.8 | .0 |
| P1020 | P2-21 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES? | 9.3 | 2.0 | 1.1 | .0 | .0 | 15.8 | 23.8 | 5.5 | 4.8 | .0 |
| P1021 | P2-22 DO YOU USE OR REFER TO CUT OFF FREQUENCY OF WAVEGUIDES? | 17.0 | 3.0 | 2.2 | .6 | .0 | 17.9 | 20.6 | 12.1 | 4.2 | .0 |
| P1022 | P2-23 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES? | 10.4 | 1.5 | .5 | .0 | .0 | 17.3 | 17.5 | 6.0 | 4.8 | .0 |
| P1023 | P2-24 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES? | 9.3 | 1.0 | .5 | .0 | .0 | 15.0 | 17.5 | 6.0 | 3.6 | .0 |
| P1024 | P2-25 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS? | 5.5 | 1.0 | .5 | .0 | .0 | 8.7 | 11.1 | 3.0 | 1.8 | .0 |
| P1025 | P2-26 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS? | 4.9 | 1.0 | .5 | .0 | .0 | 9.7 | 12.7 | 3.0 | 1.8 | 1.2 |
| P1026 | P2-27 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS? | 4.4 | 4.5 | .5 | .0 | .0 | 9.2 | 11.1 | 1.5 | 1.8 | .0 |
| P1027 | P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OR .7 WAVELENGTHS OF THE OPERATING FREQUENCY? | 6.0 | 2.0 | .5 | .0 | .0 | 9.7 | 7.9 | 6.0 | 3.0 | .0 |
| P1028 | P2-29 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 AS AN AVERAGE? | 6.6 | 2.0 | .5 | .0 | .0 | 8.7 | 6.3 | 4.0 | 1.8 | .0 |
| P1029 | P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION? | 8.2 | 1.0 | .5 | .0 | .5 | 8.2 | 1.6 | 2.5 | 1.2 | .0 |
| P1030 | P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES? | 13.2 | 5.0 | 1.1 | .0 | .0 | 11.2 | 11.1 | 3.5 | 1.8 | .0 |
| P1031 | P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES? | 2.2 | 2.0 | 1.1 | .0 | .0 | 4.6 | 4.8 | .5 | 1.2 | .0 |
| P1032 | P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES? | 1.6 | 2.0 | .5 | .0 | .0 | 3.1 | 1.6 | .5 | 1.2 | .0 |
| P1033 | P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES? | 2.2 | 4.0 | .5 | .0 | .0 | 3.1 | 3.2 | .5 | 1.2 | .0 |
| P1034 | P2-35 DO YOU WORK WITH HIGH POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 14.8 | 8.5 | 1.1 | .0 | .5 | 33.2 | 39.7 | 11.1 | 2.4 | 3.7 |
| P1035 | P2-36 DO YOU WORK WITH LOW POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 17.0 | 9.5 | 1.1 | .0 | 1.1 | 30.6 | 20.6 | 8.0 | 3.6 | 2.5 |
| P1036 | P2-37 DO YOU WORK WITH LOOP ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 13.2 | 13.6 | 2.7 | .0 | .5 | 33.7 | 11.1 | 7.5 | 1.8 | 2.5 |
| P1037 | P2-38 DO YOU WORK WITH APERATURES (WINDOWS OR IRISES) ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 19.8 | 4.5 | 1.6 | .0 | .5 | 49.0 | 57.1 | 15.6 | 5.4 | 1.2 |
| P1038 | P2-39 DO YOU WORK WITH CHOKE JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | 7.1 | 2.5 | 1.1 | .0 | .5 | 28.1 | 11.1 | 6.0 | 5.5 | 1.2 |

| O TSK | TITLES | 204 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| P1068 | P3-25 DO YOU CLEAN PARAMETRIC AMPLIFIERS? | 16.5 | 2.0 | .0 | .5 | 8.2 | 20.6 | 4.5 | 1.8 | 3.7 | | | | | |
| P1069 | P3-26 DO YOU ADJUST PARAMETRIC AMPLIFIERS? | 15.4 | 2.5 | .0 | .5 | 8.7 | 17.5 | 5.0 | 1.8 | 4.9 | | | | | |
| P1070 | P3-27 DO YOU TUNE PARAMETRIC AMPLIFIERS? | 15.4 | 2.5 | .0 | .5 | 8.7 | 15.9 | 5.0 | 1.8 | 3.7 | | | | | |
| P1071 | P3-28 DO YOU PERFORM OPERATIONAL CHECKS ON PARAMETRIC AMPLIFIERS? | 16.5 | 2.5 | 1.1 | .0 | .5 | 8.2 | 41.3 | 5.5 | 1.8 | 4.9 | | | | |
| P1072 | P3-29 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS? | 17.6 | 2.0 | .5 | .0 | .5 | 7.7 | 41.3 | 5.0 | 1.8 | 4.9 | | | | |
| P1073 | P3-30 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER? | 16.5 | 2.5 | .5 | .0 | .5 | 8.7 | 39.7 | 5.0 | 1.8 | 4.9 | | | | |
| P1074 | P3-31 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS? | 12.1 | 1.5 | .0 | .0 | .5 | 5.1 | 15.9 | 3.5 | 1.8 | 2.5 | | | | |
| P1075 | P3-32 DO YOU INSPECT MAGNETRONS? | 3.3 | 1.5 | .5 | .0 | .0 | 57.7 | .0 | 21.6 | 12.5 | .0 | | | | |
| P1076 | P3-33 DO YOU CLEAN MAGNETRONS? | 3.3 | 1.5 | .0 | .0 | .0 | 47.4 | .0 | 17.6 | 9.5 | .0 | | | | |
| P1077 | P3-34 DO YOU ADJUST MAGNETRONS? | 3.3 | 1.5 | .0 | .0 | .0 | 40.3 | .0 | 17.6 | 12.5 | .0 | | | | |
| P1078 | P3-35 DO YOU TUNE MAGNETRONS? | 3.3 | 1.0 | .0 | .0 | .0 | 41.8 | .0 | 19.1 | 12.5 | .0 | | | | |
| P1079 | P3-36 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS? | 3.3 | 1.5 | .5 | .0 | .0 | 61.2 | .0 | 22.1 | 13.1 | .0 | | | | |
| P1080 | P3-37 DO YOU TROUBLESHOOT MAGNETRONS? | 3.3 | 1.5 | .0 | .0 | .0 | 55.1 | .0 | 20.1 | 13.7 | .0 | | | | |
| P1081 | P3-38 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRONS? | 2.7 | 1.5 | .0 | .0 | .0 | 60.7 | .0 | 22.6 | 13.1 | .0 | | | | |
| P1082 | P3-39 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS? | 1.6 | 1.0 | .0 | .0 | .0 | 13.3 | .0 | 6.0 | 3.0 | .0 | | | | |
| P1083 | P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR PLATE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 15.4 | 6.5 | .5 | .0 | .0 | 7.1 | 25.4 | 2.0 | 4.2 | 1.2 | | | | |
| P1084 | P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | 13.7 | 5.5 | .5 | .0 | .0 | 5.1 | 12.7 | 2.0 | 2.4 | 1.2 | | | | |
| P1085 | P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | 14.3 | 5.0 | .5 | .0 | .0 | 4.6 | 15.9 | 1.5 | 2.4 | .0 | | | | |
| P1086 | P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FEEDBACK LOOP COMPONENTS OF TWO-CAVITY KLYSTRONS? | 13.7 | 4.5 | .5 | .0 | .0 | 6.6 | 22.2 | 3.0 | 3.0 | 1.2 | | | | |
| P1087 | P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF DRIFT SPACE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 13.2 | 4.0 | .5 | .0 | .0 | 4.6 | 14.3 | 2.0 | 1.2 | .0 | | | | |
| P1088 | P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUNCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | 14.8 | 4.0 | .5 | .0 | .0 | 3.6 | 9.5 | 1.5 | 1.2 | 1.2 | | | | |
| P1089 | P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUNCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | 14.8 | 4.0 | .5 | .0 | .0 | 4.1 | 11.1 | 2.0 | 1.2 | 1.2 | | | | |
| P1090 | P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CONTROL GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | 15.9 | 7.0 | .5 | .0 | .0 | 8.2 | 22.2 | 2.5 | 3.0 | 1.2 | | | | |
| P1091 | P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 15.4 | 7.0 | .5 | .6 | .0 | 10.2 | 25.4 | 4.0 | 3.0 | 3.7 | | | | |
| P1092 | P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REPELLER (REFLECTOR) PLATE COMPONENTS OF REFLEX KLYSTRONS? | 21.4 | 3.5 | 1.1 | .0 | .5 | 18.9 | 9.5 | 3.0 | 14.9 | .0 | | | | |
| P1093 | P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID COMPONENTS OF REFLEX KLYSTRONS? | 20.3 | 6.5 | 1.1 | .0 | .5 | 17.9 | 19.0 | 3.5 | 11.3 | 1.2 | | | | |
| P1094 | P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID CAVITY GAP COMPONENTS OF REFLEX KLYSTRONS? | 14.3 | 5.0 | .5 | .0 | .5 | 12.2 | 9.5 | 3.0 | 8.9 | .0 | | | | |
| P1095 | P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF RESONANT CAVITY COMPONENTS OF REFLEX KLYSTRONS? | 18.7 | 7.0 | 1.1 | .0 | .5 | 19.9 | 12.7 | 4.5 | 10.7 | 2.5 | | | | |
| P1096 | P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNETIC COUPLING LOOP COMPONENTS OF REFLEX KLYSTRONS? | 13.7 | 4.5 | 1.1 | .0 | .0 | 12.8 | 6.3 | 3.5 | 7.1 | .0 | | | | |
| P1097 | P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF REFLEX KLYSTRONS? | 20.9 | 6.0 | 1.1 | .0 | .5 | 19.9 | 17.5 | 5.5 | 10.7 | 1.2 | | | | |

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
| 50 | 51 | 54 | 54 | 50 | 51 | 52 | 53 | 54 | 55 | | | | |
| (M) | (P) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | | | | |

D TSK TITLES

Q REGISTERS (Q1), STORAGE DEVICES (Q2), DIGITAL-TO-ANALOG AND ANALOG-TO-DIGITAL CONVERTERS (Q3)

| | | | | | | | | | | | | | |
|-------|-------|----|---|------|------|------|------|------|------|------|------|------|------|
| Q1121 | Q1-1 | 00 | YOU USE OR REFER TO STORAGE RESISTERS? | 29.1 | 24.1 | 29.9 | 79.5 | 22.1 | 22.4 | 66.7 | 34.7 | 29.8 | 58.0 |
| Q1122 | Q1-2 | 00 | YOU USE OR REFER TO SHIFT REGISTERS? | 34.1 | 28.1 | 31.5 | 77.6 | 22.6 | 21.4 | 69.8 | 35.7 | 32.7 | 60.5 |
| Q1123 | Q1-3 | 00 | YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS? | 31.9 | 26.1 | 31.5 | 71.8 | 18.4 | 23.0 | 55.6 | 32.7 | 26.8 | 58.0 |
| Q1124 | Q1-4 | 00 | YOU USE OR REFER TO LOGIC SYMBOLS OR STORAGE REGISTERS? | 29.1 | 23.6 | 29.3 | 71.8 | 19.5 | 21.9 | 55.6 | 32.7 | 25.6 | 55.6 |
| Q1125 | Q1-5 | 00 | YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTER CIRCUITS? | 30.8 | 23.6 | 29.3 | 71.2 | 14.2 | 17.3 | 57.1 | 29.6 | 22.6 | 46.9 |
| Q1126 | Q1-6 | 00 | YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPES OF REGISTER CIRCUITS? | 23.1 | 21.1 | 26.6 | 69.9 | 13.7 | 17.3 | 49.2 | 25.1 | 19.0 | 44.4 |
| Q1127 | Q1-7 | 00 | YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED? | 28.6 | 21.6 | 22.8 | 57.7 | 14.7 | 19.9 | 39.7 | 26.6 | 20.2 | 44.4 |
| Q1128 | Q2-1 | 00 | YOU WORK WITH STORAGE DEVICES IN YOUR PRESENT JOB? IF NO, GO TO ITEM Q3-1; IF YES, CONTINUE. | 19.2 | 34.2 | 16.8 | 82.7 | 31.6 | 27.0 | 77.8 | 42.2 | 41.1 | 39.5 |
| Q1129 | Q2-2 | 00 | YOU USE OR REFER TO DELAY LINES? | 5.5 | 30.2 | 6.5 | 32.1 | 6.3 | 26.5 | 63.5 | 20.6 | 9.5 | 7.4 |
| Q1130 | Q2-3 | 00 | YOU USE OR REFER TO MAGNETIC CORES OR BIMAGS? | 2.2 | 8.0 | 4.3 | 64.1 | 23.2 | 5.6 | 42.9 | 11.1 | 23.2 | 8.6 |
| Q1131 | Q2-4 | 00 | YOU USE OR REFER TO MAGNETIC DRUMS? | 2.7 | 1.5 | 2.2 | 26.3 | 12.6 | 3.6 | 20.6 | 6.5 | 13.7 | 4.9 |
| Q1132 | Q2-5 | 00 | YOU USE OR REFER TO MAGNETIC TAPES? | 3.3 | 3.0 | 12.0 | 76.9 | 6.8 | 1.0 | 74.8 | 31.7 | 23.2 | 35.8 |
| Q1133 | Q2-6 | 00 | YOU USE OR REFER TO ACCESS TIME OR SPEED OF MEMORY SYSTEMS? | 6.0 | 7.5 | 4.9 | 55.8 | 8.4 | 6.1 | 54.0 | 22.1 | 18.5 | 15.5 |
| Q1134 | Q2-7 | 00 | YOU USE OR REFER TO STORAGE CAPACITY OF MEMORY SYSTEMS? | 12.1 | 11.6 | 7.1 | 74.4 | 15.3 | 5.1 | 69.4 | 26.1 | 25.0 | 30.9 |
| Q1135 | Q2-8 | 00 | YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS? | 5.5 | 6.5 | 3.3 | 64.7 | 11.1 | 2.6 | 71.4 | 16.1 | 21.4 | 28.4 |
| Q1136 | Q2-9 | 00 | YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES? | 6.6 | 18.1 | 6.0 | 35.9 | 5.3 | 14.3 | 50.8 | 13.1 | 11.3 | 8.6 |
| Q1137 | Q2-10 | 00 | YOU USE OR REFER TO MAGNETIC DISKS? | 1.6 | .5 | 3.3 | 48.7 | 3.7 | 1.0 | 3.2 | 20.6 | 8.9 | 6.2 |
| Q1138 | Q2-11 | 00 | YOU USE OR REFER TO THIN FILMS? | 2.2 | .5 | 2.2 | 10.9 | 3.2 | .5 | 1.6 | 6.0 | 8.3 | 7.4 |
| Q1139 | Q2-12 | 00 | YOU USE OR REFER TO SEMICONDUCTOR MEMORY (INTEGRATED) CIRCUITS? | 15.9 | 15.6 | 7.1 | 55.8 | 16.8 | 14.3 | 49.2 | 27.1 | 28.6 | 14.8 |
| Q1140 | Q2-13 | 00 | YOU USE OR REFER TO BUBBLE MEMORIES? | 1.1 | 1.0 | .5 | 2.6 | 3.2 | 1.5 | .0 | 8.0 | 4.2 | 1.2 |
| Q1141 | Q2-14 | 00 | YOU USE OR REFER TO PUNCH CARDS? | 1.6 | 1.5 | 2.7 | 39.1 | 2.6 | 1.5 | 3.2 | 5.0 | 4.2 | 17.3 |
| Q1142 | Q2-15 | 00 | YOU USE OR REFER TO PAPER TAPES? | 4.4 | 10.1 | 2.7 | 28.8 | 3.2 | 2.0 | 60.3 | 28.6 | 10.7 | 19.8 |
| Q1143 | Q2-16 | 00 | YOU USE OR REFER TO RANDOM ACCESS MEMORIES (RAM)? | 15.9 | 12.1 | 6.5 | 60.9 | 10.0 | 5.1 | 79.4 | 34.2 | 26.8 | 25.9 |
| Q1144 | Q2-17 | 00 | YOU USE OR REFER TO READ ONLY MEMORIES (ROM)? | 14.8 | 12.6 | 8.2 | 57.7 | 12.1 | 4.6 | 81.0 | 36.7 | 26.2 | 29.6 |
| Q1145 | Q2-18 | 00 | YOU USE OR REFER TO PROGRAMMABLE READ ONLY MEMORIES (PROM)? | 14.8 | 5.5 | 6.5 | 42.3 | 7.9 | 2.0 | 76.2 | 35.2 | 23.8 | 19.8 |
| Q1146 | Q2-19 | 00 | YOU USE OR REFER TO TRANSFORMER READ ONLY STORAGE (TROS)? | 1.1 | 1.0 | .5 | 7.1 | 1.6 | 1.0 | 3.2 | 1.0 | 5.4 | 6.2 |
| Q1147 | Q2-20 | 00 | YOU USE OR REFER TO CAPACITY READ ONLY STORAGE (CROS)? | .5 | 2.0 | .5 | 6.4 | 1.6 | 1.0 | 1.6 | .5 | 4.2 | 3.7 |
| Q1148 | Q2-21 | 00 | YOU INSPECT STORAGE DEVICES? | 13.7 | 24.1 | 12.0 | 75.0 | 22.1 | 18.9 | 41.3 | 32.2 | 26.2 | 19.8 |
| Q1149 | Q2-22 | 00 | YOU CLEAN STORAGE DEVICES? | 12.6 | 22.1 | 10.9 | 72.4 | 15.8 | 16.8 | 22.2 | 27.6 | 20.2 | 21.0 |
| Q1150 | Q2-23 | 00 | YOU ALIGN STORAGE DEVICES? | 6.6 | 15.6 | 7.6 | 59.0 | 8.4 | 9.7 | 15.9 | 15.1 | 8.3 | 12.3 |
| Q1151 | Q2-24 | 00 | YOU ADJUST STORAGE DEVICES? | 6.0 | 17.1 | 7.6 | 59.6 | 8.4 | 9.7 | 19.0 | 15.1 | 9.9 | 13.6 |
| Q1152 | Q2-25 | 00 | YOU TROUBLESHOOT MEMORY SYSTEM STORAGE DEVICES? | 11.5 | 17.1 | 8.7 | 73.1 | 20.0 | 9.7 | 68.3 | 21.6 | 25.6 | 25.9 |
| Q1153 | Q2-26 | 00 | YOU REMOVE OR REPLACE SUBASSEMBLIES OR COMPONENTS OF STORAGE DEVICES? | 14.3 | 18.6 | 9.2 | 69.2 | 18.9 | 9.7 | 50.8 | 21.6 | 23.2 | 24.7 |

| D TSK | TITLES | 704 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Q1176 | Q3-22 ARE YOU ASSIGNED AGAINST A POSITION WHICH REQUIRES A "D" PREFIX? | 05 | 1.0 | 0.0 | 0.6 | 0.5 | 1.0 | 0.5 | 1.0 | 0.8 | 1.0 | 1.0 | 1.2 | 1.0 | 1.2 | 0.0 |

R PHANTASTRONS (R1), SCHMITT TRIGGERS (R2), CABLE FABRICATION (R3)

| | | | | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|
| R1177 | R1-1 DO YOU WORK WITH PHANTASTRON CIRCUITRY? IF NO, GO TO ITEM R2-1. IF YES, CONTINUE. | 7.7 | 11.1 | 3.3 | 5.8 | 3.2 | 33.7 | 4.8 | 7.5 | 16.1 | 6.2 | | | | | |
| R1178 | R1-2 PHANTASTRON CIRCUITRY HAS VARIABLE-DELAY APPLICATIONS IN MY JOB. | 4.9 | 8.0 | 1.1 | 3.2 | 1.6 | 18.9 | 1.6 | 2.0 | 3.6 | 4.9 | | | | | |
| R1179 | R1-3 PHANTASTRON CIRCUITRY HAS SEARCH-LOCK AUTOMATIC FREQUENCY CONTROLS (AFC) APPLICATIONS IN MY JOB. | 7.1 | 4.5 | 2.2 | 0.6 | 2.1 | 30.1 | 0.0 | 3.5 | 8.3 | 2.5 | | | | | |
| R1180 | R1-4 PHANTASTRON CIRCUITRY HAS MONOSTABLE MULTIVIBRATORS APPLICATIONS IN MY JOB. | 6.6 | 10.6 | 1.6 | 7.1 | 2.6 | 30.6 | 3.2 | 3.5 | 8.3 | 7.4 | | | | | |
| R1181 | R1-5 PHANTASTRON CIRCUITRY HAS BISTABLE MULTIVIBRATORS APPLICATIONS IN MY JOB. | 7.1 | 10.6 | 1.6 | 7.1 | 2.1 | 30.1 | 1.6 | 4.0 | 11.9 | 7.4 | | | | | |
| R1182 | R1-6 PHANTASTRON CIRCUITRY HAS FREE-RUNNING MULTIVIBRATORS APPLICATIONS IN MY JOB. | 7.1 | 10.1 | 1.6 | 6.4 | 2.1 | 29.1 | 4.8 | 4.0 | 17.7 | 6.2 | | | | | |
| R1183 | R2-1 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS? IF NO, GO TO ITEM R3-1; IF YES, CONTINUE. | 44.0 | 67.3 | 31.0 | 48.1 | 7.4 | 33.7 | 6.3 | 21.1 | 27.4 | 30.9 | | | | | |
| R1184 | R2-2 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS? | 37.4 | 62.8 | 22.3 | 41.0 | 5.3 | 26.5 | 4.8 | 18.1 | 20.8 | 25.9 | | | | | |
| R1185 | R2-3 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS? | 37.4 | 62.3 | 27.7 | 46.2 | 3.7 | 27.0 | 4.8 | 16.6 | 20.2 | 25.9 | | | | | |
| R1186 | R3-1 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES? | 37.9 | 45.2 | 62.5 | 32.1 | 76.3 | 68.4 | 28.6 | 70.4 | 47.0 | 53.1 | | | | | |
| R1187 | R3-2 DO YOU FABRICATE COAXIAL CABLES? | 54.4 | 68.3 | 70.7 | 23.7 | 84.2 | 80.1 | 42.9 | 74.9 | 52.4 | 67.9 | | | | | |

S INPUT/OUTPUT (PERIPHERAL) DEVICES (S1), PHOTO SENSITIVE DEVICES (S2), SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS) (S3)

| | | | | | | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|
| S1188 | S1-1 DO YOU WORK WITH INPUT OR OUTPUT DEVICES ON YOUR PRESENT JOB? IF NO, GO TO ITEM S2-1; IF YES, CONTINUE. | 35.2 | 41.2 | 24.5 | 85.9 | 35.8 | 30.6 | 76.2 | 56.3 | 45.8 | 67.9 | | | | | |
| S1189 | S1-2 DO YOU USE OR REFER TO KEYBOARDS OR TELETYPEWRITERS? | 13.7 | 17.1 | 15.2 | 79.5 | 18.4 | 2.6 | 66.7 | 39.7 | 24.4 | 63.0 | | | | | |
| S1190 | S1-3 DO YOU USE OR REFER TO TAPE DRIVES (UNITS)? | 20.9 | 16.1 | 15.2 | 81.4 | 18.4 | 1.5 | 65.1 | 25.6 | 17.3 | 61.7 | | | | | |
| S1191 | S1-4 DO YOU USE OR REFER TO CARD READERS/CARD PUNCHES? | 3.3 | 10.1 | 10.9 | 75.0 | 6.8 | 3.1 | 69.8 | 46.7 | 27.4 | 46.9 | | | | | |
| S1192 | S1-5 DO YOU USE OR REFER TO VIDEO DISPLAYS (CRT'S)? | 2.7 | 3.5 | 4.9 | 39.1 | 1.6 | 2.0 | 9.5 | 10.6 | 1.8 | 30.9 | | | | | |
| S1193 | S1-6 DO YOU USE OR REFER TO MIXIE LIGHTS (TUBES)? | 20.9 | 22.6 | 14.1 | 73.7 | 7.4 | 26.0 | 42.9 | 52.8 | 23.2 | 28.4 | | | | | |
| S1194 | S1-7 DO YOU USE OR REFER TO LCD'S? | 3.8 | 30.7 | 9.2 | 14.1 | 2.6 | 7.1 | 4.8 | 19.6 | 8.3 | 19.8 | | | | | |
| S1195 | S1-8 DO YOU USE OR REFER TO LED'S? | 30.8 | 29.1 | 17.9 | 57.7 | 23.7 | 17.9 | 57.1 | 42.7 | 31.0 | 55.6 | | | | | |
| S1196 | S1-9 DO YOU USE OR REFER TO LCD'S? | 13.2 | 12.6 | 9.2 | 23.7 | 10.5 | 8.7 | 23.8 | 19.1 | 16.1 | 25.9 | | | | | |
| S1197 | S1-10 DO YOU USE OR REFER TO INCANDESCENT DISPLAYS? | 10.4 | 19.1 | 10.9 | 26.9 | 9.5 | 10.7 | 31.7 | 19.6 | 19.6 | 21.0 | | | | | |
| S1198 | S1-11 DO YOU USE OR REFER TO TOGGLE OR PUSH BUTTON SWITCH INPUTS? | 26.4 | 28.6 | 18.5 | 71.8 | 27.4 | 26.0 | 68.3 | 45.7 | 43.5 | 49.4 | | | | | |
| S1199 | S1-12 DO YOU USE OR REFER TO INTERFACE ADAPTER UNITS? | 14.3 | 12.1 | 8.7 | 48.7 | 15.8 | 14.8 | 71.4 | 33.7 | 17.9 | 39.5 | | | | | |

| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| S1200 | S1-13 DO YOU USE OR REFER TO TAPE READERS? | 3.3 | 10.1 | 8.2 | 37.2 | 2.6 | 3.6 | 58.7 | 42.7 | 24.4 | 49.4 | 320 | 320 | 320 |
| S1201 | S1-14 DO YOU USE OR REFER TO TAPE PUNCHES? | 2.2 | 10.1 | 5.4 | 25.6 | 1.6 | 1.5 | 41.3 | 13.6 | 3.6 | 22.2 | 51 | 53 | 55 |
| S1202 | S2-1 DO YOU WORK WITH PHOTODIODE PHOTO SENSITIVE DEVICES? | 7.1 | 10.1 | 7.6 | 30.1 | 2.1 | 6.6 | 7.9 | 5.5 | 4.2 | 9.9 | (M) | (M) | (M) |
| S1203 | S2-2 DO YOU WORK WITH PHOTOTRANSISTOR PHOTO SENSITIVE DEVICES? | 5.5 | 7.0 | 5.4 | 18.6 | 1.6 | 8.7 | 7.9 | 4.5 | 3.6 | 7.4 | | | |
| S1204 | S2-3 DO YOU WORK WITH PHOTOTUBE PHOTO SENSITIVE DEVICES? | 3.8 | 1.0 | 1.6 | 12.8 | 2.1 | .0 | 1.6 | 1.5 | 1.2 | 1.2 | | | |
| S1205 | S2-4 DO YOU WORK WITH PHOTO-SCR PHOTO SENSITIVE DEVICES? | 2.2 | 2.5 | 2.2 | 1.9 | 1.1 | 3.1 | .0 | 1.0 | 1.2 | 2.5 | | | |
| S1206 | S2-5 DO YOU WORK WITH PHOTOCCELL (PHOTOCONDUCTIVE OR PHOTOVOLTAIC) PHOTO SENSITIVE DEVICES? | 6.6 | 13.1 | 15.8 | 36.5 | 1.6 | 6.1 | 6.3 | 8.0 | 7.7 | 9.9 | | | |
| S1207 | S3-1 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS? IF NO, GO TO ITEM T1-1; IF YES, CONTINUE. | 1.6 | 14.6 | 10.9 | 4.5 | 28.4 | 21.9 | 6.3 | 8.5 | 13.7 | 16.0 | | | |
| S1208 | S3-2 DO YOU USE OR REFER TO EXCITATION FREQUENCY CHOPPER COIL ITEMS? | 1.6 | 8.0 | 4.9 | 3.2 | 14.7 | 13.8 | 6.3 | 6.0 | 10.7 | 7.4 | | | |
| S1209 | S3-3 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | 2.7 | 5.5 | 9.2 | 3.2 | 18.4 | 15.8 | 4.8 | 6.0 | 8.9 | 11.1 | | | |
| S1210 | S3-4 DO YOU MEASURE EXCITATION FREQUENCY CHOPPER COIL ITEMS? | 1.6 | 5.0 | 2.7 | 1.9 | 8.9 | 10.7 | 1.6 | 4.5 | 7.1 | 6.2 | | | |
| S1211 | S3-5 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | 2.2 | 4.5 | 4.3 | 3.2 | 12.1 | 13.3 | 1.6 | 3.0 | 6.0 | 7.4 | | | |
| S1212 | S3-6 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | 1.6 | 3.5 | 9.8 | 2.6 | 25.3 | 20.9 | .0 | 5.0 | 7.7 | 9.9 | | | |
| S1213 | S3-7 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | 2.2 | 7.0 | 8.7 | 2.6 | 22.1 | 18.4 | 1.6 | 6.0 | 8.3 | 9.9 | | | |
| S1214 | S3-8 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | 2.2 | 4.5 | 10.9 | 3.8 | 24.7 | 21.4 | 1.6 | 5.0 | 9.5 | 14.8 | | | |
| S1215 | S3-9 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | 2.2 | 8.5 | 8.7 | 3.8 | 21.1 | 20.4 | 1.6 | 5.5 | 8.3 | 14.8 | | | |

T INFRARED (T1), LASERS (T2), DISPLAY TUBES (T3), TELEVISION (T4)

| | | | | | | | | | | | | | | |
|-------|---|-----|----|----|-----|----|----|----|-----|-----|-----|--|--|--|
| T1216 | T1-1 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS? IF NO, GO TO ITEM T2-1; IF YES, CONTINUE. | 2.7 | .0 | .5 | 2.6 | .0 | .0 | .0 | 5.5 | 3.0 | 2.5 | | | |
| T1217 | T1-2 DO YOU INSPECT INFRARED SYSTEMS? | 1.6 | .0 | .5 | 1.9 | .0 | .0 | .0 | 4.0 | 1.2 | 2.5 | | | |
| T1218 | T1-3 DO YOU CLEAN INFRARED SYSTEMS? | 1.6 | .0 | .5 | 1.9 | .0 | .0 | .0 | 3.5 | 1.8 | 1.2 | | | |
| T1219 | T1-4 DO YOU SERVICE INFRARED SYSTEMS? | 1.6 | .0 | .5 | 1.9 | .0 | .0 | .0 | 4.5 | 1.2 | 1.2 | | | |
| T1220 | T1-5 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS? | 1.6 | .0 | .0 | 1.3 | .0 | .0 | .0 | 1.5 | 1.2 | 1.2 | | | |
| T1221 | T1-6 DO YOU OPERATE INFRARED SYSTEMS? | 1.6 | .0 | .0 | 1.3 | .0 | .0 | .0 | 3.0 | 1.8 | 2.5 | | | |
| T1222 | T1-7 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS? | 1.6 | .0 | .0 | 1.9 | .0 | .0 | .0 | 3.5 | 1.2 | 2.5 | | | |
| T1223 | T1-8 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | 1.6 | .0 | .0 | 1.3 | .0 | .0 | .0 | 2.5 | 1.2 | 2.5 | | | |
| T1224 | T1-9 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS? | 1.1 | .0 | .0 | .6 | .0 | .0 | .0 | 1.5 | .6 | 2.5 | | | |
| T1225 | T1-10 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | 1.6 | .0 | .0 | 1.3 | .0 | .0 | .0 | 2.5 | 1.2 | 1.2 | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT01 PAGE 70

| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| U1366 | U2-6 DO YOU USE A HP3550 OR 344A TEST SET TO ALIGN AUDIO EQUIPMENT? | 43.4 | 15.1 | 32.1 | 3.2 | 22.1 | 23.0 | 4.8 | 6.5 | 1.8 | 40.7 | | |

KEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCURBENTS DURING THE PERIOD DLCEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE SYS. CRITERIA LISTED IN ATRC 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH SYS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/DHYO, AUTOVON 487-5811.

VECTOR TYPE CODES:

- (T) = % TIME SPENT BY ALL MEMBERS
- (M) = % MEMBERS PERFORMING
- (F) = TASK FACTOR
- (D) = DICHOTOMOUS SET
- (B) = % TIME SPENT BY MEMBERS PERFORMING
- (-) = PROGRAM GENERATED VECTOR

| NO | TYPE | VECTOR | MEAN | SD | DESCRIPTION | FACTOR # |
|----|------|--------|------|----|--------------------|----------|
| 1 | M | 205 50 | 192 | | DAFSC 20550 AIRMEN | 29 |
| 2 | M | 307 50 | 177 | | DAFSC 30750 AIRMEN | 39 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

KEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PERIOD DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

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FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/DMYD, AUTOVON #67-5811.

| D TSK | TITLES | 205 | 307 |
|-------|--------|-----|-----|
| | | 50 | 50 |
| | | (M) | (M) |

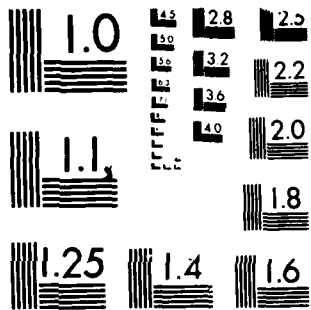
MATHEMATICS (A1), DIRECT CURRENT (A2), RESISTANCE AND RESISTIVE CIRCUITS (A3)

| | | | | | |
|---|-----|----|----|------|------|
| 1 | A 1 | 1 | 1 | 39.6 | 67.8 |
| | | | | | |
| | A 2 | 2 | 2 | 28.5 | 41.8 |
| | | | | | |
| | 3 | 3 | 3 | 40.1 | 41.2 |
| | 4 | 4 | 4 | 14.6 | 10.7 |
| | 5 | 5 | 5 | 22.4 | 32.8 |
| | 6 | 6 | 6 | 10.4 | 37.9 |
| | 7 | 7 | 7 | 7.8 | 9.6 |
| | 8 | 8 | 8 | 6.8 | 5.6 |
| | 9 | 9 | 9 | 13.5 | 6.8 |
| | 10 | 10 | 10 | 20.3 | 18.0 |
| | 11 | 11 | 11 | 17.2 | 15.3 |
| | 12 | 12 | 12 | 46.9 | 87.0 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | Z05 | 307 |
|-------|---|------|------|
| | | 50 | 50 |
| | | (M) | (P) |
| A 13 | A2-2 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTROMOTIVE FORCE (EMF)? | 7.8 | 10.7 |
| A 14 | A2-3 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM OHM? | 17.2 | 84.7 |
| A 15 | A2-4 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ION? | 2.1 | 9.6 |
| A 16 | A2-5 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM DYNE? | 2.1 | 5.6 |
| A 17 | A2-6 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM AMPERE? | 18.8 | 70.6 |
| A 18 | A2-7 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM NEUTRON? | 2.6 | 6.2 |
| A 19 | A2-8 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM COULOMB? | 2.1 | 3.4 |
| A 20 | A2-9 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM PROTON? | 3.1 | 7.9 |
| A 21 | A2-10 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTRON? | 7.8 | 16.9 |
| A 22 | A2-11 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM CURRENT? | 23.4 | 75.1 |
| A 23 | A2-12 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM VOLTAGE? | 20.8 | 59.3 |
| A 24 | A2-13 DO YOU DETERMINE IF TWO OR MORE BATTERIES MUST BE CONNECTED IN SERIES OR PARALLEL TO ACHIEVE A SPECIFIC VOLTAGE AND/OR CURRENT? | 2.1 | 18.1 |
| A 25 | A3-1 DO YOU WORK WITH RESISTORS OR RESISTIVE CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM B1-1; IF YES, CONTINUE. | 3.6 | 28.2 |
| A 26 | A3-2 DO YOU INSPECT RESISTORS? | .0 | 7.9 |
| A 27 | A3-3 DO YOU CLEAN RESISTORS? | .0 | 1.7 |
| A 28 | A3-4 DO YOU ADJUST RESISTORS? | .0 | 9.6 |

| 0 TSK | TITLES | 205 | 307 |
|-------|--|-----|------|
| | | (M) | (M) |
| A 29 | A3-5 DO YOU MEASURE RESISTORS? | 1.0 | 18.6 |
| A 30 | A3-6 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASK YOU PERFORM? | .0 | 3.4 |
| A 31 | A3-7 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY CARBON? | .5 | 5.1 |
| A 32 | A3-8 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED WIRE? | .5 | 11.3 |
| A 33 | A3-9 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY SLIDE TAP? | .5 | 8.5 |
| A 34 | A3-10 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY RHEOSTAT? | .5 | 10.2 |
| A 35 | A3-11 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | 1.0 | 18.6 |
| A 36 | A3-12 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED FILM? | .5 | 1.1 |
| A 37 | A3-13 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE? | .5 | 11.3 |
| A 38 | A3-14 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE? | .5 | 10.7 |
| A 39 | A3-15 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE? | .5 | 5.6 |
| A 40 | A3-16 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES? | 2.1 | 19.8 |
| A 41 | A3-17 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE CIRCUIT? | 2.1 | 19.2 |
| A 42 | A3-18 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 1.6 | 15.3 |
| A 43 | A3-19 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 1.6 | 11.9 |



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

205 307
50 50
(M) (M)

1.6 10.2
2.6 19.2
1.6 16.4
1.6 11.3
1.6 9.0
2.1 11.3
2.6 15.8
1.6 13.6
1.6 9.0
1.6 7.9
1.6 9.0
1.6 13.6
.5 11.3
.5 7.3

D TSM TITLES

- A 44 A3-20 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE CIRCUITS?
- A 45 A3-21 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS?
- A 46 A3-22 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS?
- A 47 A3-23 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS?
- A 48 A3-24 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS?
- A 49 A3-25 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS?
- A 50 A3-26 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS?
- A 51 A3-27 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS?
- A 52 A3-28 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS?
- A 53 A3-29 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS?
- A 54 A3-30 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS?
- A 55 A3-31 DO YOU CALCULATE TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?
- A 56 A3-32 DO YOU CALCULATE TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?
- A 57 A3-33 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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205 307
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(M) (M)

0 TSK TITLES

A 58 A3-34 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

A 59 A3-35 DO YOU CALCULATE POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

B METERS/MULTIMETERS (B1), ALTERNATING CURRENT (AC) (B2), INDUCTORS AND INDUCTIVE REACTANCE (B3)

B 60 B1-1 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE RESISTANCE?

B 61 B1-2 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE VOLTAGE?

B 62 B1-3 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE CURRENT?

B 63 B1-4 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE POWER?

B 64 B1-5 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE FREQUENCY?

B 65 B1-6 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE TEMPERATURE?

B 66 B1-7 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE PRESSURE?

B 67 B1-8 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE LIGHT LEVELS?

B 68 B2-1 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM EFFECTIVE VOLTAGE (RMS) IN YOUR PRESENT JOB?

12.0 49.7

1.6 48.6

9.9 77.4

3.6 58.2

7.8 53.7

26.6 80.8

3.1 8.5

1.6 3.4

1.0 2.8

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
50 50
(M) (M)

| Q TSM | TITLES | 205 | 307 |
|-------|---|------|------|
| 0 69 | 02-2 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PEAK TO PEAK VOLTAGE IN YOUR PRESENT JOB? | 22.1 | 57.1 |
| 0 70 | 02-3 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM AVERAGE VOLTAGE (RMS) IN YOUR PRESENT JOB? | 16.1 | 52.0 |
| 0 71 | 02-4 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM WAVE LENGTH IN YOUR PRESENT JOB? | 37.0 | 45.2 |
| 0 72 | 02-5 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM FREQUENCY IN YOUR PRESENT JOB? | 66.8 | 84.7 |
| 0 73 | 02-6 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM INSTANTANEOUS VALUE IN YOUR PRESENT JOB? | 7.3 | 18.1 |
| 0 74 | 02-7 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PHASE RELATIONSHIPS IN YOUR PRESENT JOB? | 22.6 | 64.4 |
| 0 75 | 03-1 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C1-1; IF YES, CONTINUE. | 3.1 | 9.5 |
| 0 76 | 03-2 DO YOU INSPECT INDUCTORS? | .5 | 2.3 |
| 0 77 | 03-3 DO YOU CLEAN INDUCTORS? | .0 | 1.1 |
| 0 78 | 03-4 DO YOU ADJUST INDUCTORS? | .0 | 1.7 |
| 0 79 | 03-5 DO YOU MEASURE INDUCTORS? | .5 | 2.3 |
| 0 80 | 03-6 DO YOU USE OR REFER TO INDUCTANCE? | 2.1 | 3.4 |
| 0 81 | 03-7 DO YOU USE OR REFER TO HENRIES? | 1.6 | 2.3 |
| 0 82 | 03-8 DO YOU USE OR REFER TO INDUCTIVE REACTANCE? | 1.6 | 3.4 |
| 0 83 | 03-9 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS? | .0 | 1.1 |
| 0 84 | 03-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS? | .0 | 1.1 |
| 0 85 | 03-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS? | .0 | .6 |
| 0 86 | 03-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL? | 1.6 | 2.3 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 | 307 |
|-------|--|-----|------|
| | | 50 | 50 |
| | | (M) | (P) |
| B 07 | B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE? | .5 | 1.1 |
| B 08 | B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH? | .5 | 2.3 |
| B 09 | B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL? | .5 | 1.7 |
| B 90 | B3-16 DO YOU CALCULATE INDUCTANCE IN ELECTRICAL/ELECTRONIC CIRCUITS? | 1.6 | 2.8 |
| B 91 | B3-17 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS? | 1.0 | 3.4 |
| B 92 | B3-18 DO YOU CALCULATE INDUCTIVE REACTANCE? | 2.1 | 2.3 |
| B 93 | B3-19 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY? | 1.0 | 3.4 |
| B 94 | B3-20 DO YOU WORK WITH POWER INDUCTORS? | 1.6 | 2.3 |
| B 95 | B3-21 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS? | 2.1 | 4.0 |
| B 96 | B3-22 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS? | 2.6 | 2.8 |
| ----- | | | |
| C | CAPACITORS AND CAPACITIVE REACTANCE (C1), TRANSFORMERS (C2), MAGNETISM (C3) | | |
| ----- | | | |
| C 97 | C1-1 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C2-1; IF YES, CONTINUE. | 3.6 | 11.9 |
| C 98 | C1-2 DO YOU INSPECT CAPACITORS? | .5 | 1.7 |
| C 99 | C1-3 DO YOU CLEAN CAPACITORS? | .5 | .6 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D | TSK | TITLES | 205 | 307 |
|-------|-------|--|-----|------|
| | | | 50 | 50 |
| | | | (M) | (P) |
| C 100 | CI-4 | DO YOU ADJUST CAPACITORS? | .5 | 2.3 |
| C 101 | CI-5 | DO YOU TEST CAPACITORS? | .5 | 4.5 |
| C 102 | CI-6 | DO YOU DISCHARGE CAPACITORS? | .5 | 2.8 |
| C 103 | CI-7 | DO YOU MEASURE CAPACITORS? | 1.0 | 2.8 |
| C 104 | CI-8 | DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE? | .5 | 1.7 |
| C 105 | CI-9 | DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC? | .5 | 1.1 |
| C 106 | CI-10 | DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS? | 1.6 | 6.0 |
| C 107 | CI-11 | DO YOU USE OR REFER TO CAPACITANCE? | 2.6 | 9.6 |
| C 108 | CI-12 | DO YOU USE OR REFER TO DIELECTRIC CONSTANT? | 1.0 | 4.5 |
| C 109 | CI-13 | DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS? | .5 | 4.0 |
| C 110 | CI-14 | DO YOU USE OR REFER TO CAPACITIVE REACTANCE? | 1.0 | 4.5 |
| C 111 | CI-15 | DO YOU USE OR REFER TO CAPACITOR COLOR CODES? | .5 | 3.4 |
| C 112 | CI-16 | DO YOU WORK WITH CAPACITORS IN DC CIRCUITS? | 2.6 | 11.3 |
| C 113 | CI-17 | DO YOU WORK WITH CAPACITORS IN AC CIRCUITS? | 2.6 | 8.5 |
| C 114 | CI-18 | DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC? | 3.1 | 8.5 |
| C 115 | CI-19 | DO YOU CALCULATE CAPACITANCE IN ELECTRICAL/ELECTRONIC CIRCUITS? | 1.6 | 4.0 |
| C 116 | CI-20 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT? | 1.0 | 4.5 |
| C 117 | CI-21 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS? | 1.6 | 2.3 |
| C 118 | CI-22 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO | 1.0 | 4.0 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D | TSK | TITLES | 205 | 307 |
|-------|-------|---|-----|------|
| | | | (M) | (M) |
| C 119 | C1-23 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS? | 1.0 | 4.0 |
| C 120 | C1-24 | DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY? | 1.6 | 4.0 |
| C 121 | C1-25 | DO YOU CALCULATE CAPACITIVE REACTANCE? | 1.0 | 4.0 |
| C 122 | C1-26 | DO YOU WORK WITH VARIABLE CAPACITORS? | .0 | 8.5 |
| C 123 | C1-27 | DO YOU WORK WITH TRIMMER CAPACITORS? | .5 | 2.8 |
| C 124 | C1-28 | DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS? | .5 | 6.2 |
| C 125 | C1-29 | DO YOU WORK WITH OTHER FIXED CAPACITORS? | 1.0 | 5.1 |
| C 126 | C2-1 | DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C3-1; IF YES, CONTINUE. | 1.0 | 14.1 |
| C 127 | C2-2 | DO YOU INSPECT TRANSFORMERS? | .5 | 4.5 |
| C 128 | C2-3 | DO YOU CLEAN TRANSFORMERS? | .5 | .0 |
| C 129 | C2-4 | DO YOU ADJUST TRANSFORMERS? | .5 | 2.3 |
| C 130 | C2-5 | DO YOU TROUBLESHOOT TRANSFORMERS? | .5 | 4.5 |
| C 131 | C2-6 | DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)? | .5 | 1.1 |
| C 132 | C2-7 | DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M? | .5 | .6 |
| C 133 | C2-8 | DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS? | .5 | 2.3 |
| C 134 | C2-9 | DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS? | .5 | .6 |
| C 135 | C2-10 | DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS? | .5 | 5.6 |
| C 136 | C2-11 | DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS? | .5 | 4.0 |
| C 137 | C2-12 | DO YOU WORK WITH AUTOTRANSFORMERS? | .0 | 1.1 |
| C 138 | C2-13 | DO YOU WORK WITH POWER TRANSFORMERS? | .0 | 5.6 |
| C 139 | C2-14 | DO YOU WORK WITH AUDIO TRANSFORMERS? | .5 | 9.6 |
| C 140 | C2-15 | DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS? | .5 | 4.0 |

| D TSM | TITLES | 205 (M) | 307 50 (M) |
|-------------|--|------------|------------------|
| C 141 C2-16 | DO YOU WORK WITH SATURABLE CORE TRANSFORMERS? | .0 | .0 |
| C 142 C2-17 | DO YOU WORK WITH SENSING TRANSFORMERS? | .0 | 1.1 |
| C 143 C2-18 | DO YOU WORK WITH CONTROL TRANSFORMERS? | .0 | 2.8 |
| C 144 C2-19 | DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE? | .0 | 5.1 |
| C 145 C2-20 | DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE? | .0 | 3.4 |
| C 146 C2-21 | DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES? | .0 | 5.1 |
| C 147 C2-22 | DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | .0 | 1.1 |
| C 148 C2-23 | DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | .0 | 1.7 |
| C 149 C2-24 | DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS? | .0 | 6.2 |
| C 150 C2-25 | DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 4.5 |
| C 151 C2-26 | DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 4.5 |
| C 152 C2-27 | DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 5.1 |
| C 153 C2-28 | DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 2.3 |
| C 154 C2-29 | DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 2.3 |
| C 155 C2-30 | DO YOU REFER TO VARIABLE TRANSFORMER SCHEMATIC SYMBOLS? | .0 | 2.8 |
| C 156 C2-31 | DO YOU REFER TO COMBINATIONS OF SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 3.4 |

| O TSK | TITLES | 205 | 307 |
|-------------|--|-----|-----|
| | | (M) | (M) |
| C 157 C2-32 | DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS? | .0 | 1.1 |
| C 158 C2-33 | DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH? | .5 | 1.7 |
| C 159 C2-34 | DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO? | .5 | 1.7 |
| C 160 C2-35 | DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS? | .5 | 3.4 |
| C 161 C2-36 | DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | .5 | .6 |
| C 162 C2-37 | DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | .5 | .6 |
| C 163 C2-38 | DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS? | .5 | .0 |
| C 164 C2-39 | DO YOU INSPECT THREE PHASE TRANSFORMERS? | .5 | .0 |
| C 165 C2-40 | DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS? | .5 | .0 |
| C 166 C2-41 | DO YOU ADJUST THREE PHASE TRANSFORMERS? | .5 | .0 |
| C 167 C2-42 | DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS? | .5 | .0 |
| C 168 C3-1 | DO YOU USE OR REFER TO PERMANENT MAGNETS? | 4.7 | 2.3 |
| C 169 C3-2 | DO YOU USE OR REFER TO TEMPORARY MAGNETS? | 3.6 | 2.8 |
| C 170 C3-3 | DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS? | 5.2 | .6 |
| C 171 C3-4 | DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS? | 3.6 | 1.1 |
| C 172 C3-5 | DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS? | 5.2 | 1.1 |
| C 173 C3-6 | DO YOU USE OR REFER TO RESIDUAL MAGNETISM? | 5.2 | 3.4 |
| C 174 C3-7 | DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX? | 6.8 | 5.6 |

205 307
50 50
(M) (M)

D YSM TITLES

C 175 C3-8 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM?
C 176 C3-9 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM?
C 177 C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION?
C 178 C3-11 DO YOU USE OR REFER TO FLUX DENSITY?
C 179 C3-12 DO YOU USE OR REFER TO SATURABLE REACTANCE?

D RCL CIRCUITS (D1), TIME CONSTANTS (D2), FILTERS (D3)

D 180 D1-1 DO YOU WORK WITH RC, LR, OR RCL CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM D2-1; IF YES, CONTINUE.
D 181 D1-2 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS?
D 182 D1-3 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS?
D 183 D1-4 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS?
D 184 D1-5 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS?
D 185 D1-6 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS?
D 186 D1-7 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS?
D 187 D1-8 DO YOU USE OR REFER TO TRUE POWER (P SUB T) WHEN WORKING WITH RCL CIRCUITS?
D 188 D1-9 DO YOU USE OR REFER TO MAXIMUM POWER (P SUB M) WHEN WORKING WITH RCL CIRCUITS?
D 189 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (P SUB AVE) WHEN WORKING WITH RCL CIRCUITS?

5.2 0.5
1.6 2.3
1.6 1.7
3.1 4.0
3.1 3.9
3.1 2.8
3.1 7.9
3.1 4.0
3.1 3.4
4.2 3.4

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSM | TITLES | 205 | 307 | 50 | (M) | (M) |
|-------|--|-----|------|----|-----|-----|
| 0 190 | 01-11 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) WHEN WORKING WITH RCL CIRCUITS? | 2.1 | 2.3 | | | |
| 0 191 | 01-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS? | 1.6 | 2.8 | | | |
| 0 192 | 01-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 1.6 | 6.2 | | | |
| 0 193 | 01-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS? | 5.7 | 10.7 | | | |
| 0 194 | 01-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS? | 4.7 | 7.9 | | | |
| 0 195 | 01-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS? | 2.6 | 8.5 | | | |
| 0 196 | 01-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS? | 2.6 | 5.1 | | | |
| 0 197 | 01-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS? | 3.6 | 7.3 | | | |
| 0 198 | 01-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS? | .0 | 4.5 | | | |
| 0 199 | 01-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 1.0 | 4.0 | | | |
| 0 200 | 01-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS SUCH AS: SINE OF AND ANGLE = OPPOSITE SIDE/HYPOTENUSE? | 2.1 | 1.1 | | | |
| 0 201 | 01-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS? | .5 | 2.8 | | | |
| 0 202 | 01-23 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS? | 2.1 | 5.6 | | | |
| 0 203 | 01-24 DO YOU USE OR REFER TO PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS? | 1.0 | 2.3 | | | |
| 0 204 | 01-25 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS? | 2.1 | 4.5 | | | |

| D. YSM | TITLES | 205 (M) | 307 (M) |
|--------|---|------------|------------|
| D 205 | 01-26 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS? | .5 | 3.9 |
| D 206 | 01-27 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) FOR SERIES RCL CIRCUITS? | .5 | 2.3 |
| D 207 | 01-28 DO YOU USE OR REFER TO TRUE POWER (P SUB T) FOR SERIES RCL CIRCUITS? | 1.6 | 3.9 |
| D 208 | 01-29 DO YOU USE OR REFER TO POWER FACTORS (PF) FOR SERIES RCL CIRCUITS? | .5 | 1.7 |
| D 209 | 01-30 DO YOU USE OR REFER TO TOTAL CURRENT FOR PARALLEL RCL CIRCUITS? | 1.6 | 2.3 |
| D 210 | 01-31 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS? | 1.0 | 3.9 |
| D 211 | 01-32 DO YOU USE THE ASSUMED VOLTAGE METHOD FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 1.0 | 2.1 |
| D 212 | 01-33 DO YOU USE OHM'S LAW FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 2.1 | 5.6 |
| D 213 | 01-34 DO YOU CHECK CAPACITORS USING OHMMETERS? | .5 | 3.9 |
| D 214 | 01-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION? | .5 | 1.1 |
| D 215 | 01-36 DO YOU CHECK INDUCTORS USING OHMMETERS? | .5 | 4.0 |
| D 216 | 01-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION? | .5 | .6 |
| D 217 | 01-38 DO YOU CHECK RESISTORS USING OHMMETERS? | .5 | 5.6 |
| D 218 | 01-39 DO YOU CHECK RESISTORS USING SUBSTITUTION? | .5 | 2.3 |
| D 219 | 01-40 DO YOU USE OR REFER TO THE RULE THAT PHASE ANGLE (THETA) = 0, POWER FACTOR (PF) = 1, AND APPARENT POWER (P SUB A) = TRUE POWER (P SUB T) FOR RESONANT CIRCUITS? | 1.0 | 1.1 |
| D 220 | 01-41 DO YOU USE OR REFER TO RESONANT FREQUENCIES FOR RCL CIRCUITS? | 2.6 | 9.5 |
| D 221 | 01-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS? | 1.0 | 9.5 |

| D TSK | TITLES | 205 | 307 |
|-------|---|-----|-----|
| | | 50 | 50 |
| | | (M) | (M) |
| D 222 | D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS? | 1.0 | 2.8 |
| D 223 | D1-44 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 OF THE PEAK CURRENT VALUE? | 4.2 | 4.5 |
| D 224 | D1-45 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO THE QUALITY OF THE COIL (Q)? | 1.0 | 1.7 |
| D 225 | D1-46 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS? | 1.0 | 3.4 |
| D 226 | D2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS? IF NO, GO TO ITEM D3-1; IF YES, CONTINUE. | 2.6 | 2.3 |
| D 227 | D2-2 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)? | .5 | 1.7 |
| D 228 | D2-3 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS? | 1.0 | 2.8 |
| D 229 | D2-4 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS? | .5 | .6 |
| D 230 | D2-5 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS? | .5 | .6 |
| D 231 | D2-6 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES? | 1.0 | 1.7 |
| D 232 | D2-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OP ZERO) AFTER FIVE (5) TIME CONSTANTS? | .5 | 1.1 |

| O TSK | TITLES | 205 (M) | 307 (M) |
|-------|---|------------|------------|
| D 233 | D3-1 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM E1-1; IF YES, CONTINUE. | 26.6 | 20.3 |
| D 234 | D3-2 DO YOU INSPECT FILTER CIRCUITS? | 1.0 | 2.8 |
| D 235 | D3-3 DO YOU CLEAN FILTER CIRCUITS? | 1.6 | .0 |
| D 236 | D3-4 DO YOU ALIGN OR ADJUST FILTER CIRCUITS? | 2.6 | 4.5 |
| D 237 | D3-5 DO YOU ALIGN OR ADJUST FILTER CIRCUITS? | .5 | 12.4 |
| D 238 | D3-6 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF FILTER CIRCUITS? | .5 | 4.0 |
| D 239 | D3-7 DO YOU WORK WITH LOW PASS FILTERS? | 26.0 | 15.3 |
| D 240 | D3-8 DO YOU WORK WITH HIGH PASS FILTERS? | 24.0 | 14.7 |
| D 241 | D3-9 DO YOU WORK WITH BANDPASS FILTERS? | 22.4 | 19.8 |
| D 242 | D3-10 DO YOU WORK WITH BAND-REJECT FILTERS? | 18.2 | 13.6 |
| D 243 | D3-11 DO YOU WORK WITH FILTERS BUT DON'T REMEMBER WHICH TYPE? | 2.6 | 3.4 |
| D 244 | D3-12 DO YOU WORK WITH L-SECTION FILTER CONFIGURATIONS? | .5 | 2.8 |
| D 245 | D3-13 DO YOU WORK WITH T-SECTION FILTER CONFIGURATIONS? | 1.0 | 2.3 |
| D 246 | D3-14 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATIONS? | .5 | 1.7 |
| D 247 | D3-15 DO YOU WORK WITH YTTRIUM IRON GARNET (YIG) FILTERS? | .5 | .0 |
| D 248 | D3-16 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS? | 1.0 | 3.4 |

E COUPLING (E1), SOLDERING OR SOLDERLESS CONNECTIONS(E2), RELAYS (E3)

E 249 E1-1 DO YOU WORK WITH COUPLING DEVICES OR CIRCUITRY IN YOUR PRESENT JOB? IF NO, GO TO ITEM E2-1; IF YES, CONTINUE.

2.1 10.7

| D TSK | TITLES | 205 | 307 | 50 | 50 | (M) | (M) |
|-------|--|-----|------|----|----|-----|-----|
| E 250 | E1-2 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING? | 1.0 | 4.5 | | | | |
| E 251 | E1-3 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING (MATCHING)? | .5 | 9.6 | | | | |
| E 252 | E1-4 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH OPTICAL COUPLING? | .5 | 2.8 | | | | |
| E 253 | E1-5 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING? | .0 | 6.2 | | | | |
| E 254 | E1-6 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING? | .0 | 3.4 | | | | |
| E 255 | E1-7 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING? | .0 | 8.5 | | | | |
| E 256 | E1-8 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING? | .0 | 4.5 | | | | |
| E 257 | E1-9 DO YOU WORK WITH DIRECT COUPLED CIRCUITS? | .5 | 5.1 | | | | |
| E 258 | E1-10 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS? | .0 | 4.5 | | | | |
| E 259 | E1-11 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS? | .0 | 4.0 | | | | |
| E 260 | E1-12 DO YOU WORK WITH OPTICAL COUPLING? | .5 | 2.3 | | | | |
| E 261 | E1-13 DO YOU WORK WITH OPTICAL COUPLING CIRCUITS? | .0 | 1.7 | | | | |
| E 262 | E1-14 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS? | .0 | 4.5 | | | | |
| E 263 | E2-1 IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONIC CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? IF NO, GO TO ITEM E3-1; IF YES, CONTINUE. | 1.6 | 19.8 | | | | |
| E 264 | E2-2 DO YOU SOLDER CONNECTIONS? | .0 | 16.4 | | | | |
| E 265 | E2-3 DO YOU DESOLDER CONNECTIONS? | .0 | 16.9 | | | | |

| D TSN | TITLES | 205 | 307 | 50 | (M) | (M) |
|-------|---|-----|------|----|-----|-----|
| E 266 | E2-4 DO YOU PERFORM HIGH RELIABILITY SOLDERING? | .0 | 7.3 | | | |
| E 267 | E2-5 DO YOU INSPECT SOLDERED CONNECTIONS? | .0 | 15.3 | | | |
| E 268 | E2-6 DO YOU CLEAN OR TIN CONNECTIONS? | .5 | 12.4 | | | |
| E 269 | E2-7 DO YOU MAKE HARDWIRE CONNECTIONS? | .0 | 16.4 | | | |
| E 270 | E2-8 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS? | .5 | 4.0 | | | |
| E 271 | E2-9 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS? | .0 | 5.1 | | | |
| E 272 | E2-10 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS? | .0 | 3.4 | | | |
| E 273 | E2-11 DO YOU SOLDER ACTIVE COMPONENTS, SUCH AS INTEGRATED CIRCUITS? | .0 | 1.7 | | | |
| E 274 | E2-12 DO YOU PERFORM WIRE WRAPPING IN LIEU OF SOLDERING? | .0 | 14.1 | | | |
| E 275 | E2-13 DO YOU PERFORM CRIMPING IN LIEU OF SOLDERING? | .0 | 6.2 | | | |
| E 276 | E2-14 DO YOU PERFORM WIRE CONNECTIONS USING A 714 PUNCH-ON TOOL IN LIEU OF SOLDERING? | .0 | 7.9 | | | |
| E 277 | E3-1 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB? IF NO, GO TO ITEM F1-1; IF YES, CONTINUE. | .5 | 28.2 | | | |
| E 278 | E3-2 DO YOU ADJUST RELAYS? | .0 | 6.8 | | | |
| E 279 | E3-3 DO YOU CLEAN RELAYS? | .0 | 2.3 | | | |
| E 280 | E3-4 DO YOU INSPECT RELAYS? | .0 | 5.6 | | | |
| E 281 | E3-5 DO YOU TROUBLESHOOT RELAYS? | .0 | 17.5 | | | |
| E 282 | E3-6 DO YOU MONITOR BIAS OUTPUT ON RELAYS? | .0 | 16.4 | | | |
| E 283 | E3-7 DO YOU REMOVE OR REPLACE RELAYS? | .0 | 10.2 | | | |
| E 284 | E3-8 DO YOU PERFORM TASKS ON CONTACTS OF RELAYS? | .0 | 3.4 | | | |
| E 285 | E3-9 DO YOU PERFORM TASKS ON CORES OF RELAYS? | .0 | .0 | | | |
| E 286 | E3-10 DO YOU PERFORM TASKS ON COILS OF RELAYS? | .0 | .0 | | | |
| E 287 | E3-11 DO YOU PERFORM TASKS ON ARMATURES OF RELAYS? | .0 | 1.1 | | | |
| E 288 | E3-12 DO YOU PERFORM TASKS ON SPRINGS OF RELAYS? | .0 | .6 | | | |
| E 289 | E3-13 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 4.0 | | | |

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 205 (M) | 307 (M) |
|-------------|---|------------|------------|
| E 290 E3-14 | DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMAL CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 4.0 |
| E 291 E3-15 | DO YOU REFER TO SINGLE POLE, DOUBLE THROW (SPDT) BOLS FOR RELAYS? | .0 | 4.5 |
| E 292 E3-16 | DO YOU REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SYMBOLS FOR RELAYS? | .0 | 4.0 |
| E 293 E3-17 | DO YOU REFER TO OTHER RELAY SYMBOLS? | .0 | 3.4 |
| E 294 E3-18 | DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE? | .0 | 5.6 |

F MICROPHONES AND SENSING DEVICES (F1), SPEAKERS (F2), OSCILLOSCOPES (F3)

| | | | |
|-------------|---|------|------|
| F 295 F1-1 | DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES OR OTHER SENSING DEVICES SUCH AS TRANSDUCERS? IF NO, GO TO ITEM F2-1; IF YES, CONTINUE. | 15.1 | 15.8 |
| F 296 F1-2 | DO YOU INSPECT MICROPHONES? | .5 | 5.1 |
| F 297 F1-3 | DO YOU CLEAN MICROPHONES? | .5 | 2.3 |
| F 298 F1-4 | DO YOU OPERATE MICROPHONES? | 14.1 | 16.9 |
| F 299 F1-5 | DO YOU TROUBLESHOOT MICROPHONES WIRE CONNECTIONS? | .5 | 5.1 |
| F 300 F1-6 | DO YOU TROUBLESHOOT MICROPHONE COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | .5 | 2.3 |
| F 301 F1-7 | DO YOU REMOVE AND REPLACE COMPLETE MICROPHONES? | 1.6 | 5.6 |
| F 302 F1-8 | DO YOU REMOVE OR REPLACE MICROPHONE COMPONENT PARTS? | .0 | 2.3 |
| F 303 F1-9 | DO YOU PERFORM TASKS ON CARBON MICROPHONES? | 2.1 | 2.3 |
| F 304 F1-10 | DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES? | .5 | .0 |
| F 305 F1-11 | DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES? | 1.0 | .6 |
| F 306 F1-12 | DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES? | 4.7 | 3.4 |
| F 307 F1-13 | DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES? | .0 | .0 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| Q TSK | TITLES | 205 (M) | 307 (M) |
|-------|---|------------|------------|
| F 308 | F1-14 DO YOU PERFORM TASKS ON TRANSDUCERS? | 1.0 | .6 |
| F 309 | F2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS? IF NO, GO TO ITEM F3-1; IF YES, CONTINUE. | 15.6 | 45.2 |
| F 310 | F2-2 DO YOU INSPECT SPEAKERS? | 1.0 | 5.6 |
| F 311 | F2-3 DO YOU CLEAN SPEAKERS? | 1.0 | 2.8 |
| F 312 | F2-4 DO YOU OPERATE SPEAKERS? | 14.1 | 43.5 |
| F 313 | F2-5 DO YOU TROUBLESHOOT SPEAKER WIRE CONNECTIONS? | 2.1 | 14.1 |
| F 314 | F2-6 DO YOU TROUBLESHOOT SPEAKER COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | .5 | 3.4 |
| F 315 | F2-7 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS? | 1.6 | 7.9 |
| F 316 | F2-8 DO YOU REMOVE OR REPLACE SPEAKER PARTS? | .0 | 1.1 |
| F 317 | F2-9 DO YOU PERFORM ANY TASKS ON CONE SPEAKER PARTS? | .0 | .0 |
| F 318 | F2-10 DO YOU PERFORM ANY TASKS ON SPIDER SPEAKER PARTS? | .0 | .0 |
| F 319 | F2-11 DO YOU PERFORM ANY TASKS ON FIELD COIL SPEAKER PARTS? | .0 | .0 |
| F 320 | F2-12 DO YOU PERFORM ANY TASKS ON VOICE COIL SPEAKER PARTS? | .5 | .0 |
| F 321 | F2-13 DO YOU PERFORM ANY TASKS ON PERMANENT MAGNET SPEAKER PARTS? | .0 | .0 |
| F 322 | F2-14 DO YOU PERFORM ANY TASKS ON ELECTROMAGNET SPEAKER PARTS? | .0 | .0 |
| F 323 | F2-15 DO YOU PERFORM ANY TASKS ON SOFT IRON CORE SPEAKER PARTS? | .0 | .0 |
| F 324 | F3-1 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB? IF NO, GO TO ITEM 61-1; IF YES, CONTINUE. | 46.4 | 78.0 |
| F 325 | F3-2 DO YOU PERFORM OPERATIONAL CHECKS USING OSCILLOSCOPES? | 29.7 | 67.2 |
| F 326 | F3-3 DO YOU PERFORM ALIGNMENTS OR ADJUSTMENTS USING OSCILLOSCOPES? | 13.5 | 30.5 |
| F 327 | F3-4 DO YOU TROUBLESHOOT ELECTRONIC CIRCUITS USING OSCILLOSCOPES? | .5 | 58.2 |
| F 328 | F3-5 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCIES? | 46.9 | 53.1 |
| F 329 | F3-6 DO YOU USE OSCILLOSCOPES TO MEASURE TIME? | 45.8 | 45.8 |

| D TSN | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| F 330 | F3-7 DO YOU USE OSCILLOSCOPES TO OBSERVE LISSAJOUS PATTERNS? | 26.6 | 11.9 |
| F 331 | F3-8 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES. | 19.8 | 23.2 |
| F 332 | F3-9 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS? | 39.6 | 23.2 |
| F 333 | F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGES? | 22.9 | 44.1 |
| F 334 | F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGES? | 22.9 | 57.1 |
| F 335 | F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS? | 31.0 | 31.6 |
| F 336 | F3-13 DO YOU USE OSCILLOSCOPES TO OBSERVE DATA PATTERNS? | 34.9 | 68.4 |
| F 337 | F3-14 DO YOU USE OSCILLOSCOPES TO MEASURE RIPPLE VOLTAGES? | 5.7 | 26.0 |
| F 338 | F3-15 DO YOU USE OSCILLOSCOPES TO MEASURE PHASE JITTERS? | 22.4 | 49.2 |
| F 339 | F3-16 DO YOU USE OSCILLOSCOPES TO DISPLAY SWEEP GENERATOR PATTERNS? | 16.1 | 35.0 |
| F 340 | F3-17 DO YOU USE OSCILLOSCOPES TO OBSERVE PHASE RELATIONSHIPS? | 27.6 | 52.5 |
| F 341 | F3-18 DO YOU USE OSCILLOSCOPES TO OBSERVE SAMPLING DISPLAYS? | 21.4 | 32.2 |
| ----- | | | |
| 6 | SEMICONDUCTOR DIODES (G1), TRANSISTORS (G2), TRANSISTOR AMPLIFIERS (G3) | | |
| ----- | | | |
| 6 | 342 61-1 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB? IF NO, GO TO ITEM G2-1; IF YES, CONTINUE. | .5 | 3.4 |
| 6 | 343 61-2 DO YOU INSPECT DIODES? | .0 | .6 |
| 6 | 344 61-3 DO YOU CHECK DIODES? | .0 | .6 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| Q TSM | TITLES | 205 50 (M) | 307 50 (M) |
|-------|---|------------------|------------------|
| 6 345 | 61-4 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES? | .0 | .6 |
| 6 346 | 61-5 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE? | .0 | .6 |
| 6 347 | 61-6 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES? | .0 | .6 |
| 6 348 | 61-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES? | .0 | 1.7 |
| 6 349 | 61-8 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE? | .0 | .6 |
| 6 350 | 61-9 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW? | .0 | .0 |
| 6 351 | 61-10 DO YOU MEASURE FORWARD BIAS RESISTANCE? | .0 | .0 |
| 6 352 | 61-11 DO YOU MEASURE REVERSE BIAS RESISTANCE? | .0 | .6 |
| 6 353 | 61-12 DO YOU READ DIODE COLOR CODING? | .0 | .6 |
| 6 354 | 61-13 DO YOU READ DIODE NUMBERING SYSTEM, SUCH AS IN 538? | .0 | 1.7 |
| 6 355 | 61-14 DO YOU USE THE SYMBOL DN DIODE WHICH INDICATES THE CATHODE END? | .0 | 1.7 |
| 6 356 | 61-15 DO YOU DETERMINE DIRECTION OF CURRENT THROUGH A DIODE? | .0 | .6 |
| 6 357 | 61-16 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON? | .0 | .6 |
| 6 358 | 61-17 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OR RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)? | .0 | .6 |
| 6 359 | 61-18 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)? | .0 | .6 |

| D TSM | TITLS | 205 | 307 |
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| 6 360 | 61-19 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS? | .0 | 1.7 |
| 6 361 | 61-20 DO YOU NEED AN UNDERSTANDING OF VALENCE BAND IN SEMICONDUCTOR MATERIALS? | .0 | 1.1 |
| 6 362 | 61-21 DO YOU NEED AN UNDERSTANDING OF FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS? | .0 | 1.1 |
| 6 363 | 61-22 DO YOU NEED AN UNDERSTANDING OF CONDUCTION BAND IN SEMICONDUCTOR MATERIALS? | .0 | .6 |
| 6 364 | 61-23 DO YOU NEED AN UNDERSTANDING OF COVALENT BONDING IN SEMICONDUCTOR MATERIALS? | .0 | 1.1 |
| 6 365 | 61-24 DO YOU NEED AN UNDERSTANDING OF ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS? | .0 | .6 |
| 6 366 | 61-25 DO YOU NEED AN UNDERSTANDING OF ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS? | .0 | .6 |
| 6 367 | 61-26 DO YOU NEED AN UNDERSTANDING OF DONOR IMPURITY IN SEMICONDUCTORS? | .0 | .6 |
| 6 368 | 61-27 DO YOU NEED AN UNDERSTANDING OF ACCEPTOR IMPURITY IN SEMICONDUCTORS? | .0 | .6 |
| 6 369 | 61-28 DO YOU NEED AN UNDERSTANDING OF P-TYPE SEMICONDUCTOR MATERIAL? | .0 | .6 |
| 6 370 | 61-29 DO YOU NEED AN UNDERSTANDING OF N-TYPE SEMICONDUCTOR MATERIAL? | .0 | .6 |
| 6 371 | 61-30 DO YOU NEED AN UNDERSTANDING OF MAJORITY CARRIERS IN SEMICONDUCTORS? | .0 | .6 |
| 6 372 | 61-31 DO YOU NEED AN UNDERSTANDING OF MINORITY CARRIERS IN SEMICONDUCTORS? | .0 | .6 |
| 6 373 | 61-32 DO YOU NEED AN UNDERSTANDING OF JUNCTION RECOMBINATION IN SEMICONDUCTORS? | .0 | 1.1 |
| 6 374 | 61-33 DO YOU NEED AN UNDERSTANDING OF DEPLETION REGION IN SEMICONDUCTORS? | .0 | 1.1 |

205 307
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(M) (M)

D TSK TITLES

| | | | |
|-------|--|-----|-----|
| 6 375 | 61-34 DO YOU NEED AN UNDERSTANDING OF RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL? | .0 | 1.1 |
| 6 376 | 61-35 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES? | .0 | .6 |
| 6 377 | 61-36 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS? | .0 | .6 |
| 6 378 | 61-37 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION? | .0 | .6 |
| 6 379 | 61-38 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS? | .0 | .6 |
| 6 380 | 61-39 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS? | .0 | 1.1 |
| 6 381 | 61-40 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS? | .0 | .6 |
| 6 382 | 61-41 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS? | .0 | 1.1 |
| 6 383 | 62-1 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM G3-1; IF YES, CONTINUE. | 1.0 | 1.7 |
| 6 384 | 62-2 DO YOU INSPECT TRANSISTORS? | .0 | .0 |
| 6 385 | 62-3 DO YOU CHECK TRANSISTORS? | .0 | .6 |
| 6 386 | 62-4 DO YOU NEED AN UNDERSTANDING OF EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS? | .0 | .6 |
| 6 387 | 62-5 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS? | .0 | .6 |
| 6 388 | 62-6 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS? | .0 | .6 |
| 6 389 | 62-7 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION? | .0 | .6 |
| 6 390 | 62-8 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION? | .0 | .6 |

205 307
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D TSM TITLES

- 6 391 62-9 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE, AND EMITTER)? .0 .6
- 6 392 62-10 DO YOU USE OR REFER TO LEAKAGE CURRENT (I SUB C80) IN A TRANSISTOR? .0 .0
- 6 393 62-11 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS? .0 1.1
- 6 394 62-12 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, A2, A3, ETC.? .0 1.1
- 6 395 62-13 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION? .0 .6
- 6 396 62-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT (I SUB B) IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT (I SUB E) USUALLY (I SUB B) BEING 2 TO 8 PERCENT OF (I SUB E)? .0 .6
- 6 397 62-15 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS? .0 1.1
- 6 398 62-16 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (I SUB C80) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES? .0 .0
- 6 399 62-17 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES? .0 .6
- 6 400 62-18 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS? .0 .0
- 6 401 62-19 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS? .0 .0
- 6 402 62-20 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS? .0 .0
- 6 403 62-21 DO YOU USE OR REFER TO THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE BASE - EMITTER VOLTAGE INTO THE BASE COLLECTOR VOLTAGE (AV = VCB/VBE)? .0 .6
- 6 404 62-22 DO YOU USE OR REFER TO THE CURRENT GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT (AI = IC/IB)? .0 .0

| D TSM | TITLES | 205 (M) | 307 (M) |
|-------|---|------------|------------|
| 6 405 | G2-23 DO YOU USE OR REFER TO THE POWER GAIN FOR SPECIFIC TRANSISTORS BY MULTIPLYING THE CURRENT GAIN TIMES THE VOLTAGE GAIN (AP = AI X AV)? | .0 | .6 |
| 6 406 | G2-24 DO YOU PERFORM TRANSISTOR MATCHING THROUGH THE USE OF CURVE TRACING? | .0 | .0 |
| 6 407 | G3-1 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM H1-1; IF YES, CONTINUE. | 1.6 | 22.0 |
| 6 408 | G3-2 DO YOU INSPECT TRANSISTOR AMPLIFIERS? | .0 | 6.2 |
| 6 409 | G3-3 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS? | .0 | 19.2 |
| 6 410 | G3-4 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL? | .0 | 18.1 |
| 6 411 | G3-5 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS? | .0 | 5.6 |
| 6 412 | G3-6 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER? | .5 | 16.9 |
| 6 413 | G3-7 DO YOU REMOVE OR REPLACE AMPLIFIER CIRCUIT COMPONENTS? | .5 | 1.1 |
| 6 414 | G3-8 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR CURRENT RESULTS FROM A CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS? | .0 | 1.1 |
| 6 415 | G3-9 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS? | .0 | .0 |
| 6 416 | G3-10 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT? | .5 | 1.1 |
| 6 417 | G3-11 DO YOU USE OR REFER TO THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS? | .0 | 2.8 |
| 6 418 | G3-12 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS? | .0 | 1.1 |

| Q TSK | TITLES | 205 50 (M) | 307 50 (P) |
|-------|--|------------------|------------------|
| 6 419 | 63-13 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)? | .0 | .0 |
| 6 420 | 63-14 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR? | .0 | .6 |
| 6 421 | 63-15 DO YOU MEASURE VOLTAGE GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 1.0 | 7.9 |
| 6 422 | 63-16 DO YOU MEASURE CURRENT GAIN CONCERNING TRANSISTOR AMPLIFIERS? | .5 | 5.1 |
| 6 423 | 63-17 DO YOU MEASURE POWER GAIN CONCERNING TRANSISTOR AMPLIFIERS? | .5 | 13.0 |
| 6 424 | 63-18 DO YOU USE OR REFER TO THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE OF THE BASE COLLECTOR VOLTAGE? | .0 | .6 |
| 6 425 | 63-19 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION? | .0 | 1.1 |
| 6 426 | 63-20 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION? | .0 | 1.7 |
| 6 427 | 63-21 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION? | .0 | .6 |
| 6 428 | 63-22 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION? | .0 | 1.1 |
| 6 429 | 63-23 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION? | .0 | .6 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| 6 430 | 63-24 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION? | .0 | .6 |
| 6 431 | 63-25 DO YOU IDENTIFY OR TROUBLESHOOT AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS? | 1.0 | 12.4 |
| 6 432 | 63-26 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS? | 1.6 | 11.9 |
| 6 433 | 63-27 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS? | 1.0 | 11.9 |
| 6 434 | 63-28 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS? | 1.0 | 4.5 |
| 6 435 | 63-29 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? | .5 | 2.0 |
| 6 436 | 63-30 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | .5 | .0 |
| 6 437 | 63-31 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? | .5 | 2.8 |
| 6 438 | 63-32 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS? | .5 | .6 |
| 6 439 | 63-33 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? | .5 | .6 |
| 6 440 | 63-34 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? | .5 | .6 |
| 6 441 | 63-35 DO YOU TROUBLESHOOT OR REPAIR VOLTAGE MULTIPLIERS (DOUBLERS/TRIPLERS)? | .5 | 1.7 |
| 6 442 | 63-36 DO YOU TROUBLESHOOT OR REPAIR RF AMPLIFIERS? | .5 | 4.5 |
| 6 443 | 63-37 DO YOU TROUBLESHOOT OR REPAIR WIDEBAND AMPLIFIERS (VIDEO AMPS)? | .5 | 4.0 |
| 6 444 | 63-38 DO YOU TROUBLESHOOT OR REPAIR AUDIO AMPLIFIER? | .5 | 13.0 |
| 6 445 | 63-39 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL OR POWER AMPLIFIERS? | .5 | 3.4 |
| 6 446 | 63-40 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | .5 | .0 |

| D TSK | TITLES | 205 (M) | 307 (M) |
|-------|---|------------|------------|
| G 007 | G3-01 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY AMPLIFIERS? | .5 | .6 |
| G 008 | G3-02 DO YOU TROUBLESHOOT OR REPAIR IF AMPLIFIERS? | .5 | 3.4 |
| G 009 | G3-03 DO YOU TROUBLESHOOT OR REPAIR DIFFERENTIATING AMPLIFIERS (DIFF AMPS)? | .5 | .6 |
| G 050 | G3-04 DO YOU TROUBLESHOOT OR REPAIR OPERATIONAL AMPLIFIERS (OP AMPS)? | .5 | 1.7 |
| G 051 | G3-05 DO YOU TROUBLESHOOT OR REPAIR INTEGRATING AMPLIFIERS? | .5 | 1.7 |
| G 052 | G3-06 DO YOU TROUBLESHOOT OR REPAIR SUMMING AMPLIFIERS? | .5 | .6 |
| ----- | | | |
| H | SOLID-STATE SPECIAL PURPOSE DEVICES (H1), POWER SUPPLIES (H2), OSCILLATORS (H3) | | |
| ----- | | | |
| H 053 | H1-1 DO YOU USE OR REFER TO VARACTORS/VARICAP COMPONENTS? | .5 | 3.4 |
| H 054 | H1-2 DO YOU USE OR REFER TO TUNNEL DIODE COMPONENTS? | 1.0 | 2.8 |
| H 055 | H1-3 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTOR (FET) COMPONENTS? | 1.0 | 3.4 |
| H 056 | H1-4 DO YOU USE OR REFER TO UNIUNCTION TRANSISTOR COMPONENTS? | .5 | 1.1 |
| H 057 | H1-5 DO YOU USE OR REFER TO ZENER DIODE COMPONENTS? | .5 | 6.8 |
| H 058 | H1-6 DO YOU USE OR REFER TO INTEGRATED CIRCUIT COMPONENTS? | 6.3 | 14.7 |
| H 059 | H1-7 DO YOU USE OR REFER TO PIN DIODE COMPONENTS? | .5 | 2.3 |
| H 060 | H1-8 DO YOU USE OR REFER TO LED'S/VLCD'S COMPONENTS? | 17.7 | 31.6 |
| H 061 | H1-9 DO YOU USE OR REFER TO FANTAIL TRANSISTOR COMPONENTS? (SCR) COMPONENTS? | .5 | .6 |
| H 062 | H1-10 DO YOU USE OR REFER TO SILICON CONTROL RECTIFIER (SCR) COMPONENTS? | .5 | 2.3 |
| H 063 | H1-11 DO YOU USE OR REFER TO TRIAC COMPONENTS? | .5 | 1.1 |
| H 064 | H1-12 DO YOU USE OR REFER TO PROGRAMMABLE UNIUNCTION TRANSISTOR (PUT) COMPONENTS? | .5 | .6 |

205 307
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(M) (M)

D. FSM TITLES

| | | | |
|-------|--|-----|------|
| H 465 | H1-13 DO YOU USE OR REFER TO SILICON CONTROLLED SWITCH (SCS) COMPONENTS? | 1.0 | .0 |
| H 466 | H1-14 DO YOU USE OR REFER TO SILICON UNILATERAL SWITCH (SUS) COMPONENTS? | .5 | .6 |
| H 467 | H2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES? IF NO, GO TO ITEM H3-1; IF YES, CONTINUE. | 4.7 | 26.6 |
| H 468 | H2-2 DO YOU INSPECT POWER SUPPLIES? | 1.0 | 10.7 |
| H 469 | H2-3 DO YOU CLEAN POWER SUPPLIES? | .5 | 2.8 |
| H 470 | H2-4 DO YOU ALIGN OR ADJUST POWER SUPPLIES? | 1.0 | 6.2 |
| H 471 | H2-5 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL? | .5 | 15.8 |
| H 472 | H2-6 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS? | .5 | 2.3 |
| H 473 | H2-7 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | .5 | 9.0 |
| H 474 | H2-8 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS? | .5 | .6 |
| H 475 | H2-9 DO YOU INSPECT OR SERVICE COOLANT LEVELS? | .5 | .0 |
| H 476 | H2-10 DO YOU WORK WITH HALF-WAVE RECTIFIERS? | .5 | 2.8 |
| H 477 | H2-11 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS? | .5 | 3.4 |
| H 478 | H2-12 DO YOU WORK WITH BRIDGE RECTIFIERS? | .5 | 5.1 |
| H 479 | H2-13 DO YOU WORK WITH THREE-PHASE RECTIFIERS? | .5 | .6 |
| H 480 | H2-14 DO YOU USE OR REFER TO INPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 2.6 | 14.1 |
| H 481 | H2-15 DO YOU USE OR REFER TO INPUT FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | 3.6 | 11.3 |
| H 482 | H2-16 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 3.1 | 12.4 |
| H 483 | H2-17 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 2.6 | 7.9 |
| H 484 | H2-18 DO YOU USE OR REFER TO RIPPLE AMPLITUDE IN YOUR WORK WITH RECTIFIERS? | .5 | 4.5 |
| H 485 | H2-19 DO YOU USE OR REFER TO RIPPLE FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | .0 | 4.5 |

| D TSK | TITLES | 205 50 (M) | 307 50 (M) |
|-------|--|------------------|------------------|
| H 486 | H2-20 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .5 | 4.0 |
| H 487 | H2-21 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS IN YOUR WORK WITH RECTIFIERS? | 2.1 | 9.6 |
| H 488 | H2-22 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 2.6 | 9.0 |
| H 489 | H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS? | 1.0 | 4.0 |
| H 490 | H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS? | 1.6 | 2.8 |
| H 491 | H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS? | 1.0 | 1.7 |
| H 492 | H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS? | .5 | 2.3 |
| H 493 | H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS? | .5 | 2.3 |
| H 494 | H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS? | .5 | 1.7 |
| H 495 | H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER? | 1.0 | .0 |
| H 496 | H2-30 DO YOU WORK WITH POWER SUPPLY REGULATOR CIRCUITS OTHER THAN SOLID-STATE? | .5 | 4.0 |
| H 497 | H2-31 DO YOU WORK WITH SOLID-STATE POWER SUPPLY REGULATOR CIRCUITS? | 2.1 | 6.2 |
| H 498 | H3-1 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 11-1; IF YES, CONTINUE. | 15.6 | 58.8 |
| H 499 | H3-2 DO YOU INSPECT OSCILLATORS? | .5 | 13.6 |
| H 500 | H3-3 DO YOU ALIGN OR ADJUST OSCILLATORS? | 2.6 | 27.7 |
| H 501 | H3-4 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS? | 1.6 | 12.4 |
| H 502 | H3-5 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS? | .0 | .6 |
| H 503 | H3-6 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL? | .5 | 15.8 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| M 504 | H3-7 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS? | .0 | 2.3 |
| M 505 | H3-8 DO YOU USE OR REFER TO FEEDBACK (DEGENERATIVE OR REGENERATIVE)? | 4.2 | 22.6 |
| M 506 | H3-9 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)? | 7.3 | 23.7 |
| M 507 | H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY? | 9.4 | 35.0 |
| M 508 | H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY? | 12.0 | 40.7 |
| M 509 | H3-12 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT (CRYSTAL OSCILLATIONS)? | 3.1 | 2.8 |
| M 510 | H3-13 DO YOU USE OR REFER TO HARMONIC DISTORTION? | 6.3 | 52.5 |
| M 511 | H3-14 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN DC TANK CIRCUITS? | .5 | 2.8 |
| M 512 | H3-15 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN RC NETWORKS? | 1.0 | 4.0 |
| M 513 | H3-16 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN CRYSTALS? | 4.2 | 6.8 |
| M 514 | H3-17 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN PHASE LOCK LOOPS (PLL)? | 5.2 | 4.0 |
| M 515 | H3-18 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | 7.3 | 31.6 |
| M 516 | H3-19 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS? | .5 | 2.3 |
| M 517 | H3-20 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS? | .5 | 2.3 |
| M 518 | H3-21 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS? | .5 | .6 |
| M 519 | H3-22 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS? | .0 | .0 |
| M 520 | H3-23 DO YOU WORK WITH VOLTAGE CONTROL SINUSOIDAL OSCILLATORS? | 3.1 | 1.7 |
| M 521 | H3-24 DO YOU WORK WITH CRYSTAL SINUSOIDAL OSCILLATORS? | 3.6 | 4.5 |
| M 522 | H3-25 DO YOU WORK WITH VOLTAGE CONTROL OSCILLATORS (VCO) SINUSOIDAL OSCILLATORS? | 5.7 | 2.3 |

| D TSK | TITLES | 205 50 (M) | 307 50 (M) |
|-------|--|------------------|------------------|
| M 523 | H3-26 DO YOU WORK WITH WIEN BRIDGE OSCILLATORS SINUSOIDAL OSCILLATORS? | .5 | 2.0 |
| M 524 | H3-27 DO YOU WORK WITH - DON'T KNOW WHICH TYPE OF SINUSOIDAL OSCILLATOR? | 7.0 | 33.3 |
| M 525 | H3-28 DO YOU WORK WITH PULSE GENERATING CIRCUITS? | 7.0 | 14.1 |
| M 526 | H3-29 DO YOU WORK WITH BLOCKING OSCILLATORS? | .5 | .6 |
| M 527 | H3-30 DO YOU WORK WITH BURST GENERATORS? | 1.6 | 1.1 |
| M 528 | H3-31 DO YOU WORK WITH BLOCKED OSCILLATORS? | .5 | .6 |

I MULTIVIBRATORS (11), LIMITERS AND CLAMPERS (12), ELECTRON TUBES (13)

| | | | |
|-------|---|-----|-----|
| I 529 | 11-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 12-1; IF YES, CONTINUE. | 1.6 | 2.8 |
| I 530 | 11-2 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUIT FREQUENCY DETERMINING DEVICES (FDD)? | .0 | .6 |
| I 531 | 11-3 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORK FREQUENCY DETERMINING DEVICES (FDD)? | .5 | 1.1 |
| I 532 | 11-4 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTAL FREQUENCY DETERMINING DEVICES (FDD)? | 1.0 | 1.1 |
| I 533 | 11-5 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | .5 | 1.1 |
| I 534 | 11-6 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS? | .5 | 2.3 |
| I 535 | 11-7 DO YOU WORK WITH MONOSTABLE (ONE SHOT) MULTIVIBRATORS? | .5 | 2.3 |
| I 536 | 11-8 DO YOU WORK WITH BISTABLE (FLIP FLOP) MULTIVIBRATORS? | .5 | 2.3 |
| I 537 | 11-9 DO YOU WORK WITH R-S FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .0 | .0 |

| D TSM | TITLES | 205 SO (M) | 307 SO (M) |
|-------|--|------------------|------------------|
| I 538 | 11-10 DO YOU WORK WITH J-K FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .5 | .0 |
| I 539 | 11-11 DO YOU WORK WITH "D" FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .5 | .0 |
| I 540 | 12-1 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 13-1; IF YES, CONTINUE. | 2.1 | 2.3 |
| I 541 | 12-2 DO YOU WORK WITH SERIES DIODE LIMITERS? | .5 | 1.7 |
| I 542 | 12-3 DO YOU WORK WITH SHUNT DIODE LIMITERS? | .5 | 1.7 |
| I 543 | 12-4 DO YOU WORK WITH LIMITERS WITH BIAS? | 1.0 | 1.1 |
| I 544 | 12-5 DO YOU WORK WITH ZENER DIODE LIMITERS? | .5 | 1.7 |
| I 545 | 12-6 DO YOU WORK WITH TRANSISTOR LIMITERS? | 1.0 | 1.7 |
| I 546 | 12-7 DO YOU WORK WITH TRIODE LIMITERS? | .5 | .6 |
| I 547 | 12-8 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS? | .0 | 1.1 |
| I 548 | 12-9 DO YOU WORK WITH BIAS DIODE CLAMPING CIRCUITS? | .5 | 1.1 |
| I 549 | 12-10 DO YOU WORK WITH DC RESTORERS (DCR)? | .5 | .6 |
| I 550 | 13-1 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS BASIC ELECTRON TUBES (FOR PURPOSES OF THIS QUESTION DO NOT CONSIDER HIGH-FREQUENCY DEVICES SUCH AS KLYSTRONS, TRAVELING WAVE TUBES, BACKWARD WAVE OSCILLATORS, OR MAGNETRONS AS ELECTRON TUBES)? IF NO, GO TO ITEM J1-1; IF YES, CONTINUE. | 4.7 | 1.7 |
| I 551 | 13-2 DO YOU CHECK THE CONDITION OF ELECTRON TUBES? | .5 | .6 |
| I 552 | 13-3 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES? | .5 | .0 |
| I 553 | 13-4 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES? | .5 | 1.7 |
| I 554 | 13-5 DO YOU USE SCOPES TO CHECK ELECTRON TUBES? | 1.0 | 1.7 |
| I 555 | 13-6 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES? | .5 | 1.1 |
| I 556 | 13-7 DO YOU USE OR REFER TO CUTOFF? | 1.6 | 1.1 |
| I 557 | 13-8 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING? | 1.0 | 1.7 |
| I 558 | 13-9 DO YOU USE OR REFER TO PEAK CURRENT RATING? | 1.0 | 2.3 |
| I 559 | 13-10 DO YOU USE OR REFER TO TRANSIT TIME? | .5 | 1.7 |
| I 560 | 13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING? | .5 | 1.1 |

| D TSM | TITLES | 205 (M) | 307 50 (M) |
|-------|---|------------|------------------|
| I 561 | 13-12 DO YOU USE OR REFER TO SATURATION? | 1.6 | 2.3 |
| I 562 | 13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE? | .5 | 1.1 |
| I 563 | 13-14 DO YOU USE OR REFER TO PLATE VOLTAGE? | .5 | 1.7 |
| I 564 | 13-15 DO YOU USE OR REFER TO PLATE CURRENT? | .5 | 1.7 |
| I 565 | 13-16 DO YOU USE OR REFER TO GRID VOLTAGE? | 1.6 | 2.3 |
| I 566 | 13-17 DO YOU USE OR REFER TO GRID CURRENT? | .5 | 1.7 |
| I 567 | 13-18 DO YOU USE OR REFER TO CATHODE VOLTAGE? | 1.0 | 1.7 |
| I 568 | 13-19 DO YOU USE OR REFER TO CATHODE CURRENT? | 1.0 | 1.7 |
| I 569 | 13-20 DO YOU USE OR REFER TO FILAMENT VOLTAGE? | .5 | 1.7 |
| I 570 | 13-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)? | .5 | 1.1 |
| I 571 | 13-22 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC.) AMPLIFICATION FACTORS? | .5 | .6 |
| I 572 | 13-23 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)? | .5 | .6 |
| I 573 | 13-24 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE? | .5 | .6 |
| I 574 | 13-25 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE? | .5 | 1.1 |
| I 575 | 13-26 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES? | .5 | 1.1 |
| I 576 | 13-27 DO YOU USE OR REFER TO PLATE VOLTAGE FOR A SPECIFIED BIAS? | .5 | 1.1 |
| I 577 | 13-28 DO YOU USE OR REFER TO PLATE CURRENT FOR A SPECIFIED BIAS? | .5 | 1.1 |
| I 578 | 13-29 DO YOU USE OR REFER TO BIAS REQUIRED FOR CUTOFF? | 1.0 | 1.7 |
| I 579 | 13-30 DO YOU USE OR REFER TO BIAS REQUIRED FOR SATURATION? | 1.0 | 1.7 |
| I 580 | 13-31 DO YOU USE OR REFER TO GAIN? | 2.6 | 3.4 |
| I 581 | 13-32 DO YOU USE OR REFER TO EFFICIENCY? | .5 | 3.4 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
50 50
(M) (M)

D TSK TITLES

- I 582 I3-33 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? .5 2.8
- I 583 I3-34 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? 1.0 2.8
- I 584 I3-35 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? 1.0 1.7
- I 585 I3-36 DO YOU USE OR REFER TO TUBE SOCKET NOTATION? .5 1.1
- I 586 I3-37 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS? .5 1.7
- I 587 I3-38 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS? .5 1.7
- I 588 I3-39 DO YOU USE OR REFER TO ELECTRON TUBE DIODES? .5 1.7

J ELECTRON TUBE AMPLIFIERS AND CIRCUITS (J1), SPECIAL PURPOSE ELECTRON TUBES (J2), METEODYNING AND MODULATION - DEMODULATION (MODENS) (J3)

- J 589 J1-1 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM J2-1; IF YES, CONTINUE. 2.6 4.0
- J 590 J1-2 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? .5 1.7
- J 591 J1-3 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? .0 1.1
- J 592 J1-4 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? .5 1.7
- J 593 J1-5 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? .0 1.1
- J 594 J1-6 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? .0 .0

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|---|------------|------------------|
| J 595 | J1-7 DO YOU TROUBLESHOOT OR REPAIR - DON'T KNOW WHICH TYPE OF AMPLIFIER? | 1.0 | 1.1 |
| J 596 | J2-1 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)? | 1.6 | 1.7 |
| J 597 | J2-2 DO YOU WORK WITH CATHODE-RAY TUBES (CRT)? | 63.5 | 33.3 |
| J 598 | J2-3 DO YOU WORK WITH BEAM POWER TUBES? | 2.1 | 2.3 |
| J 599 | J2-4 DO YOU WORK WITH THYRATRON? | .5 | 1.1 |
| J 600 | J2-5 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)? | 14.6 | 4.0 |
| J 601 | J2-6 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 9.9 | 2.8 |
| J 602 | J2-7 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 6.8 | 2.3 |
| J 603 | J2-8 DO YOU USE OR REFER TO PHOSPHOR SCREENS CONCERNING CRT'S? | 28.1 | 5.6 |
| J 604 | J2-9 DO YOU USE OR REFER TO AQUADAG COATINGS CONCERNING CRT'S? | 9.4 | 1.7 |
| J 605 | J2-10 DO YOU USE OR REFER TO ELECTRON OPTICS CONCERNING CRT'S? | 5.7 | 1.7 |
| J 606 | J2-11 DO YOU USE OR REFER TO PERSISTENCE CONCERNING CRT'S? | 18.2 | 3.4 |
| J 607 | J2-12 DO YOU USE OR REFER TO DECAY TIMES CONCERNING CRT'S? | 15.1 | 4.0 |
| J 608 | J2-13 DO YOU USE OR REFER TO FLOURESCENCE CONCERNING CRT'S? | 14.6 | 4.0 |
| J 609 | J2-14 DO YOU USE OR REFER TO PHOSPHORESCENCE CONCERNING CRT'S? | 17.7 | 5.6 |
| J 610 | J2-15 DO YOU USE OR REFER TO SHADOW MASK CONCERNING CRT'S? | 2.1 | 1.7 |
| J 611 | J3-1 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K1-1; IF YES, CONTINUE. | 16.1 | 58.2 |
| J 612 | J3-2 DO YOU PERFORM TASKS ON FREQUENCY CONVERTER SYSTEMS STAGES? | 6.3 | 30.5 |

| D TSK | TITLES | 205 | 307 |
|------------|--|------|------|
| | | 50 | 50 |
| | | (M) | (M) |
| J 613 J3-3 | DO YOU PERFORM TASKS ON FREQUENCY MIXER SYSTEMS STAGES? | 4.7 | 19.0 |
| J 614 J3-4 | DO YOU PERFORM TASKS ON MODEM SYSTEMS STAGES? | 3.6 | 54.0 |
| J 615 J3-5 | DO YOU USE OR REFER TO THE METERDYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS? | 10.4 | 20.3 |
| J 616 J3-6 | DO YOU PERFORM TASKS ON REACTANCE MODULATOR SYSTEM STAGES? | 2.1 | 2.3 |
| J 617 J3-7 | DO YOU PERFORM TASKS ON MODULATED OSCILLATOR SYSTEM STAGES? | 4.2 | 10.7 |

 K AM SYSTEMS (K1), FM SYSTEMS (K2), NUMBERING SYSTEMS (K3)

| | | | |
|-------------|--|------|------|
| K 618 K1-1 | DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K2-1; IF YES, CONTINUE. | 15.1 | 16.9 |
| K 619 K1-2 | DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS? | 3.1 | 6.2 |
| K 620 K1-3 | DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS? | 1.0 | .0 |
| K 621 K1-4 | DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS? | 3.1 | 3.4 |
| K 622 K1-5 | DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS COMPONENTS? | 1.0 | 16.9 |
| K 623 K1-6 | DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS? | .5 | 11.9 |
| K 624 K1-7 | DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS? | 1.0 | 2.3 |
| K 625 K1-8 | DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS? | 1.0 | 2.3 |
| K 626 K1-9 | DO YOU PERFORM TASKS ON RF OSCILLATORS/SYNTHESIZERS? | 7.3 | 4.0 |
| K 627 K1-10 | DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 8.3 | 6.2 |
| K 628 K1-11 | DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 8.3 | 9.0 |
| K 629 K1-12 | DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 5.2 | 6.8 |
| K 630 K1-13 | DO YOU PERFORM TASKS ON LOCAL OSCILLATORS? | 7.3 | 5.6 |

KESSLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 (M) | 307 EO (M) |
|-------|---|------------|------------------|
| K 631 | K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 7.3 | 4.5 |
| K 632 | K1-15 DO YOU PERFORM TASKS ON DETECTORS? | 4.2 | 2.8 |
| K 633 | K1-16 DO YOU PERFORM TASKS ON MIXER AMPLIFIERS? | 3.6 | 2.0 |
| K 634 | K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS? | 5.7 | 5.1 |
| K 635 | K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS? | 6.3 | 7.3 |
| K 636 | K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS? | 10.4 | 11.3 |
| K 637 | K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS? | 9.9 | 9.6 |
| K 638 | K2-1 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K3-1; IF YES, CONTINUE. | 14.1 | 35.0 |
| K 639 | K2-2 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS? | 2.6 | 11.3 |
| K 640 | K2-3 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS? | .5 | .6 |
| K 641 | K2-4 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS? | 1.6 | 4.0 |
| K 642 | K2-5 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS? | .5 | 34.5 |
| K 643 | K2-6 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 13.6 |
| K 644 | K2-7 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS? | .5 | 3.4 |
| K 645 | K2-8 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 1.1 |
| K 646 | K2-9 DO YOU PERFORM LINK PERFORMANCE ASSESSMENTS? | .5 | 31.1 |
| K 647 | K2-10 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 8.9 | 15.3 |
| K 648 | K2-11 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS? | 6.3 | 6.8 |
| K 649 | K2-12 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)? | 4.7 | 3.4 |
| K 650 | K2-13 DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 5.7 | 7.3 |
| K 651 | K2-14 DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 8.3 | 6.2 |
| K 652 | K2-15 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS? | 5.2 | 7.9 |
| K 653 | K2-16 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 7.3 | 5.1 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| K 654 | K2-17 DO YOU PERFORM TASKS ON LIMITERS? | 3.6 | 4.5 |
| K 655 | K2-18 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS? | 5.2 | 2.8 |
| K 656 | K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS? | .5 | 7.3 |
| K 657 | K2-20 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS? | 1.0 | 7.3 |
| K 658 | K2-21 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSCIEVERS? | .5 | 5.6 |
| K 659 | K2-22 DO YOU PLOT RECEIVE SIGNAL LEVEL CURVES (RSL)? | .5 | 12.4 |
| K 660 | K3-1 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS? | 15.1 | 9.6 |
| K 661 | K3-2 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS? | 25.0 | 15.3 |
| K 662 | K3-3 DO YOU CONVERT DECIMAL NUMBERS TO HEXADECIMAL (BASE 16) NUMBERS? | 10.9 | 3.4 |
| K 663 | K3-4 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS? | 16.1 | 8.5 |
| K 664 | K3-5 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS? | 13.0 | 9.0 |
| K 665 | K3-6 DO YOU CONVERT OCTAL NUMBERS TO HEXADECIMAL NUMBERS? | 9.4 | 2.8 |
| K 666 | K3-7 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS? | 24.5 | 11.9 |
| K 667 | K3-8 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS? | 13.5 | 7.9 |
| K 668 | K3-9 DO YOU CONVERT BINARY NUMBERS TO HEXADECIMAL NUMBERS? | 10.9 | 2.8 |
| K 669 | K3-10 DO YOU CONVERT HEXADECIMAL NUMBERS TO DECIMAL NUMBERS? | 12.0 | 4.0 |
| K 670 | K3-11 DO YOU CONVERT HEXADECIMAL NUMBERS TO OCTAL NUMBERS? | 9.4 | 2.8 |
| K 671 | K3-12 DO YOU CONVERT HEXADECIMAL NUMBERS TO BINARY NUMBERS? | 10.9 | 2.8 |
| K 672 | K3-13 DO YOU ADD BINARY NUMBERS? | 19.8 | 10.7 |
| K 673 | K3-14 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD? | 4.2 | 6.2 |
| K 674 | K3-15 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD? | 7.8 | 9.0 |
| K 675 | K3-16 DO YOU ADD OCTAL NUMBERS? | 6.3 | 4.5 |

| D TSK | TITLES | 205 (M) | 307 50 (P) |
|-------|--|------------|------------------|
| K 676 | K3-17 DO YOU SUBTRACT OCTAL NUMBERS? | 6.8 | 4.5 |
| K 677 | K3-18 DO YOU ADD HEXADECIMAL NUMBERS? | 6.3 | 2.3 |
| K 678 | K3-19 DO YOU SUBTRACT HEXADECIMAL NUMBERS? | 5.7 | 2.3 |
| K 679 | K3-20 DO YOU DIVIDE BINARY NUMBERS? | 6.3 | 5.1 |
| K 680 | K3-21 DO YOU MULTIPLY BINARY NUMBERS? | 7.3 | 5.1 |
| K 681 | K3-22 DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 12.0 | 7.9 |
| K 682 | K3-23 DO YOU USE OR REFER TO GRAY CODE? | 1.0 | 2.3 |
| K 683 | K3-24 DO YOU USE OR REFER TO ICAO CODE? | 2.1 | 1.1 |
| K 684 | K3-25 DO YOU USE OR REFER TO EXCESS-3 CODE? | 1.0 | .6 |

L LOGIC FUNCTIONS (L1), BOOLEAN EQUATIONS (L2), COUNTERS (L3)

| | | | |
|-------|---|-----|-----|
| L 685 | L1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS? IF NO, GO TO ITEM L2-1; IF YES, CONTINUE. | 1.6 | 1.1 |
| L 686 | L1-2 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | 1.0 | .6 |
| L 687 | L1-3 DO YOU CONSTRUCT TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | 1.0 | .6 |
| L 688 | L1-4 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | 1.0 | .6 |
| L 689 | L1-5 DO YOU CONSTRUCT TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS OR GATES? | 1.0 | .6 |
| L 690 | L1-6 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | 1.0 | .6 |
| L 691 | L1-7 DO YOU USE OR REFER TO TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | 1.0 | .6 |
| L 692 | L1-8 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | 1.0 | .6 |

| D TSK | TITLES | 205 SQ (M) | 3D7 SQ (P) |
|-------|--|------------------|------------------|
| L 693 | LI-9 DO YOU USE OR REFER TO TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS? | 1.0 | .6 |
| L 694 | LI-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'AND' GATES? | 1.0 | 1.1 |
| L 695 | LI-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'OR' GATES? | 1.0 | 1.1 |
| L 696 | LI-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'NAND' OR 'NOR' GATES? | .5 | 1.1 |
| L 697 | LI-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'EXCLUSIVE OR' GATES? | 1.0 | 1.1 |
| L 698 | LI-14 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR INHIBITED 'AND' GATES? | .5 | .6 |
| L 699 | LI-15 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR "B" BARS? | .5 | .0 |
| L 700 | LI-16 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR "M" BARS? | .5 | .0 |
| L 701 | LI-17 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR COMBINERS? | .5 | .6 |
| L 702 | LI-18 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS? | 1.0 | .6 |
| L 703 | LI-19 DO YOU USE OR REFER TO ONE-SHOT MULTIVIBRATOR SYMBOLS? | .5 | .6 |
| L 704 | LI-20 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT OR SCHEMATIC DIAGRAMS? | .5 | .6 |
| L 705 | LI-21 DO YOU USE OR REFER TO ONE-SHOT CIRCUIT OR SCHEMATIC DIAGRAMS? | .5 | .6 |
| L 706 | LI-22 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES? | .5 | .6 |
| L 707 | LI-23 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | .5 | .6 |
| L 708 | LI-24 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS? | .0 | .6 |
| L 709 | LI-25 DO YOU USE OR REFER TO NONCOMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | .0 | .6 |
| L 710 | LI-26 DO YOU CONSTRUCT TRUTH TABLES FOR "B" BARS? | .5 | .0 |
| L 711 | LI-27 DO YOU CONSTRUCT TRUTH TABLES FOR "M" BARS? | .5 | .0 |
| L 712 | LI-28 DO YOU CONSTRUCT TRUTH TABLES FOR COMBINERS? | .5 | .6 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| L 713 | L1-29 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS? | 1.0 | J.1 |
| L 714 | L1-30 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS? | .5 | .0 |
| L 715 | L1-31 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | 1.0 | .6 |
| L 716 | L1-32 DO YOU TRACE DATA FLOW THROUGH NONCOMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | 1.0 | .0 |
| L 717 | L1-33 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS? | .0 | .0 |
| L 718 | L2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS? IF NO, GO TO ITEM L3-1; IF YES, CONTINUE. | .5 | .6 |
| L 719 | L2-2 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS? | .5 | .0 |
| L 720 | L2-3 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | .0 | .0 |
| L 721 | L2-4 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS? | .0 | .6 |
| L 722 | L2-5 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES? | .5 | .6 |
| L 723 | L2-6 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS? | .5 | .6 |
| L 724 | L2-7 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA? | .0 | .6 |
| L 725 | L2-8 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES? | .5 | .0 |
| L 726 | L2-9 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | .0 | .0 |
| L 727 | L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE? | .5 | .0 |
| L 728 | L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS? | .5 | 1.1 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
|-------|--|------------|------------------|
| L 729 | L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS? | .5 | .6 |
| L 730 | L3-1 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM MI-1; IF YES, CONTINUE. | 16.2 | 11.3 |
| L 731 | L3-2 DO YOU USE OR REFER TO UP-COUNTERS? | 6.8 | 4.5 |
| L 732 | L3-3 DO YOU USE OR REFER TO DOWN-COUNTERS? | 4.2 | 3.4 |
| L 733 | L3-4 DO YOU USE OR REFER TO SERIAL COUNTERS? | 3.1 | 2.8 |
| L 734 | L3-5 DO YOU USE OR REFER TO PARALLEL COUNTERS? | 2.1 | 4.5 |
| L 735 | L3-6 DO YOU USE OR REFER TO RING COUNTERS? | 1.6 | .6 |
| L 736 | L3-7 DO YOU USE OR REFER TO DECADE (MOD 10) COUNTERS? | 2.6 | 1.1 |
| L 737 | L3-8 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS? | 3.6 | 5.1 |
| L 738 | L3-9 DO YOU USE OR REFER TO DOWN CLOCKS? | 3.1 | 3.4 |
| L 739 | L3-10 DO YOU USE OR REFER TO UP CLOCKS? | 5.7 | 2.8 |
| L 740 | L3-11 DO YOU USE OR REFER TO OTHER MODULOUS COUNTERS? | 5.2 | 3.4 |
| L 741 | L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS? | 1.0 | 1.1 |
| L 742 | L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DOWN-COUNTERS? | 1.0 | 1.1 |
| L 743 | L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-DOWN COUNTERS? | .5 | 1.1 |
| L 744 | L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS? | .5 | 1.1 |
| L 745 | L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS? | .5 | .6 |
| L 746 | L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF COUNTERS FEEDING STORAGE REGISTERS? | 1.6 | .6 |
| L 747 | L3-18 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS? | 1.0 | .6 |
| L 748 | L3-19 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS? | 2.1 | 2.3 |

205 307
50 50
(M) (M)

D TSK TITLES

L 749 L3-20 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF
DECADE COUNTERS? .5 .6
L 750 L3-21 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING
COUNTERS FOR SPECIFIC INPUT PULSES? .0 .0
L 751 L3-22 DO YOU DETERMINE THE APPROPRIATE 'AND' GATE NECESSARY
IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT? 3.1 .0

M TIMING CIRCUITS (M1), USE OF SIGNAL GENERATORS (M2), MOTORS
AND GENERATORS (M3)

M 752 M1-1 DO YOU WORK WITH SAWTOOTH WAVE GENERATOR TIMING
CIRCUITS? 16.1 6.0
M 753 M1-2 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATOR TIMING
CIRCUITS? 1.6 3.4
M 754 M1-3 DO YOU WORK WITH PULSED OSCILLATOR TIMING CIRCUITS? 13.0 10.2
M 755 M1-4 DO YOU WORK WITH BLOCKING OSCILLATOR TIMING CIRCUITS? 2.1 5.1
M 756 M1-5 DO YOU WORK WITH MASTER STATION TIMING CIRCUITS? 3.6 33.9
M 757 M1-6 DO YOU USE OR REFER TO RISE TIME? 28.1 7.9
M 758 M1-7 DO YOU USE OR REFER TO FALL OR FLYBACK TIME? 26.6 5.1
M 759 M1-8 DO YOU USE OR REFER TO SWEEP TIME? 26.6 18.1
M 760 M1-9 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH
WAVEFORMS? 9.4 5.6
M 761 M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH
WAVEFORMS? 8.9 5.1
M 762 M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH
WAVEFORMS? 6.8 2.8
M 763 M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH
WAVEFORMS? 6.8 3.4

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 205 SO (M) | 307 50 (P) |
|-------|---|------------------|------------------|
| M 764 | M2-1 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 18.2 | 75.7 |
| M 765 | M2-2 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS? | 9.4 | 66.7 |
| M 766 | M2-3 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS? | 1.0 | 21.5 |
| M 767 | M2-4 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS? | .5 | 16.9 |
| M 768 | M2-5 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS? | .0 | 3.4 |
| M 769 | M2-6 DO YOU USE AUDIO SINE-WAVE GENERATORS? | 8.9 | 61.6 |
| M 770 | M2-7 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE? | 10.9 | 13.6 |
| M 771 | M2-8 DO YOU USE RF GENERATORS LESS THAN 1,000 MHZ? | 9.9 | 17.5 |
| M 772 | M2-9 DO YOU USE RF GENERATORS GREATER THAN 1,000 MHZ? | 8.9 | 5.6 |
| M 773 | M2-10 DO YOU USE WHITE NOISE GENERATORS? | 2.1 | 6.8 |
| M 774 | M2-11 DO YOU USE PATTERN GENERATORS? | 2.6 | 66.1 |
| M 775 | M2-12 DO YOU USE PSEUDO-RANDOM GENERATORS? | 3.1 | 23.7 |
| M 776 | M2-13 DO YOU USE TIME MARK GENERATORS? | 10.9 | 9.0 |
| M 777 | M2-14 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS? | 0.3 | 20.3 |
| M 778 | M3-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS, GENERATORS (SERVO), OR ALTERNATORS? IF NO, GO TO ITEM M1-1; IF YES, CONTINUE. | 1.6 | .6 |
| M 779 | M3-2 DO YOU INSPECT MOTORS? | .0 | .6 |
| M 780 | M3-3 DO YOU CLEAN OR LUBRICATE MOTORS? | .5 | .0 |
| M 781 | M3-4 DO YOU OPERATE MOTORS? | 1.0 | .6 |
| M 782 | M3-5 DO YOU REMOVE OR REPLACE COMPLETE MOTORS? | .5 | .0 |
| M 783 | M3-6 DO YOU REMOVE OR REPLACE MOTOR PARTS? | .5 | .0 |

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| D | TSK | TITLES | 205 | 307 |
|---|-------|---|-----|-----|
| | | | (M) | (M) |
| | M 784 | M3-7 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS? | .5 | .0 |
| | M 785 | M3-8 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS? | .0 | .0 |
| | M 786 | M3-9 DO YOU PERFORM TASKS ON MOTOR FIELD COILS? | .5 | .0 |
| | M 787 | M3-10 DO YOU PERFORM ANY TASKS ON MOTOR ARMATURES? | .5 | .0 |
| | M 788 | M3-11 DO YOU PERFORM ANY TASKS ON MOTOR ROTORS? | .5 | .0 |
| | M 789 | M3-12 DO YOU PERFORM ANY TASKS ON MOTOR BRUSHES? | .5 | .0 |
| | M 790 | M3-13 DO YOU PERFORM ANY TASKS ON MOTOR SLIP RINGS? | .0 | .0 |
| | M 791 | M3-14 DO YOU PERFORM ANY TASKS ON MOTOR COMMUTATORS? | .0 | .0 |
| | M 792 | M3-15 DO YOU PERFORM ANY TASKS ON MOTOR POLE PIECES? | .5 | .0 |
| | M 793 | M3-16 DO YOU DETERMINE OR MEASURE FORCE OR TORQUE CREATED BY A MOTOR? | .5 | .0 |
| | M 794 | M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR? | .5 | .0 |
| | M 795 | M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS? | .5 | .0 |
| | M 796 | M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS? | .0 | .6 |
| | M 797 | M3-20 DO YOU WORK WITH INDUCTION MOTORS? | .5 | .0 |
| | M 798 | M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS? | .5 | .6 |
| | M 799 | M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS? | 1.0 | .6 |
| | M 800 | M3-23 DO YOU WORK WITH SERVO OR SYNCHROS MOTORS? | 1.0 | .0 |
| | M 801 | M3-24 DO YOU WORK WITH SHADED-POLE MOTORS? | .5 | .0 |
| | M 802 | M3-25 DO YOU INSPECT GENERATORS OR ALTERNATORS? | .5 | .6 |
| | M 803 | M3-26 DO YOU CLEAN OR LUBRICATE GENERATORS OR ALTERNATORS? | .5 | .0 |
| | M 804 | M3-27 DO YOU OPERATE GENERATORS OR ALTERNATORS? | 1.0 | .6 |
| | M 805 | M3-28 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS OR ALTERNATORS? | .5 | .0 |
| | M 806 | M3-29 DO YOU REMOVE OR REPLACE GENERATOR, ALTERNATOR, OR PARTS? | .5 | .0 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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205 307
50 50
(M) (P)

O TSK TITLES

M 807 M3-30 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS OR ALTERNATORS?
M 808 M3-31 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS OR ALTERNATORS?

M METER MOVEMENTS (N1), SATURABLE REACTORS AND MAGNETIC AMPLIFIERS (N2), WAVESHAPING CIRCUITS (N3)

M 809 N1-1 DO YOU WORK WITH METERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM N2-1; IF YES, CONTINUE.
M 810 N1-2 DO YOU CONSIDER THE JUNCTIONS OF PERMANENT MAGNET INTERNAL METER PARTS?
M 811 N1-3 DO YOU CONSIDER THE FUNCTIONS OF MOVING COIL INTERNAL METER PARTS?

M 812 N1-4 DO YOU CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS INTERNAL METER PARTS?
M 813 N1-5 DO YOU READ METER SCALES?
M 814 N1-6 DO YOU EXTEND THE RANGE OF AMMETERS?
M 815 N1-7 DO YOU EXTEND THE RANGE OF VOLTMETERS?
M 816 N1-8 DO YOU ZERO OHMMETERS?
M 817 N1-9 DO YOU ZERO AMMETERS?
M 818 N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOL)??

M 819 N1-11 DO YOU CONSIDER BALLASTIC RESPONSE OF METER MOVEMENTS?
M 820 N1-12 DO YOU CONSIDER OTHER METER MOVEMENTS?
M 821 J2-1 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM N3-1; IF YES, CONTINUE.

6.3 73.4
.5 5.1
.5 5.1
.0 4.0
5.7 71.8
.5 17.5
.5 25.4
1.0 41.8
1.0 19.8
1.0 15.8
1.0 4.0
2.1 23.2
1.0 .0

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSM | TITLES | 205 | 307 |
|-------|---|------|------|
| | | (M) | (P) |
| N 022 | N2-2 DO YOU INSPECT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 023 | N2-3 DO YOU CLEAN SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 024 | N2-4 DO YOU ADJUST SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 025 | N2-5 DO YOU TROUBLESHOOT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 026 | N2-6 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS? | .0 | .0 |
| N 027 | N2-7 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS? | .0 | .0 |
| N 028 | N2-8 DO YOU USE OR REFER TO HISTERESIS CURVES OR LOOPS? | .0 | .0 |
| N 029 | N2-9 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | .0 | .0 |
| N 030 | N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | .0 | .0 |
| N 031 | N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 032 | N2-12 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS? | .0 | .0 |
| N 033 | N3-1 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 01-1; IF YES, CONTINUE. | 30.2 | 10.2 |
| N 034 | N3-2 DO YOU USE OR REFER TO TRANSIENT INTERVALS (RISE TIME AND FALL TIME)? | 24.5 | 5.6 |
| N 035 | N3-3 DO YOU USE OR REFER TO PULSE WIDTH (PW)? | 31.8 | 7.3 |
| N 036 | N3-4 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)? | 29.2 | 6.2 |
| N 037 | N3-5 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)? | 31.3 | 6.2 |
| N 038 | N3-6 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS? | 2.1 | 2.8 |

| D | TSK | TITLES | 205 | 3C7 |
|-------|-------|---|-----------|-----------|
| | | | SO (M) | SO (M) |
| N 839 | N3-7 | DO YOU USE OR REFER TO INTEGRATING CIRCUITS? | 2.1 | 5.1 |
| N 840 | N3-8 | DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT? | 3.1 | 4.5 |
| N 841 | N3-9 | DO YOU DETERMINE WHETHER AN LP OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION? | .0 | 1.7 |
| N 842 | N3-10 | DO YOU WORK WITH SQUARE WAVE GENERATOR SOLID STATE CIRCUITS? | 9.9 | 9.0 |
| N 843 | N3-11 | DO YOU WORK WITH RECTANGULAR WAVE GENERATOR SOLID STATE CIRCUITS? | 3.6 | 4.5 |
| N 844 | N3-12 | DO YOU WORK WITH TRIANGULAR (SAWTOOTH) WAVE GENERATOR SOLID STATE CIRCUITS? | 11.5 | 2.8 |
| N 845 | N3-13 | DO YOU WORK WITH RAMP (TRAPEZOIDAL) GENERATOR SOLID STATE CIRCUITS? | 1.0 | 1.7 |
| N 846 | N3-14 | DO YOU WORK WITH FUNCTION GENERATOR SOLID STATE CIRCUITS? | 4.2 | 5.1 |
| N 847 | N3-15 | DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS? | 1.0 | 2.3 |
| N 848 | N3-16 | DO YOU ALIGN OF ADJUST WAVE GENERATING OR SHAPING CIRCUITS? | .5 | 1.1 |
| N 849 | N3-17 | DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS? | 1.0 | .6 |
| N 850 | N3-18 | DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS? | .0 | 3.4 |
| N 851 | N3-19 | DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS? | .0 | 2.3 |
| N 852 | N3-20 | DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS? | .0 | 1.1 |
| N 853 | N3-21 | DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS? | .0 | .0 |

205 307
50 50
(M) (M)

D TSK TITLES

| | | | |
|-------|---|-----|------|
| 0 | SINGLE OR INDEPENDENT SIDEBAND SYSTEMS (01), PULSE MODULATION SYSTEMS (02), ANTENNAS (03) | | |
| 0 854 | 01-1 DO YOU WORK ON SINGLE OR INDEPENDENT SIDEBAND SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 02-1; IF YES, CONTINUE. | 6.0 | 26.0 |
| 0 855 | 01-2 DO YOU INSPECT SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | 1.6 | 9.6 |
| 0 856 | 01-3 DO YOU CLEAN SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | .5 | .0 |
| 0 857 | 01-4 DO YOU ALIGN SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | .5 | 4.0 |
| 0 858 | 01-5 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | .0 | 24.9 |
| 0 859 | 01-6 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS? | .0 | 6.2 |
| 0 860 | 01-7 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS? | .0 | 3.4 |
| 0 861 | 01-8 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS? | .0 | .6 |
| 0 862 | 01-9 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM, AUDIO, AMPLIFIER STAGE? | 2.1 | 6.8 |
| 0 863 | 01-10 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM BALANCED MODULATOR STAGE? | 1.0 | 3.4 |
| 0 864 | 01-11 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM CARRIER OSCILLATOR STAGE? | 2.1 | 2.3 |
| 0 865 | 01-12 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM LC FILTER STAGE? | 1.0 | 1.7 |
| 0 866 | 01-13 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM CRYSTAL FILTER STAGE? | .5 | .0 |
| 0 867 | 01-14 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM MECHANICAL FILTER STAGE? | 1.0 | .0 |
| 0 868 | 01-15 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM OSCILLATOR STAGE? | 3.1 | 5.6 |
| 0 869 | 01-16 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM MIXER STAGE? | 2.1 | 2.8 |
| 0 870 | 01-17 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM DRIVER STAGE? | 1.0 | 1.1 |
| 0 871 | 01-18 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM POWER AMPLIFIER STAGES? | 1.0 | 2.8 |
| 0 872 | 01-19 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM RF AMPLIFIER STAGE? | 3.6 | 4.0 |
| 0 873 | 01-20 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM FREQUENCY CONVERTER STAGES? | 3.1 | 4.0 |
| 0 874 | 01-21 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM IF AMPLIFIER STAGE? | 2.1 | 3.4 |
| 0 875 | 01-22 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE SYSTEM DEMODULATOR STAGE? | 4.2 | 5.6 |
| 0 876 | 01-23 DO YOU USE OR REFER TO SELECTIVE FADING WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 1.6 | 10.7 |

| 0 TSK | TITLES | 205 | 307 |
|-------|---|------|------|
| | | (M) | (P) |
| 0 077 | 01-24 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 1.6 | 12.4 |
| 0 078 | 01-25 DO YOU USE OR REFER TO FREQUENCY STABILITY WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 3.1 | 11.3 |
| 0 079 | 01-26 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 1.6 | 7.9 |
| 0 080 | 01-27 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB OR ISB TRANSMITTERS? | 1.0 | 4.0 |
| 0 081 | 01-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB TRANSMITTER SCHEMATIC DIAGRAMS? | .5 | 2.0 |
| 0 082 | 01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB RECEIVER SCHEMATIC DIAGRAMS? | .5 | 3.4 |
| 0 083 | 01-30 DO YOU PERFORM AERONAUTIC STATION ASSESSMENT PROGRAMS (ASAP)? | .0 | 4.5 |
| 0 084 | 02-1 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 03-1; IF YES, CONTINUE. | 15.6 | 20.9 |
| 0 085 | 02-2 DO YOU INSPECT PULSE MODULATION SYSTEMS? | .5 | 4.5 |
| 0 086 | 02-3 DO YOU CLEAN PULSE MODULATION SYSTEMS? | .0 | .0 |
| 0 087 | 02-4 DO YOU ALIGN PULSE MODULATION SYSTEMS? | .5 | 2.3 |
| 0 088 | 02-5 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS? | .0 | 18.6 |
| 0 089 | 02-6 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS? | .0 | 6.2 |
| 0 090 | 02-7 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS? | .0 | 2.3 |
| 0 091 | 02-8 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS? | .0 | .6 |
| 0 092 | 02-9 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) PULSE MODULATION SYSTEMS? | 12.5 | 9.6 |
| 0 093 | 02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) PULSE MODULATION SYSTEMS? | 11.5 | 2.3 |
| 0 094 | 02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) PULSE MODULATION SYSTEMS? | 13.0 | 3.4 |
| 0 095 | 02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) PULSE MODULATION SYSTEMS? | 12.5 | 19.2 |
| 0 096 | 02-13 DO YOU WORK ON LINE PULSING MODULATION PULSE MODULATION SYSTEMS? | .5 | .6 |
| 0 097 | 02-14 DO YOU WORK ON TIME DIVISION MULTIPLEXING (TDM) PULSE MODULATION SYSTEMS? | 9.4 | 20.3 |
| 0 098 | 02-15 DO YOU WORK ON - DON'T KNOW WHICH TYPE OF MODULATION SYSTEM? | 3.1 | 1.1 |
| 0 099 | 02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLY STAGE? | 2.1 | .6 |
| 0 900 | 02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODE STAGE? | .5 | .0 |
| 0 901 | 02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORK STAGE? | 1.0 | .6 |
| 0 902 | 02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMER STAGE? | 3.1 | 1.1 |
| 0 903 | 02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRON STAGE? | .5 | .0 |

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| 0 TSK | TITLES | 205 | 307 |
|-------|---|------|------|
| | | 50 | 50 |
| | | (M) | (M) |
| 0 904 | 02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMER STAGE? | .5 | .6 |
| 0 905 | 02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBE STAGE? | .5 | .6 |
| 0 906 | 02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIER STAGE? | 4.7 | .6 |
| 0 907 | 02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTER STAGE? | 4.7 | 2.8 |
| 0 908 | 02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIER STAGE? | 4.2 | 1.1 |
| 0 909 | 02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTOR STAGE? | 4.2 | 1.1 |
| 0 910 | 02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIER STAGE? | 4.7 | .0 |
| 0 911 | 02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIER STAGE? | 3.1 | .6 |
| 0 912 | 02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 17.7 | 2.8 |
| 0 913 | 02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 15.1 | 2.8 |
| 0 914 | 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 17.7 | 5.6 |
| 0 915 | 02-32 DO YOU USE OR REFER TO PULSE SHAPE WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 12.0 | 3.4 |
| 0 916 | 02-33 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 7.8 | 4.5 |
| 0 917 | 02-34 DO YOU USE OR REFER TO AVERAGE POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 7.3 | 4.5 |
| 0 918 | 02-35 DO YOU USE OR REFER TO DUTY CYCLE (DC) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 6.8 | 2.3 |
| 0 919 | 02-36 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? | 14.1 | 1.1 |
| 0 920 | 02-37 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? | 14.1 | 1.1 |
| 0 921 | 02-38 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS? | 4.2 | 2.3 |
| 0 922 | 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS? | 1.0 | 2.3 |
| 0 923 | 02-40 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS? | 1.0 | 2.3 |
| 0 924 | 03-1 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB? IF NO, GO TO ITEM PI-1; IF YES, CONTINUE. | 22.4 | 13.6 |
| 0 925 | 03-2 DO YOU INSPECT ANTENNAS? | 1.6 | 1.1 |
| 0 926 | 03-3 DO YOU CLEAN ANTENNAS? | .5 | .6 |
| 0 927 | 03-4 DO YOU PHYSICALLY ALIGN ANTENNAS? | .5 | 1.1 |
| 0 928 | 03-5 DO YOU ELECTRICALLY ALIGN ANTENNAS? | 1.6 | 1.7 |
| 0 929 | 03-6 DO YOU TROUBLESHOOT TO ANTENNAS? | .0 | 9.6 |
| 0 930 | 03-7 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS? | .0 | .0 |
| 0 931 | 03-8 DO YOU REMOVE OR INSTALL ANTENNAS? | 1.0 | 1.7 |

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| 0 TSK | TITLES | 205 50 (M) | 307 50 (M) |
|-------|--|------------------|------------------|
| 0 932 | 03-9 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS? | .5 | .0 |
| 0 933 | 03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES? | 3.1 | 1.7 |
| 0 934 | 03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES? | 3.1 | 1.7 |
| 0 935 | 03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS? | 3.6 | 1.1 |
| 0 936 | 03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS RESISTIVE LOADS TO THE GENERATOR? | .5 | 1.7 |
| 0 937 | 03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR? | .5 | 1.1 |
| 0 938 | 03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR? | .5 | .6 |
| 0 939 | 03-16 DO YOU WORK WITH HERTZ BASIC ANTENNAS? | 1.0 | .6 |
| 0 940 | 03-17 DO YOU WORK WITH MARCONI BASIC ANTENNAS? | 1.0 | 1.1 |
| 0 941 | 03-18 DO YOU WORK WITH RHOMBIC BASIC ANTENNAS? | 2.6 | 8.5 |
| 0 942 | 03-19 DO YOU WORK WITH DIPOLE BASIC ANTENNAS? | 5.7 | 8.5 |
| 0 943 | 03-20 DO YOU WORK WITH SCIMITAR BASIC ANTENNAS? | .5 | .0 |
| 0 944 | 03-21 DO YOU WORK WITH PARABOLIC BASIC ANTENNAS? | 15.6 | 10.2 |
| 0 945 | 03-22 DO YOU WORK WITH GROUND PLANE BASIC ANTENNAS? | 2.6 | 3.4 |
| 0 946 | 03-23 DO YOU WORK WITH FOLDED DIPOLE BASIC ANTENNAS? | 3.6 | 2.3 |
| 0 947 | 03-24 DO YOU WORK WITH BROADSIDE ARRAYS? | 2.6 | .6 |
| 0 948 | 03-25 DO YOU WORK WITH END-FIRE ARRAYS? | 2.1 | .6 |
| 0 949 | 03-26 DO YOU WORK WITH CARDIOID ARRAYS? | 2.6 | .0 |
| 0 950 | 03-27 DO YOU WORK WITH COLLINEAR ARRAYS? | 3.1 | .0 |
| 0 951 | 03-28 DO YOU WORK WITH PHASE ARRAYS? | 6.3 | 1.1 |
| 0 952 | 03-29 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS? | 3.1 | 1.7 |
| 0 953 | 03-30 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS? | 1.6 | .0 |
| 0 954 | 03-31 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS? | 7.3 | 1.7 |
| 0 955 | 03-32 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS? | 2.6 | .0 |
| 0 956 | 03-33 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION? | 2.6 | .0 |
| 0 957 | 03-34 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD? | 2.1 | .0 |
| 0 958 | 03-35 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED? | 8.9 | 1.7 |
| 0 959 | 03-36 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED? | 6.3 | .6 |
| 0 960 | 03-37 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON? | 7.3 | .0 |

| O TSK | TITLES | 205 | 307 | 50 | 50 | (M) | (M) |
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| 0 961 | 03-38 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS? | 1.6 | 1.1 | | | | |
| 0 962 | 03-39 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS? | 4.2 | 1.1 | | | | |
| 0 963 | 03-40 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS? | 3.1 | 1.1 | | | | |
| 0 964 | 03-41 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN - DON'T KNOW WHAT KIND OF ELEMENT? | 9.9 | 6.2 | | | | |
| 0 965 | 03-42 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS? | 12.5 | 10.7 | | | | |
| 0 966 | 03-43 DO YOU WORK ON BIDIRECTIONAL ANTENNAS? | 5.7 | 3.4 | | | | |
| 0 967 | 03-44 DO YOU WORK ON OMNIDIRECTIONAL ANTENNAS? | 10.4 | 7.3 | | | | |
| 0 968 | 03-45 DO YOU WORK WITH ROTARY ANTENNA ARRAYS? | 6.3 | 2.8 | | | | |
| P | TRANSMISSION LINES (P1), WAVEGUIDES AND CAVITY RESONATORS (P2), MICROWAVE AMPLIFIERS AND OSCILLATORS (P3) | | | | | | |
| P 969 | P1-1 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES? (DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES.) IF NO, GO TO ITEM P2-1; IF YES, CONTINUE. | 3.1 | 42.9 | | | | |
| P 970 | P1-2 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE COPPER LOSS OR $\frac{1}{2}$ SUB 2 R ² LOSS IN TRANSMISSION LINES? | .0 | 2.8 | | | | |
| P 971 | P1-3 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES? | .0 | 2.8 | | | | |
| P 972 | P1-4 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE RADIATION LOSS? | 1.0 | 8.5 | | | | |
| P 973 | P1-5 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE DIELECTRIC LOSS? | .5 | 6.2 | | | | |
| P 974 | P1-6 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE LEAKAGE LOSSES? | .5 | 8.5 | | | | |
| P 975 | P1-7 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE FARADAY SHIELD? | .0 | .6 | | | | |
| P 976 | P1-8 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES? | .5 | 27.1 | | | | |
| P 977 | P1-9 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES? | .0 | 15.8 | | | | |
| P 978 | P1-10 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES? | .0 | 16.4 | | | | |
| P 979 | P1-11 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES? | 1.6 | 27.1 | | | | |
| P 980 | P1-12 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES? | 1.0 | 10.7 | | | | |
| P 981 | P1-13 DO YOU TROUBLESHOOT TRANSMISSION LINES? | .5 | 42.9 | | | | |
| P 982 | P1-14 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)? | .0 | 24.3 | | | | |
| P 983 | P1-15 DO YOU SELECT APPROPRIATE TRANSMISSION LINE TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS? | 1.0 | 12.4 | | | | |

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| P 984 | PI-16 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS? | .0 | 8.5 |
| P 985 | PI-17 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | .0 | 2.3 |
| P 986 | PI-18 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | .5 | 1.7 |
| P 987 | PI-19 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS? | .5 | 2.8 |
| P 988 | PI-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS? | .0 | 14.7 |
| P 989 | PI-21 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING? | .0 | 1.1 |
| P 990 | PI-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | 1.6 | 10.7 |
| P 991 | PI-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | .5 | 6.2 |
| P 992 | PI-24 DO YOU USE OR REFER TO THE TERM CUT OFF FREQUENCY OF TRANSMISSION LINES? | 1.0 | 9.6 |
| P 993 | PI-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES? | 1.0 | 1.1 |
| P 994 | PI-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES? | .5 | 2.8 |
| P 995 | PI-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTHS FOR GIVEN FREQUENCIES? | .0 | 1.7 |
| P 996 | PI-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES? | .0 | 6.2 |
| P 997 | PI-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES? | .0 | 7.9 |
| P 998 | PI-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES? | .0 | 11.3 |
| P 999 | PI-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING? | .0 | 3.4 |
| P1000 | P2-1 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM P3-1; IF YES, CONTINUE. | 1.0 | 1.1 |
| P1001 | P2-2 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1002 | P2-3 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1003 | P2-4 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1004 | P2-5 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1005 | P2-6 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS? | .0 | .6 |
| P1006 | P2-7 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES? | .0 | .0 |
| P1007 | P2-8 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS? | .0 | .0 |
| P1008 | P2-9 DO YOU REMOVE OR INSTALL DUMMY LOADS? | .0 | .0 |
| P1009 | P2-10 DO YOU REMOVE OR INSTALL BENDS? | .0 | .0 |
| P1010 | P2-11 DO YOU REMOVE OR INSTALL OTHER BENDS? | .0 | .0 |
| P1011 | P2-12 DO YOU REMOVE OR INSTALL OTHER BENDS? | .0 | .0 |

| D TSK | TITLES | 205 (M) | 307 50 (M) |
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| P1012 | P2-13 DO YOU REMOVE OR INSTALL CHOKES JOINTS? | .0 | .0 |
| P1013 | P2-14 DO YOU REMOVE OR INSTALL ROTATING JOINTS? | .0 | .0 |
| P1014 | P2-15 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS? | .0 | .0 |
| P1015 | P2-16 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS? | .0 | .0 |
| P1016 | P2-17 DO YOU REMOVE OR INSTALL DUPLEXERS OR MIXERS? | .0 | .0 |
| P1017 | P2-18 DO YOU REMOVE OR INSTALL WAVEGUIDE SHUTTERS? | .0 | .0 |
| P1018 | P2-19 DO YOU REMOVE OR INSTALL TRANSMIT (TR) OR ANTI-TRANSMIT (ATR) TUBES? | .0 | .0 |
| P1019 | P2-20 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES? | .0 | .0 |
| P1020 | P2-21 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES? | .0 | .0 |
| P1021 | P2-22 DO YOU USE OR REFER TO CUT OFF FREQUENCY OF WAVEGUIDES? | .0 | .0 |
| P1022 | P2-23 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES? | .0 | .0 |
| P1023 | P2-24 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES? | .0 | .0 |
| P1024 | P2-25 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS? | .0 | .0 |
| P1025 | P2-26 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS? | .0 | .0 |
| P1026 | P2-27 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS? | .0 | .0 |
| P1027 | P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OR .7 WAVELENGTHS OF THE OPERATING FREQUENCY? | .0 | .0 |
| P1028 | P2-29 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 AS AN AVERAGE? | .0 | .0 |
| P1029 | P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION? | .0 | .0 |
| P1030 | P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES? | .0 | .0 |
| P1031 | P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES? | .0 | .0 |
| P1032 | P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES? | .0 | .0 |
| P1033 | P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES? | .0 | .0 |
| P1034 | P2-35 DO YOU WORK WITH HIGH POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1035 | P2-36 DO YOU WORK WITH LOW POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1036 | P2-37 DO YOU WORK WITH LOOP ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1037 | P2-38 DO YOU WORK WITH APERTURES (WINDOWS OR IRISES) ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1038 | P2-39 DO YOU WORK WITH CHOKES JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |

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| D TSK | TITLES | 205 (M) | 307 (P) |
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| P1039 | P2-40 DO YOU WORK WITH ROTATING JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1040 | P2-41 DO YOU WORK WITH JOINTS IN WAVEGUIDES OR CAVITY RESONATORS BUT DON'T KNOW WHICH KIND? | .0 | .6 |
| P1041 | P2-42 DO YOU TUNE CAVITY RESONATORS USING ELECTRICAL METHODS? | .0 | .0 |
| P1042 | P2-43 DO YOU TUNE CAVITY RESONATORS USING MECHANICAL METHODS? | .0 | .0 |
| P1043 | P2-44 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS? | .0 | .0 |
| P1044 | P3-1 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS? IF NO, GO TO ITEM 01-1; IF YES, CONTINUE. | 2.1 | 2.3 |
| P1045 | P3-2 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | .0 | .6 |
| P1046 | P3-3 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | .0 | .6 |
| P1047 | P3-4 DO YOU USE OR REFER TO LEAD INDUCTANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | .5 | .6 |
| P1048 | P3-5 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | .5 | .6 |
| P1049 | P3-6 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION? | .0 | 1.1 |
| P1050 | P3-7 DO YOU USE OR REFER TO ELECTRON BUNCHING? | .0 | 1.1 |
| P1051 | P3-8 DO YOU WORK WITH TWO-CAVITY KLYSTRONS? | .0 | 1.1 |
| P1052 | P3-9 DO YOU WORK WITH THREE-CAVITY KLYSTRONS? | .0 | 1.1 |
| P1053 | P3-10 DO YOU WORK WITH REFLEX KLYSTRONS? | .0 | 1.7 |
| P1054 | P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)? | .5 | 1.7 |
| P1055 | P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1056 | P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS? | .5 | 1.7 |
| P1057 | P3-14 DO YOU WORK WITH MAGNETRONS? | 1.0 | 1.1 |
| P1058 | P3-15 DO YOU WORK WITH BACKWARD WAVE OSCILLATORS (BWO)? | .0 | .6 |
| P1059 | P3-16 DO YOU INSPECT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | .0 |
| P1060 | P3-17 DO YOU CLEAN KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | .0 |
| P1061 | P3-18 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY? | .0 | .0 |
| P1062 | P3-19 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY? | .0 | .6 |
| P1063 | P3-20 DO YOU PERFORM OPERATIONAL CHECKS ON KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | .6 |
| P1064 | P3-21 DO YOU TROUBLESHOOT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | 1.1 |
| P1065 | P3-22 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRONS OR TWT'S? | .0 | .0 |
| P1066 | P3-23 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS? | .0 | .6 |
| P1067 | P3-24 DO YOU INSPECT PARAMETRIC AMPLIFIERS? | .0 | .0 |

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| D TSM | TITLES | 205 50 (M) | 307 50 (M) |
|-------|---|------------------|------------------|
| P1060 | P3-25 DO YOU CLEAN PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1069 | P3-26 DO YOU ADJUST PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1070 | P3-27 DO YOU TUNE PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1071 | P3-28 DO YOU PERFORM OPERATIONAL CHECKS ON PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1072 | P3-29 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS? | .0 | 1.1 |
| P1073 | P3-30 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1074 | P3-31 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS? | .0 | .6 |
| P1075 | P3-32 DO YOU INSPECT MAGNETRONS? | .0 | .0 |
| P1076 | P3-33 DO YOU CLEAN MAGNETRONS? | .0 | .0 |
| P1077 | P3-34 DO YOU ADJUST MAGNETRONS? | .0 | .6 |
| P1078 | P3-35 DO YOU TUNE MAGNETRONS? | .0 | .6 |
| P1079 | P3-36 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS? | .0 | .6 |
| P1080 | P3-37 DO YOU TROUBLESHOOT MAGNETRONS? | .0 | .6 |
| P1081 | P3-38 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRONS? | .0 | .0 |
| P1082 | P3-39 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS? | .0 | .0 |
| P1083 | P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR PLATE COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1084 | P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1085 | P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1086 | P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FEEDBACK LOOP COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1087 | P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF DRIFT SPACE COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1088 | P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUNCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1089 | P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUNCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1090 | P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CONTROL GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1091 | P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .6 |
| P1092 | P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REPELLER (REFLECTOR) PLATE COMPONENTS OF REFLEX KLYSTRONS? | .0 | .0 |
| P1093 | P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1094 | P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID CAVITY GAP COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1095 | P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF RESONANT CAVITY COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1096 | P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNETIC COUPLING LOOP COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1097 | P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |

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| P1098 | P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1099 | P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF OUTPUT LEAD COMPONENTS OF REFLEX KLYSTRONS? | .0 | .6 |
| P1100 | P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1101 | P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1102 | P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MODULATOR GRID COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1103 | P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ANODE COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1104 | P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF HELIX COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1105 | P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1106 | P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNET COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | 1.1 |
| P1107 | P3-64 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ATTENUATOR COMPONENTS OF TRAVELING-WAVE TUBES? | .0 | .6 |
| P1108 | P3-65 DO YOU PERFORM TASKS ON FERRITE CIRCULATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1109 | P3-66 DO YOU PERFORM TASKS ON SIGNAL CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1110 | P3-67 DO YOU PERFORM TASKS ON IDLER CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1111 | P3-68 DO YOU PERFORM TASKS ON VARACTOR DIODE COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1112 | P3-69 DO YOU PERFORM TASKS ON FERRITE ISOLATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1113 | P3-70 DO YOU PERFORM TASKS ON REVERSE-BIAS BATTERY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .6 |
| P1114 | P3-71 DO YOU PERFORM TASKS ON ANODE COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1115 | P3-72 DO YOU PERFORM TASKS ON ANODE COOLING PIN COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1116 | P3-73 DO YOU PERFORM TASKS ON COUPLING LOOP COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1117 | P3-74 DO YOU PERFORM TASKS ON HEATER LEAD COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1118 | P3-75 DO YOU PERFORM TASKS ON RESONANT CAVITY COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1119 | P3-76 DO YOU PERFORM TASKS ON CATHODE COMPONENTS OF MAGNETRONS? | .0 | .0 |
| P1120 | P3-77 DO YOU PERFORM TASKS ON MAGNET COMPONENTS OF MAGNETRONS? | .0 | .0 |

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Q REGISTERS (Q1), STORAGE DEVICES (Q2), DIGITAL-TO-ANALOG AND ANALOG-TO-DIGITAL CONVERTERS (Q3)

| | | | | |
|-------|-------|--|------|------|
| Q1121 | Q1-1 | DO YOU USE OR REFER TO STORAGE REGISTERS? | 3.1 | 2.3 |
| Q1122 | Q1-2 | DO YOU USE OR REFER TO SHIFT REGISTERS? | 3.1 | 2.8 |
| Q1123 | Q1-3 | DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS? | 2.1 | 1.1 |
| Q1124 | Q1-4 | DO YOU USE OR REFER TO LOGIC SYMBOLS OR STORAGE REGISTERS? | 2.1 | 1.1 |
| Q1125 | Q1-5 | DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTER CIRCUITS? | 1.6 | .0 |
| Q1126 | Q1-6 | DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPES OF REGISTER CIRCUITS? | 1.0 | .0 |
| Q1127 | Q1-7 | DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED? | 1.0 | .0 |
| Q1128 | Q2-1 | DO YOU WORK WITH STORAGE DEVICES IN YOUR PRESENT JOB? IF NO, GO TO ITEM Q3-1; IF YES, CONTINUE. | 48.4 | 10.7 |
| Q1129 | Q2-2 | DO YOU USE OR REFER TO DELAY LINES? | .0 | 1.1 |
| Q1130 | Q2-3 | DO YOU USE OR REFER TO MAGNETIC CORES OR BIMAGS? | 2.6 | 3.4 |
| Q1131 | Q2-4 | DO YOU USE OR REFER TO MAGNETIC DRUMS? | 8.3 | 7.9 |
| Q1132 | Q2-5 | DO YOU USE OR REFER TO MAGNETIC TAPES? | 44.3 | 9.0 |
| Q1133 | Q2-6 | DO YOU USE OR REFER TO ACCESS TIME OR SPEED OF MEMORY SYSTEMS? | 13.0 | 6.2 |
| Q1134 | Q2-7 | DO YOU USE OR REFER TO STORAGE CAPACITY OF MEMORY SYSTEMS? | 23.4 | 7.3 |
| Q1135 | Q2-8 | DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS? | 5.2 | 2.8 |
| Q1136 | Q2-9 | DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES? | .0 | .6 |
| Q1137 | Q2-10 | DO YOU USE OR REFER TO MAGNETIC DISKS? | 37.0 | 7.3 |
| Q1138 | Q2-11 | DO YOU USE OR REFER TO THIN FILMS? | 4.2 | 1.7 |
| Q1139 | Q2-12 | DO YOU USE OR REFER TO SEMICONDUCTOR MEMORY (INTEGRATED) CIRCUITS? | 6.3 | 3.4 |
| Q1140 | Q2-13 | DO YOU USE OR REFER TO BUBBLE MEMORIES? | .5 | 1.1 |
| Q1141 | Q2-14 | DO YOU USE OR REFER TO PUNCH CARDS? | 17.2 | 9.0 |
| Q1142 | Q2-15 | DO YOU USE OR REFER TO PAPER TAPES? | 19.3 | 9.0 |
| Q1143 | Q2-16 | DO YOU USE OR REFER TO RANDOM ACCESS MEMORIES (RAM)? | 20.3 | 6.8 |
| Q1144 | Q2-17 | DO YOU USE OR REFER TO READ ONLY MEMORIES (ROM)? | 18.8 | 4.5 |
| Q1145 | Q2-18 | DO YOU USE OR REFER TO PROGRAMMABLE READ ONLY MEMORIES (PROM)? | 10.4 | 3.4 |
| Q1146 | Q2-19 | DO YOU USE OR REFER TO TRANSFORMER READ ONLY STORAGE (TROS)? | .5 | 2.3 |
| Q1147 | Q2-20 | DO YOU USE OR REFER TO CAPACITY READ ONLY STORAGE (CROS)? | .5 | 1.7 |
| Q1148 | Q2-21 | DO YOU INSPECT STORAGE DEVICES? | 8.9 | .6 |
| Q1149 | Q2-22 | DO YOU CLEAN STORAGE DEVICES? | 9.4 | 1.1 |
| Q1150 | Q2-23 | DO YOU ALIGN STORAGE DEVICES? | 1.6 | .0 |
| Q1151 | Q2-24 | DO YOU ADJUST STORAGE DEVICES? | 2.1 | .0 |
| Q1152 | Q2-25 | DO YOU TROUBLESHOOT MEMORY SYSTEM STORAGE DEVICES? | 1.0 | .6 |
| Q1153 | Q2-26 | DO YOU REMOVE OR REPLACE ASSEMBLIES OR COMPONENTS OF STORAGE DEVICES? | 1.0 | .0 |

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| Q1154 | Q2-27 DO YOU TRACE SIGNAL FLOW IN STORAGE DEVICES USING LOGIC DIAGRAMS OR SCHEMATICS? | 2.1 | .6 |
| Q1155 | Q3-1 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS OR ANALOG-TO-DIGITAL (A/D) CONVERTERS? IF NO, GO TO ITEM R1-1; IF YES, CONTINUE. | 20.8 | 38.4 |
| Q1156 | Q3-2 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES? | .5 | 2.0 |
| Q1157 | Q3-3 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE RESISTORS? | .5 | 2.3 |
| Q1158 | Q3-4 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS? | 1.6 | .6 |
| Q1159 | Q3-5 DO YOU PERFORM TASKS ON SAMPLE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 3.1 | 1.7 |
| Q1160 | Q3-6 DO YOU PERFORM TASKS ON HOLD FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 1.6 | .0 |
| Q1161 | Q3-7 DO YOU PERFORM TASKS ON COMPARE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 1.6 | 1.1 |
| Q1162 | Q3-8 DO YOU PERFORM TASKS ON DIGITIZE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 5.7 | 1.7 |
| Q1163 | Q3-9 DO YOU PERFORM TASKS ON PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS BUT DON'T KNOW WHICH FUNCTION? | 2.1 | 7.3 |
| Q1164 | Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS? | 3.6 | 1.7 |
| Q1165 | Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS? | 1.6 | .0 |
| Q1166 | Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS? | 2.1 | 1.7 |
| Q1167 | Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS? | 4.2 | 3.4 |
| Q1168 | Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS? | 3.1 | 5.1 |
| Q1169 | Q3-15 DO YOU PERFORM ANY TASKS ON ELECTRONIC A/D CONVERTERS? | 7.0 | 9.0 |
| Q1170 | Q3-16 DO YOU PERFORM ANY TASKS ON DIGITAL-TO-ANALOG (D/A) CONVERTERS? | 3.6 | 11.9 |
| Q1171 | Q3-17 DO YOU OPERATE COMPUTER KEYBOARDS? | 20.3 | 11.3 |
| Q1172 | Q3-18 DO YOU WORK AT OR WITH COMPUTER TERMINALS? | 19.8 | 18.6 |
| Q1173 | Q3-19 HAVE YOU BEEN SENT TO FACTORY TRAINING OR TO ANY OTHER SCHOOL FOR THE SPECIFIC PURPOSE OF RECEIVING COMPUTER OR LOGIC CIRCUIT RELATED TRAINING? | 2.6 | 1.7 |
| Q1174 | Q3-20 DO YOU HAVE MICROPROCESSORS OR COMPUTER EQUIPMENT LOCATED AT YOUR WORK STATION WHICH IS OPERATED OR MAINTAINED BY CONTRACTOR PERSONNEL? | 17.2 | 12.4 |
| Q1175 | Q3-21 WAS THE COMPUTER OR LOGIC CIRCUIT TRAINING YOU RECEIVED IN YOUR 3-LEVEL AWARDING COURSE ADEQUATE IN TERMS OF YOUR PRESENT DUTIES? | 2.6 | 10.2 |

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Q1176 03-22 ARE YOU ASSIGNED AGAINST A POSITION WHICH REQUIRES A
"0" PREFIX? .5 .6

R PHANTASTRONS (R1), SCHMITT TRIGGERS (R2), CABLE
FABRICATION (P3)

R1177 R1-1 DO YOU WORK WITH PHANTASTRON CIRCUITRY? IF NO, GO TO
ITEM R2-1. IF YES, CONTINUE. 1.0 .6

R1178 R1-2 PHANTASTRON CIRCUITRY HAS VARIABLE-DELAY APPLICATIONS
IN MY JOB. .0 .0

R1179 R1-3 PHANTASTRON CIRCUITRY HAS SEARCH-LOCK AUTOMATIC
FREQUENCY CONTROLS (AFC) APPLICATIONS IN MY JOB. .5 .6

R1180 R1-4 PHANTASTRON CIRCUITRY HAS MONOSTABLE MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .0

R1181 R1-5 PHANTASTRON CIRCUITRY HAS BISTABLE MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .0

R1182 R1-6 PHANTASTRON CIRCUITRY HAS FREE-RUNNING MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .0

R1183 R2-1 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER
CIRCUITS? IF NO, GO TO ITEM R3-1; IF YES, CONTINUE. 2.6 .6

R1184 R2-2 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER
SCHEMATIC DIAGRAMS? .5 .0

R1185 R2-3 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS?
R1186 R3-1 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR
CABLES? .5 .0

R1187 R3-2 DO YOU FABRICATE COAXIAL CABLES? 1.0 4.0

S INPUT/OUTPUT (PERIPHERAL) DEVICES (S1), PHOTO SENSITIVE
DEVICES (S2), SYNCHRONOUS VIBRATIONS (CHOPPER
CIRCUITS) (S3)

S1188 S1-1 DO YOU WORK WITH INPUT OR OUTPUT DEVICES ON YOUR
PRESENT JOB? IF NO, GO TO ITEM S2-1; IF YES, CONTINUE. 75.5 73.4

S1189 S1-2 DO YOU USE OR REFER TO KEYBOARDS OR TELETYPEWRITERS?
S1190 S1-3 DO YOU USE OR REFER TO PRINTERS? 71.9 75.1

S1191 S1-4 DO YOU USE OR REFER TO TAPE DRIVES (UNITS)? 65.6 66.7

S1192 S1-5 DO YOU USE OR REFER TO CAPD READERS/CAPD PUNCHES?
S1193 S1-6 DO YOU USE OR REFER TO VIDEO DISPLAYS (CRT'S)? 55.2 24.9

S1194 S1-7 DO YOU USE OR REFER TO NIXIE LIGHTS (TUBES)? 26.0 24.9

S1195 S1-8 DO YOU USE OR REFER TO LCD'S? 70.8 42.4

S1196 S1-9 DO YOU USE OR REFER TO LED'S? 10.4 9.0

S1197 S1-10 DO YOU USE OR REFER TO INCANDESCENT DISPLAYS?
S1198 S1-11 DO YOU USE OR REFER TO TOGGLE OR PUSH BUTTON SWITCH
INPUTS? 28.6 41.2

S1199 S1-12 DO YOU USE OR REFER TO INTERFACE ADAPTER UNITS? 17.2 13.6

41.1 39.0

16.1 22.0

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| S1200 | S1-13 DO YOU USE OR REFER TO TAPE READERS? | 34.9 | 44.1 |
| S1201 | S1-14 DO YOU USE OR REFER TO TAPE PUNCHES? | 27.6 | 45.8 |
| S1202 | S2-1 DO YOU WORK WITH PHOTODIODE PHOTO SENSITIVE DEVICES? | 1.0 | .6 |
| S1203 | S2-2 DO YOU WORK WITH PHOTOTRANSISTOR PHOTO SENSITIVE DEVICES? | .5 | .6 |
| S1204 | S2-3 DO YOU WORK WITH PHOTOTUBE PHOTO SENSITIVE DEVICES? | 1.0 | .6 |
| S1205 | S2-4 DO YOU WORK WITH PHOTO-SCR PHOTO SENSITIVE DEVICES? | 1.0 | .6 |
| S1206 | S2-5 DO YOU WORK WITH PHOTOCCELL (PHOTOCONDUCTIVE OR PHOTOVOLTAIC) PHOTO SENSITIVE DEVICES? | 1.0 | 2.3 |
| S1207 | S3-1 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS? IF NO, GO TO ITEM T1-11. IF YES, CONTINUE. | 1.6 | .0 |
| S1208 | S3-2 DO YOU USE OR REFER TO EXCITATION FREQUENCY CHOPPER COIL ITEMS? | .0 | .0 |
| S1209 | S3-3 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | .5 | .0 |
| S1210 | S3-4 DO YOU MEASURE EXCITATION FREQUENCY CHOPPER COIL ITEMS? | .0 | .0 |
| S1211 | S3-5 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | .0 | .0 |
| S1212 | S3-6 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1213 | S3-7 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1214 | S3-8 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1215 | S3-9 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| T | ----- INFRARED (T1), LASERS (T2), DISPLAY TUBES (T3), TELEVISION (T4) ----- | | |
| T1216 | T1-1 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS? IF NO, GO TO ITEM T2-1; IF YES, CONTINUE. | 1.0 | .0 |
| T1217 | T1-2 DO YOU INSPECT INFRARED SYSTEMS? | .0 | .0 |
| T1218 | T1-3 DO YOU CLEAN INFRARED SYSTEMS? | .0 | .0 |
| T1219 | T1-4 DO YOU SERVICE INFRARED SYSTEMS? | .0 | .0 |
| T1220 | T1-5 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS? | .0 | .0 |
| T1221 | T1-6 DO YOU OPERATE INFRARED SYSTEMS? | .0 | .0 |
| T1222 | T1-7 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS? | .0 | .0 |
| T1223 | T1-8 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | .0 | .0 |
| T1224 | T1-9 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS? | .0 | .0 |
| T1225 | T1-10 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | .0 | .0 |

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| T1226 | T1-11 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS? | .0 | .0 |
| T1227 | T1-12 DO YOU USE OR REFER TO FAR REGIONS? | 1.0 | .0 |
| T1228 | T1-13 DO YOU USE OR REFER TO INTERMEDIATE REGIONS? | 1.0 | .0 |
| T1229 | T1-14 DO YOU USE OR REFER TO NEAR REGIONS? | 1.0 | .0 |
| T1230 | T1-15 DO YOU USE OR REFER TO MICRONS (M)? | .5 | .0 |
| T1231 | T1-16 DO YOU USE OR REFER TO GRAY BODIES? | .5 | .0 |
| T1232 | T1-17 DO YOU USE OR REFER TO BLACK BODIES? | .5 | .0 |
| T1233 | T1-18 DO YOU USE OR REFER TO ABSORPTION? | .5 | .6 |
| T1234 | T1-19 DO YOU USE OR REFER TO SCATTERING? | .5 | .6 |
| T1235 | T1-20 DO YOU USE OR REFER TO ABSOLUTE ZERO? | .0 | .0 |
| T1236 | T1-21 DO YOU PERFORM TASKS ON BLITZ? | .0 | .0 |
| T1237 | T1-22 DO YOU PERFORM TASKS ON TARGET BUTTONS? | .0 | .0 |
| T1238 | T1-23 DO YOU PERFORM TASKS ON ERECTOR LENSES? | .0 | .0 |
| T1239 | T1-24 DO YOU PERFORM TASKS ON OCULAR LENSES? | .0 | .0 |
| T1240 | T1-25 DO YOU PERFORM TASKS ON CORRECTION LENSES? | .0 | .0 |
| T1241 | T1-26 DO YOU PERFORM TASKS ON FILTERS? | .0 | .0 |
| T1242 | T1-27 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS? | .0 | .0 |
| T1243 | T1-28 DO YOU PERFORM TASKS ON PLANE MIRRORS? | .0 | .0 |
| T1244 | T2-1 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS? IF NO, GO TO ITEM T3-1; IF YES, CONTINUE. | 1.0 | .6 |
| T1245 | T2-2 DO YOU INSPECT LASER SYSTEMS? | .0 | .0 |
| T1246 | T2-3 DO YOU CLEAN LASER SYSTEMS? | .0 | .0 |
| T1247 | T2-4 DO YOU SERVICE LASER SYSTEMS? | .0 | .0 |
| T1248 | T2-5 DO YOU OPERATE LASER SYSTEMS? | .0 | .0 |
| T1249 | T2-6 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS? | .0 | .0 |
| T1250 | T2-7 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS? | .0 | .6 |
| T1251 | T2-8 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS? | .0 | .0 |
| T1252 | T2-9 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS? | .0 | .0 |
| T1253 | T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS? | .0 | .0 |
| T1254 | T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)? | .5 | .0 |
| T1255 | T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS? | .0 | .0 |
| T1256 | T2-13 DO YOU USE OR REFER TO GROUND STATE? | .5 | .0 |
| T1257 | T2-14 DO YOU USE OR REFER TO EXCITED STATE? | .5 | .0 |
| T1258 | T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION? | .0 | .0 |
| T1259 | T2-16 DO YOU USE OR REFER TO PHOTONS? | .5 | .0 |
| T1260 | T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSIONS? | .5 | .0 |
| T1261 | T2-18 DO YOU USE OR REFER TO STIMULATED EMISSIONS? | .5 | .0 |
| T1262 | T2-19 DO YOU USE OR REFER TO COHERENCE OR INCORNERCE? | .5 | .0 |
| T1263 | T2-20 DO YOU USE OR REFER TO INVERSION LEVELS? | .0 | .0 |
| T1264 | T2-21 DO YOU USE OR REFER TO MONOCHROMATIC? | .5 | .0 |
| T1265 | T2-22 DO YOU WORK WITH ACTIVE MATERIALS? | .0 | .0 |
| T1266 | T2-23 DO YOU WORK WITH PUMPING SOURCES? | .0 | .0 |
| T1267 | T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS? | .0 | .0 |

| D TSM | TITLES | 205 (M) | 307 (M) |
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| T1268 | TZ-25 DO YOU WORK WITH HALF SILVERED 192R REFLECTIVE MIRRORS? | .0 | .0 |
| T1269 | TZ-26 DO YOU WORK WITH HELICAL FLASHTUBES? | .0 | .0 |
| T1270 | TZ-27 DO YOU WORK WITH RUBY MATERIALS? | .0 | .0 |
| T1271 | TZ-28 DO YOU WORK WITH HELIUM-NEON MATERIALS? | .0 | .0 |
| T1272 | TZ-29 DO YOU WORK WITH HELIUM-XENON MATERIALS? | .0 | .0 |
| T1273 | TZ-30 DO YOU WORK WITH XENON MATERIALS? | .0 | .0 |
| T1274 | TZ-31 DO YOU WORK WITH CESIUM-HELIUM MATERIALS? | .0 | .0 |
| T1275 | TZ-32 DO YOU WORK WITH ARGON MATERIALS? | .0 | .0 |
| T1276 | TZ-33 DO YOU WORK WITH NEODYMIUM IN GLASS MATERIALS? | .0 | .0 |
| T1277 | TZ-34 DO YOU WORK WITH GALLIUM ARSENIDE MATERIALS? | .0 | .0 |
| T1278 | TZ-1 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE TUBES (DVST), MULTIPLE MODE STORAGE TUBES (MMST), OR SCAN CONVERTER TUBES (SCT)? IF NO, GO TO ITEM T4-12. IF YES, CONTINUE. | .5 | 1.1 |
| T1279 | T3-2 DO YOU INSPECT DVST OR MMST? | .0 | .0 |
| T1280 | T3-3 DO YOU CLEAN DVST OR MMST? | .0 | .0 |
| T1281 | T3-4 DO YOU ADJUST OR CALIBRATE DVST OR MMST? | .0 | .0 |
| T1282 | T3-5 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST? | .0 | .0 |
| T1283 | T3-6 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS? | .0 | .0 |
| T1284 | T3-7 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS? | .0 | .0 |
| T1285 | T3-8 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF DVST? | .0 | .0 |
| T1286 | T3-9 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF MMST? | .0 | .0 |
| T1287 | T3-10 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF SCT? | .0 | .0 |
| T1288 | T3-11 DO YOU PERFORM TASKS ON FLOOD GUNS? | .0 | .0 |
| T1289 | T3-12 DO YOU PERFORM TASKS ON WRITE GUNS? | .0 | .0 |
| T1290 | T3-13 DO YOU PERFORM TASKS ON READ GUNS? | .0 | .0 |
| T1291 | T3-14 DO YOU PERFORM TASKS ON ATTACK GUNS? | .0 | .0 |
| T1292 | T3-15 DO YOU PERFORM TASKS ON ERASE GUNS? | .0 | .0 |
| T1293 | T3-16 DO YOU PERFORM TASKS ON STORAGE GRIDS? | .0 | .0 |
| T1294 | T4-1 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS DEALING WITH TELEVISION SYSTEMS INCLUDING LOW LIGHT TELEVISION? IF NO, GO TO ITEM T4-12. IF YES, CONTINUE. | 3.6 | 2.8 |
| T1295 | T4-2 DO YOU INSPECT TELEVISION SYSTEMS? | .5 | .0 |
| T1296 | T4-3 DO YOU CLEAN TELEVISION SYSTEMS? | .5 | .6 |
| T1297 | T4-4 DO YOU ADJUST OR CALIBRATE TELEVISION SYSTEMS? | .5 | 1.1 |
| T1298 | T4-5 DO YOU OPERATE TELEVISION SYSTEMS? | 3.1 | 2.8 |
| T1299 | T4-6 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF TV SYSTEMS? | .5 | .6 |
| T1300 | T4-7 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF TV SYSTEMS? | .5 | .0 |
| T1301 | T4-8 DO YOU TROUBLESHOOT DOWN TO TV SYSTEM COMPONENT PARTS? | .0 | .0 |
| T1302 | T4-9 DO YOU REMOVE OR REPLACE TV SYSTEM MAJOR ASSEMBLIES? | .0 | .0 |
| T1303 | T4-10 DO YOU REMOVE OR REPLACE TV SYSTEM COMPONENT PARTS? | .0 | .0 |

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U COMPUTERS, MICROPROCESSORS, AND PROGRAMMING (U1), DB AND POWER RATIOS (U2)

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| U1304 | U1-1 | IN YOUR PRESENT JOB, DO YOU PERFORM MAINTENANCE ROUTINES OR PROGRAMMING TASKS? IF NO, GO TO ITEM U2-1; IF YES, CONTINUE. | 12.5 | 2.3 |
| U1305 | U1-2 | DO YOU USE OR REFER TO DECIMAL SYSTEMS? | 6.8 | 1.1 |
| U1306 | U1-3 | DO YOU USE OR REFER TO OCTAL SYSTEMS? | 5.2 | 1.1 |
| U1307 | U1-4 | DO YOU USE OR REFER TO PARITY DETECTORS/GENERATORS? | 3.6 | 1.7 |
| U1308 | U1-5 | DO YOU USE OR REFER TO HEXADECIMAL SYSTEMS? | 4.7 | .6 |
| U1309 | U1-6 | DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS? | 1.6 | .0 |
| U1310 | U1-7 | DO YOU USE OR REFER TO FOUR SYSTEMS? | 1.0 | .0 |
| U1311 | U1-8 | DO YOU USE OR REFER TO BINARY SYSTEMS? | 6.3 | 2.3 |
| U1312 | U1-9 | DO YOU USE OR REFER TO TIME-SHARING (MULTI-SEQUENCING)? | 6.8 | 1.1 |
| U1313 | U1-10 | DO YOU USE OR REFER TO DATA WORDS? | 6.8 | 2.3 |
| U1314 | U1-11 | DO YOU USE OR REFER TO ADDRESS WORDS? | 6.8 | 2.3 |
| U1315 | U1-12 | DO YOU USE OR REFER TO ADDRESS/SUBADDRESS? | 6.8 | 1.1 |
| U1316 | U1-13 | DO YOU USE OR REFER TO STEERING/INFORMATION? | 2.1 | .0 |
| U1317 | U1-14 | DO YOU USE OR REFER TO INSTRUCTION WORDS? | 5.2 | 2.3 |
| U1318 | U1-15 | DO YOU USE OR REFER TO DAP-16? | .5 | .6 |
| U1319 | U1-16 | DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 3.6 | .6 |
| U1320 | U1-17 | DO YOU USE OR REFER TO CONTROL WORDS? | 6.3 | 1.1 |
| U1321 | U1-18 | DO YOU USE OR REFER TO RESPONSE WORDS? | 5.2 | 1.1 |
| U1322 | U1-19 | DO YOU USE OR REFER TO WRAPAROUND WORDS? | 1.6 | .0 |
| U1323 | U1-20 | DO YOU USE OR REFER TO TEST OR DIAGNOSTIC PROGRAMS? | 3.6 | 1.1 |
| U1324 | U1-21 | DO YOU USE OR REFER TO RELIABILITY PROGRAMS? | 2.6 | .0 |
| U1325 | U1-22 | DO YOU USE OR REFER TO COMPILERS? | 3.1 | .0 |
| U1326 | U1-23 | DO YOU USE OR REFER TO ASSEMBLERS? | 3.6 | .0 |
| U1327 | U1-24 | DO YOU USE OR REFER TO MACHINE LANGUAGE? | 4.2 | 1.1 |
| U1328 | U1-25 | DO YOU USE OR REFER TO MNEMONICS? | 4.2 | 1.1 |
| U1329 | U1-26 | DO YOU USE OR REFER TO ROUTINES OR SUBROUTINES? | 6.3 | 1.1 |
| U1330 | U1-27 | DO YOU USE OR REFER TO FLOW CHARTS OR DIAGRAMS? | 6.8 | 1.1 |
| U1331 | U1-28 | DO YOU USE OR REFER TO 'ATLAS'? | 1.6 | .0 |
| U1332 | U1-29 | DO YOU USE OR REFER TO 'ELAN'? | .5 | .0 |
| U1333 | U1-30 | DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING SYSTEMS? | 2.6 | .6 |
| U1334 | U1-31 | DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING SYSTEMS? | 2.1 | .6 |
| U1335 | U1-32 | DO YOU WRITE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | .5 | .6 |
| U1336 | U1-33 | DO YOU USE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | 1.6 | .6 |
| U1337 | U1-34 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER CONTROL SECTIONS? | 3.1 | .6 |
| U1338 | U1-35 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER INPUT SECTIONS? | 5.7 | 1.1 |
| U1339 | U1-36 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER OUTPUT SECTIONS? | 4.7 | 1.1 |

| D TSK | TITLES | 205 (M) | 307 EO (M) |
|-------|---|------------|------------------|
| U1340 | U1-37 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER MONITOR SECTIONS? | 3.1 | 1.7 |
| U1341 | U1-38 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER TRANSMIT SECTIONS? | 3.1 | .6 |
| U1342 | U1-39 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER RECEIVE SECTIONS? | 2.1 | 1.1 |
| U1343 | U1-40 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER INPUT DEVICES? | 6.9 | 1.7 |
| U1344 | U1-41 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER STORAGE DEVICES? | 7.3 | 1.7 |
| U1345 | U1-42 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER OUTPUT DEVICES? | 7.8 | 1.7 |
| U1346 | U1-43 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER POWER DEVICES? | 4.2 | .6 |
| U1347 | U1-44 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER MONITOR DEVICES? | 6.3 | 2.3 |
| U1348 | U1-45 DO YOU USE FORTRAN PROGRAMMING LANGUAGE? | 5.2 | .6 |
| U1349 | U1-46 DO YOU USE COBOL PROGRAMMING LANGUAGE? | 1.6 | .0 |
| U1350 | U1-47 DO YOU USE RPG PROGRAMMING LANGUAGE? | 1.0 | .0 |
| U1351 | U1-48 DO YOU USE OR PERFORM TASKS ON MICROPROCESSOR BASED EQUIPMENT? | 2.6 | 1.1 |
| U1352 | U1-49 DO YOU USE INPUT PORT LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | .6 |
| U1353 | U1-50 DO YOU USE OUTPUT PORT LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | .6 |
| U1354 | U1-51 DO YOU USE RAM MEMORY CIRCUITS (STATIC OR DYNAMIC) IN CONJUNCTION WITH THE MICROPROCESSOR? | 2.1 | .6 |
| U1355 | U1-52 DO YOU USE ROM MEMORY CIRCUITS (INCLUDES PROM, EPROM, ETC.) IN CONJUNCTION WITH THE MICROPROCESSOR? | 2.6 | .6 |
| U1356 | U1-53 DO YOU USE TRI-STATE CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | .0 |
| U1357 | U1-54 DO YOU USE CLOCK GENERATOR CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | 1.6 | .6 |
| U1358 | U1-55 DO YOU USE STATUS LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | .6 |
| U1359 | U1-56 DO YOU USE BIDIRECTIONAL BUFFER CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | 1.0 | .0 |
| U1360 | U1-57 DO YOU USE ENCODER/DECODER CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | 2.1 | .6 |
| U1361 | U2-1 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION? | 29.7 | 88.1 |
| U1362 | U2-2 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS? | 8.3 | 40.7 |
| U1363 | U2-3 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS? | 8.3 | 37.9 |
| U1364 | U2-4 DO YOU USE VTVM (DB METERS) TO CHECK FOR NOISE OR SIGNAL LEVEL? | 5.2 | 85.3 |
| U1365 | U2-5 DO YOU USE VTVM (DB METERS) TO CHECK OR ADJUST AUDIO AMPLIFIERS? | 2.6 | 68.9 |

KESSLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
50 50
(M) (M)

D TSK TITLES

U1366 U2-6 DO YOU USE A HP3550 OR 344A TEST SET TO ALIGN AUDIO
EQUIPMENT?

.5 36.7

HEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

HEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PERIOD DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATCR 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/DOMO, AUTOVON 487-5811.

VECTOR TYPE CODES:

- (T) = 2 TIME SPENT BY ALL MEMBERS
- (M) = 3 MEMBERS PERFORMING
- (F) = TASK FACTOR
- (D) = DICHOTOMOUS SET
- (B) = 3 TIME SPENT BY MEMBERS PERFORMING
- (-) = PROGRAM GENERATED VECTOR

| NO | TYPE | VECTOR | MEAN | SD | DESCRIPTION | MEMBERS | FACTOR |
|----|------|--------|------|----|--------------------|---------|--------|
| 1 | M | 304 70 | 123 | | DAFSC 30470 AIRMEN | | 32 |
| 2 | M | 304 71 | 122 | | DAFSC 30471 AIRMEN | | 34 |
| 3 | M | 304 74 | 126 | | DAFSC 30474 AIRMEN | | 36 |
| 4 | M | 305 74 | 136 | | DAFSC 30574 AIRMEN | | 38 |
| 5 | M | 328 70 | 143 | | DAFSC 32870 AIRMEN | | 42 |
| 6 | M | 328 71 | 142 | | DAFSC 32871 AIRMEN | | 44 |
| 7 | M | 328 72 | 43 | | DAFSC 32872 AIRMEN | | 46 |
| 8 | M | 328 73 | 142 | | DAFSC 32873 AIRMEN | | 48 |
| 9 | M | 328 74 | 164 | | DAFSC 32874 AIRMEN | | 50 |
| 10 | M | 328 75 | 87 | | DAFSC 32875 AIRMEN | | 52 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| A 29 | A3-5 DO YOU MEASURE RESISTORS? | 67.5 | 68.0 | 66.7 | 56.6 | 76.9 | 73.9 | 39.5 | 66.2 | 66.5 | 77.0 | | | | | | | |
| A 30 | A3-6 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASK YOU PERFORM? | 29.3 | 32.0 | 34.9 | 13.2 | 28.0 | 26.8 | 11.6 | 25.4 | 25.0 | 18.4 | | | | | | | |
| A 31 | A3-7 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY CARBON? | 49.6 | 57.4 | 54.2 | 42.6 | 60.8 | 53.5 | 23.3 | 44.4 | 43.9 | 51.7 | | | | | | | |
| A 32 | A3-8 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED WIRE? | 51.7 | 60.7 | 54.0 | 44.1 | 63.6 | 60.6 | 16.3 | 53.5 | 44.5 | 59.8 | | | | | | | |
| A 33 | A3-9 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY SLIDE TAP? | 43.9 | 57.4 | 48.4 | 37.5 | 49.7 | 44.4 | 14.0 | 38.0 | 27.4 | 65.5 | | | | | | | |
| A 34 | A3-10 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY RHEOSTAT? | 61.0 | 65.6 | 58.7 | 50.0 | 72.0 | 68.3 | 27.9 | 62.7 | 52.4 | 74.7 | | | | | | | |
| A 35 | A3-11 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | 68.3 | 72.1 | 66.7 | 59.6 | 76.2 | 74.6 | 41.9 | 71.1 | 67.1 | 78.2 | | | | | | | |
| A 36 | A3-12 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED FILM? | 40.7 | 41.0 | 44.4 | 24.3 | 30.1 | 30.3 | 9.3 | 35.9 | 20.1 | 28.7 | | | | | | | |
| A 37 | A3-13 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE? | 69.9 | 73.0 | 70.6 | 60.3 | 77.6 | 76.8 | 27.9 | 67.6 | 64.0 | 72.4 | | | | | | | |
| A 38 | A3-14 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE? | 69.1 | 72.1 | 65.1 | 52.9 | 76.2 | 73.9 | 25.6 | 60.6 | 59.8 | 66.7 | | | | | | | |
| A 39 | A3-15 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE? | 14.6 | 16.4 | 18.3 | 17.6 | 24.5 | 18.3 | 9.3 | 12.0 | 11.0 | 26.4 | | | | | | | |
| A 40 | A3-16 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES? | 74.8 | 72.1 | 68.3 | 63.2 | 76.2 | 79.6 | 67.4 | 74.6 | 73.8 | 80.5 | | | | | | | |
| A 41 | A3-17 DO YOU USE OR REFER TO (L) RESISTANCE PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 60.2 | 69.7 | 57.1 | 39.0 | 60.1 | 53.5 | 23.3 | 52.1 | 46.3 | 51.7 | | | | | | | |
| A 42 | A3-18 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 57.7 | 63.9 | 54.0 | 36.0 | 53.1 | 50.0 | 25.6 | 50.0 | 39.0 | 48.3 | | | | | | | |
| A 43 | A3-19 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 56.9 | 64.8 | 55.6 | 42.6 | 53.8 | 54.2 | 20.9 | 50.7 | 46.3 | 52.9 | | | | | | | |

| O | TASK | TITLES | VALUES | | | | | | | | | | | | |
|------|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|
| | | | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | |
| A 44 | A3-20 | DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 55.3 | 56.6 | 50.0 | 30.1 | 45.5 | 40.8 | 18.6 | 45.1 | 27.4 | 42.5 | 328 | 328 | 328 |
| A 45 | A3-21 | DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 56.1 | 68.9 | 56.3 | 39.7 | 56.6 | 55.6 | 18.6 | 52.8 | 46.3 | 49.4 | 72 | 73 | 74 |
| A 46 | A3-22 | DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 53.7 | 62.3 | 52.4 | 37.5 | 51.7 | 50.0 | 16.3 | 52.1 | 40.2 | 46.0 | 71 | 72 | 75 |
| A 47 | A3-23 | DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 56.1 | 63.1 | 55.6 | 41.9 | 51.0 | 51.4 | 11.6 | 50.0 | 45.1 | 47.1 | (M) | (M) | (M) |
| A 48 | A3-24 | DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 48.8 | 59.0 | 47.6 | 33.1 | 44.8 | 45.1 | 11.6 | 43.0 | 32.9 | 41.4 | | | |
| A 49 | A3-25 | DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? | 51.2 | 54.1 | 49.2 | 29.4 | 43.4 | 38.0 | 14.0 | 42.3 | 28.0 | 37.9 | | | |
| A 50 | A3-26 | DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 56.1 | 66.4 | 55.6 | 37.5 | 56.6 | 53.5 | 14.0 | 51.4 | 45.1 | 49.4 | | | |
| A 51 | A3-27 | DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 52.8 | 62.3 | 51.6 | 33.8 | 49.7 | 47.9 | 16.3 | 49.3 | 39.0 | 46.0 | | | |
| A 52 | A3-28 | DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 52.8 | 63.1 | 53.2 | 37.5 | 48.3 | 47.9 | 9.3 | 47.9 | 43.3 | 48.3 | | | |
| A 53 | A3-29 | DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 45.5 | 59.0 | 45.2 | 27.9 | 42.0 | 40.8 | 9.3 | 41.5 | 28.7 | 44.8 | | | |
| A 54 | A3-30 | DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? | 48.8 | 54.1 | 46.8 | 26.5 | 42.0 | 35.9 | 11.6 | 40.1 | 26.8 | 39.1 | | | |
| A 55 | A3-31 | DO YOU CALCULATE TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 52.0 | 62.3 | 50.0 | 33.8 | 43.4 | 45.1 | 11.6 | 45.8 | 37.8 | 44.8 | | | |
| A 56 | A3-32 | DO YOU CALCULATE TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 48.0 | 56.6 | 45.2 | 30.1 | 38.5 | 41.5 | 11.6 | 43.0 | 32.3 | 42.5 | | | |
| A 57 | A3-33 | DO YOU CALCULATE INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? | 47.2 | 58.2 | 50.0 | 33.8 | 40.6 | 43.0 | 7.0 | 42.3 | 35.4 | 42.5 | | | |

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
| 70 | 71 | 74 | 74 | 70 | 71 | 72 | 73 | 74 | 75 | (M) | (M) | (M) | (M) |

| | | | | | | | | | |
|------|------|------|------|------|------|-----|------|------|------|
| 43.1 | 54.1 | 43.7 | 26.5 | 34.3 | 38.0 | 7.0 | 36.6 | 25.6 | 41.4 |
|------|------|------|------|------|------|-----|------|------|------|

| | | | | | | | | | |
|------|------|------|------|------|------|-----|------|------|------|
| 43.9 | 50.0 | 43.7 | 21.3 | 32.9 | 33.1 | 9.3 | 32.4 | 22.0 | 35.6 |
|------|------|------|------|------|------|-----|------|------|------|

A 58 A3-34 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

A 59 A3-35 DO YOU CALCULATE POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

B METERS/MULTIMETERS (B1), ALTERNATING CURRENT (AC) (B2), INDUCTORS AND INDUCTIVE REACTANCE (B3)

B 60 B1-1 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE RESISTANCE? 74.0 73.0 69.8 66.9 88.8 88.7 72.1 76.1 87.8 80.5

B 61 B1-2 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE VOLTAGE? 78.0 75.4 74.6 71.3 89.5 89.4 65.1 78.2 87.8 83.9

B 62 B1-3 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE CURRENT? 66.7 66.4 65.9 56.6 65.0 81.7 34.9 65.5 57.9 64.4

B 63 B1-4 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE POWER? 71.5 74.6 62.7 33.1 84.6 83.8 44.2 70.4 37.2 80.5

B 64 B1-5 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE FREQUENCY? 71.5 74.6 71.4 55.1 74.8 79.6 44.2 70.4 65.9 83.9

B 65 B1-6 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE TEMPERATURE? 20.3 32.0 14.3 31.6 10.5 10.6 27.9 43.0 11.6 48.3

B 66 B1-7 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE PRESSURE? 25.2 13.1 15.9 20.6 36.4 52.8 34.9 31.7 24.4 57.5

B 67 B1-8 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE LIGHT LEVELS? 4.9 4.1 4.0 5.9 3.5 5.6 .0 4.9 4.9 5.7

B 68 B2-1 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM EFFECTIVE VOLTAGE (RMS) IN YOUR PRESENT JOB? 78.9 74.6 77.8 50.0 80.4 76.8 44.2 67.6 68.9 88.5

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| C 100 | CI-4 DO YOU ADJUST CAPACITORS? | 60.2 | 68.0 | 61.9 | 24.3 | 62.9 | 64.1 | 16.3 | 37.3 | 30.5 | 67.8 | | | | |
| C 101 | CI-5 DO YOU TEST CAPACITORS? | 59.3 | 60.7 | 60.3 | 44.1 | 56.6 | 62.0 | 14.0 | 45.8 | 47.0 | 49.4 | | | | |
| C 102 | CI-6 DO YOU DISCHARGE CAPACITORS? | 58.5 | 63.1 | 59.5 | 50.7 | 55.2 | 65.5 | 25.6 | 44.4 | 39.0 | 52.9 | | | | |
| C 103 | CI-7 DO YOU MEASURE CAPACITORS? | 39.8 | 47.5 | 49.2 | 38.2 | 42.7 | 45.1 | 9.3 | 35.9 | 34.8 | 42.5 | | | | |
| C 104 | CI-8 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE? | 26.8 | 22.1 | 23.0 | 4.4 | 13.3 | 14.1 | 4.7 | 20.4 | 7.3 | 19.5 | | | | |
| C 105 | CI-9 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC? | 5.7 | 2.5 | 3.2 | 1.5 | 2.8 | 2.1 | .0 | 1.4 | 1.8 | 6.9 | | | | |
| C 106 | CI-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS? | 64.2 | 68.9 | 67.5 | 52.9 | 65.7 | 71.1 | 18.6 | 59.9 | 48.2 | 67.8 | | | | |
| C 107 | CI-11 DO YOU USE OR REFER TO CAPACITANCE? | 67.5 | 69.7 | 65.9 | 52.9 | 64.3 | 71.0 | 18.6 | 61.3 | 45.7 | 69.0 | | | | |
| C 108 | CI-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT? | 28.5 | 20.5 | 23.0 | 5.1 | 18.9 | 12.0 | 2.3 | 16.2 | 7.9 | 25.3 | | | | |
| C 109 | CI-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS? | 57.7 | 60.7 | 57.9 | 46.3 | 47.6 | 53.5 | 9.3 | 48.6 | 36.0 | 55.2 | | | | |
| C 110 | CI-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE? | 45.5 | 47.5 | 44.4 | 21.3 | 35.7 | 38.7 | 9.3 | 30.3 | 22.0 | 43.7 | | | | |
| C 111 | CI-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES? | 30.1 | 40.2 | 38.1 | 18.4 | 37.1 | 35.9 | 7.0 | 26.8 | 17.1 | 33.3 | | | | |
| C 112 | CI-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS? | 69.1 | 68.9 | 70.6 | 59.6 | 65.0 | 75.4 | 25.6 | 64.1 | 55.5 | 77.0 | | | | |
| C 113 | CI-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS? | 69.1 | 69.7 | 69.0 | 52.2 | 65.7 | 75.4 | 20.9 | 63.4 | 57.3 | 77.0 | | | | |
| C 114 | CI-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC? | 65.9 | 69.7 | 68.3 | 50.7 | 65.7 | 76.8 | 27.9 | 64.1 | 57.3 | 77.0 | | | | |
| C 115 | CI-19 DO YOU CALCULATE CAPACITANCE IN ELECTRICAL/ELECTRONIC CIRCUITS? | 21.1 | 18.9 | 23.0 | 8.1 | 9.1 | 14.1 | 2.3 | 11.3 | 9.1 | 18.4 | | | | |
| C 116 | CI-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT? | 12.7 | 13.9 | 18.3 | 6.6 | 14.0 | 12.0 | 2.3 | 5.6 | 8.5 | 12.6 | | | | |
| C 117 | CI-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS? | 17.9 | 16.4 | 18.3 | 3.7 | 14.7 | 7.7 | 4.7 | 4.9 | 4.3 | 14.9 | | | | |
| C 118 | CI-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO | 39.8 | 48.4 | 43.7 | 22.8 | 38.5 | 39.4 | 9.3 | 33.8 | 28.7 | 42.5 | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSM | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| C 119 | C1-23 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS? | 35.8 | 33.6 | 36.5 | 15.4 | 34.3 | 31.7 | 4.7 | 24.6 | 19.5 | 37.9 | | | | | | | |
| C 120 | C1-24 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY? | 41.5 | 36.1 | 38.1 | 14.7 | 28.7 | 23.2 | 7.0 | 19.0 | 14.0 | 36.8 | | | | | | | |
| C 121 | C1-25 DO YOU CALCULATE CAPACITIVE REACTANCE? | 26.8 | 26.2 | 23.0 | 7.4 | 9.8 | 9.2 | 7.0 | 13.4 | 6.7 | 20.7 | | | | | | | |
| C 122 | C1-26 DO YOU WORK WITH VARIABLE CAPACITORS? | 65.0 | 70.5 | 65.9 | 30.1 | 68.5 | 69.7 | 16.3 | 47.9 | 34.1 | 77.0 | | | | | | | |
| C 123 | C1-27 DO YOU WORK WITH TRIMMER CAPACITORS? | 58.5 | 68.9 | 63.5 | 29.4 | 66.4 | 62.0 | 9.3 | 43.7 | 23.2 | 72.4 | | | | | | | |
| C 124 | C1-28 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS? | 66.7 | 72.1 | 66.7 | 58.1 | 71.3 | 76.1 | 25.6 | 61.3 | 53.7 | 79.3 | | | | | | | |
| C 125 | C1-29 DO YOU WORK WITH OTHER FIXED CAPACITORS? | 65.9 | 68.9 | 65.1 | 48.5 | 67.1 | 74.6 | 20.9 | 59.2 | 56.1 | 73.6 | | | | | | | |
| C 126 | C2-1 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C3-1; IF YES, CONTINUE. | 61.0 | 66.4 | 60.3 | 44.9 | 68.5 | 75.4 | 41.9 | 54.9 | 51.2 | 74.7 | | | | | | | |
| C 127 | C2-2 DO YOU INSPECT TRANSFORMERS? | 54.5 | 66.4 | 62.7 | 45.6 | 61.8 | 72.5 | 37.2 | 50.0 | 54.3 | 74.7 | | | | | | | |
| C 128 | C2-3 DO YOU CLEAN TRANSFORMERS? | 41.5 | 53.3 | 50.0 | 36.0 | 47.6 | 45.8 | 14.0 | 34.5 | 34.1 | 40.2 | | | | | | | |
| C 129 | C2-4 DO YOU ADJUST TRANSFORMERS? | 34.2 | 50.8 | 45.2 | 17.6 | 49.0 | 49.3 | 9.3 | 23.2 | 20.1 | 55.2 | | | | | | | |
| C 130 | C2-5 DO YOU TROUBLESHOOT TRANSFORMERS? | 55.3 | 63.1 | 56.3 | 31.6 | 64.3 | 62.7 | 30.2 | 39.4 | 46.3 | 66.7 | | | | | | | |
| C 131 | C2-6 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTANCE AND MUTUAL INDUCTANCE (M)? | 7.3 | 7.4 | 9.5 | 2.2 | 2.8 | 7.0 | .0 | 3.5 | 3.0 | 6.0 | | | | | | | |
| C 132 | C2-7 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M? | 7.3 | 9.0 | 9.5 | 1.5 | 5.6 | 7.0 | .0 | 5.6 | 3.7 | 10.3 | | | | | | | |
| C 133 | C2-8 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS? | 15.4 | 15.6 | 15.9 | 3.7 | 13.3 | 14.8 | 2.3 | 10.6 | 9.8 | 13.8 | | | | | | | |
| C 134 | C2-9 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS? | 13.0 | 18.0 | 22.2 | 5.9 | 13.3 | 11.3 | 4.7 | 7.7 | 6.7 | 11.5 | | | | | | | |
| C 135 | C2-10 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS? | 18.7 | 15.6 | 21.4 | 2.2 | 10.5 | 14.1 | 4.7 | 11.3 | 7.9 | 17.2 | | | | | | | |
| C 136 | C2-11 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS? | 10.6 | 5.7 | 10.3 | 3.7 | 3.5 | 4.9 | .0 | 4.9 | 2.4 | 9.2 | | | | | | | |
| C 137 | C2-12 DO YOU WORK WITH AUTOTRANSFORMERS? | 35.0 | 51.6 | 32.5 | 14.7 | 40.6 | 33.8 | 4.7 | 22.5 | 17.1 | 54.0 | | | | | | | |
| C 138 | C2-13 DO YOU WORK WITH POWER TRANSFORMERS? | 57.7 | 67.2 | 57.1 | 47.1 | 68.5 | 71.8 | 41.9 | 56.3 | 54.3 | 73.6 | | | | | | | |
| C 139 | C2-14 DO YOU WORK WITH AUDIO TRANSFORMERS? | 56.9 | 63.1 | 64.3 | 17.6 | 69.9 | 66.9 | 4.7 | 37.3 | 25.0 | 74.7 | | | | | | | |
| C 140 | C2-15 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS? | 52.8 | 62.3 | 61.1 | 6.6 | 66.4 | 67.6 | 18.6 | 43.0 | 23.8 | 72.4 | | | | | | | |

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 320 (M) | 320 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| C 141 | C2-16 DO YOU WORK WITH SATURABLE CORE TRANSFORMERS? | 27.6 | 39.3 | 31.0 | 14.0 | 31.5 | 43.0 | 7.0 | 22.5 | 20.7 | 25.3 | 32.0 | 32.0 |
| C 142 | C2-17 DO YOU WORK WITH SENSING TRANSFORMERS? | 20.3 | 37.7 | 15.9 | 10.3 | 17.5 | 26.1 | 2.3 | 13.4 | 14.0 | 34.5 | 74 | 75 |
| C 143 | C2-18 DO YOU WORK WITH CONTROL TRANSFORMERS? | 26.8 | 45.9 | 21.4 | 16.9 | 19.6 | 45.1 | 11.6 | 21.1 | 43.3 | 40.2 | 73 | 74 |
| C 144 | C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE? | 54.5 | 63.9 | 61.1 | 37.5 | 65.7 | 66.9 | 11.6 | 45.8 | 50.6 | 67.8 | (M) | (M) |
| C 145 | C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE? | 52.0 | 61.5 | 55.6 | 37.5 | 60.8 | 60.6 | 14.0 | 43.7 | 48.8 | 60.9 | | |
| C 146 | C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES? | 48.0 | 57.4 | 51.6 | 33.1 | 62.9 | 63.4 | 14.0 | 40.8 | 43.3 | 56.3 | | |
| C 147 | C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | 21.1 | 28.7 | 27.8 | 6.6 | 31.5 | 21.8 | 4.7 | 16.2 | 17.1 | 21.8 | | |
| C 148 | C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | 33.3 | 40.2 | 42.9 | 15.4 | 38.5 | 38.0 | 11.6 | 23.9 | 22.6 | 32.2 | | |
| C 149 | C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS? | 60.2 | 73.0 | 66.7 | 47.8 | 69.2 | 73.9 | 25.6 | 56.3 | 55.5 | 78.2 | | |
| C 150 | C2-25 DO YOU REFER TO MULTIPLE SECONDARY WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 52.8 | 71.3 | 60.3 | 39.7 | 61.5 | 69.7 | 18.6 | 53.5 | 47.6 | 71.3 | | |
| C 151 | C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 57.7 | 69.7 | 65.1 | 40.4 | 65.7 | 72.5 | 20.9 | 54.2 | 50.0 | 72.4 | | |
| C 152 | C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 54.5 | 72.1 | 65.9 | 42.6 | 65.7 | 72.5 | 20.9 | 55.6 | 50.0 | 75.9 | | |
| C 153 | C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 37.4 | 43.4 | 50.0 | 20.6 | 37.8 | 43.0 | 11.6 | 32.4 | 22.0 | 55.2 | | |
| C 154 | C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 39.0 | 49.2 | 51.6 | 26.5 | 42.7 | 50.0 | 9.3 | 35.2 | 28.8 | 54.0 | | |
| C 155 | C2-30 DO YOU REFER TO VARIABLE TRANSFORMER SCHEMATIC SYMBOLS? | 48.0 | 62.3 | 56.3 | 29.4 | 55.2 | 57.0 | 14.0 | 47.2 | 33.5 | 65.5 | | |
| C 156 | C2-31 DO YOU REFER TO COMBINATIONS OF SCHEMATIC SYMBOLS FOR TRANSFORMERS? | 47.2 | 60.7 | 61.9 | 27.9 | 58.7 | 64.8 | 14.0 | 47.2 | 37.2 | 63.2 | | |

| O TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| C 157 | C2-32 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS? | 33.3 | 49.2 | 41.3 | 19.9 | 30.1 | 43.7 | 14.0 | 32.4 | 24.4 | 36.8 | | | | |
| C 158 | C2-33 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH? | 22.0 | 24.6 | 27.8 | 12.5 | 20.3 | 23.2 | 4.7 | 12.0 | 14.0 | 19.5 | | | | |
| C 159 | C2-34 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO? | 22.8 | 28.7 | 28.6 | 11.8 | 24.5 | 19.0 | 9.3 | 15.5 | 10.4 | 20.7 | | | | |
| C 160 | C2-35 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS? | 39.8 | 50.8 | 40.5 | 19.9 | 36.4 | 45.1 | 18.6 | 26.8 | 20.1 | 34.5 | | | | |
| C 161 | C2-36 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | 18.7 | 13.9 | 19.0 | 7.4 | 11.2 | 11.3 | 2.3 | 8.5 | 7.9 | 17.2 | | | | |
| C 162 | C2-37 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | 14.6 | 11.5 | 13.5 | 5.1 | 11.2 | 7.0 | 2.3 | 7.0 | 5.5 | 16.1 | | | | |
| C 163 | C2-38 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS? | 30.9 | 64.8 | 27.0 | 20.6 | 46.2 | 30.3 | 23.3 | 45.8 | 28.0 | 58.6 | | | | |
| C 164 | C2-39 DO YOU INSPECT THREE PHASE TRANSFORMERS? | 28.5 | 59.0 | 27.8 | 17.6 | 46.2 | 26.8 | 30.2 | 37.3 | 25.6 | 54.0 | | | | |
| C 165 | C2-40 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS? | 17.9 | 42.6 | 14.3 | 11.8 | 23.8 | 13.4 | 9.3 | 21.1 | 10.4 | 26.4 | | | | |
| C 166 | C2-41 DO YOU ADJUST THREE PHASE TRANSFORMERS? | 17.1 | 21.3 | 12.7 | 5.1 | 15.4 | 12.7 | 2.3 | 15.5 | 6.1 | 20.7 | | | | |
| C 167 | C2-42 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS? | 26.0 | 52.5 | 19.8 | 12.5 | 43.4 | 19.7 | 30.2 | 30.3 | 20.1 | 46.0 | | | | |
| C 168 | C3-1 DO YOU USE OR REFER TO PERMANENT MAGNETS? | 41.9 | 18.0 | 34.1 | 25.0 | 23.1 | 53.5 | 4.7 | 31.7 | 26.2 | 26.4 | | | | |
| C 169 | C3-2 DO YOU USE OR REFER TO TEMPORARY MAGNETS? | 26.8 | 14.8 | 28.6 | 23.5 | 17.5 | 32.4 | 9.3 | 21.1 | 14.0 | 23.0 | | | | |
| C 170 | C3-3 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS? | 8.1 | 7.4 | 19.0 | 16.2 | 7.0 | 7.7 | 7.0 | 12.0 | 7.3 | 9.2 | | | | |
| C 171 | C3-4 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS? | 9.8 | 7.4 | 15.9 | 11.8 | 7.0 | 7.0 | 7.0 | 11.3 | 4.9 | 10.3 | | | | |
| C 172 | C3-5 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS? | 13.0 | 8.2 | 17.5 | 18.4 | 10.5 | 11.3 | 7.0 | 12.7 | 8.5 | 8.0 | | | | |
| C 173 | C3-6 DO YOU USE OR REFER TO RESIDUAL MAGNETISM? | 16.3 | 12.3 | 29.4 | 25.0 | 11.2 | 16.2 | 4.7 | 18.3 | 11.0 | 10.3 | | | | |
| C 174 | C3-7 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX? | 27.6 | 16.4 | 31.0 | 26.5 | 15.4 | 24.6 | 14.0 | 23.9 | 23.2 | 10.3 | | | | |

| D TSK | TITLES | 304 (M) | 304 (P) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) | 304 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| C 175 | C3-8 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM? | 4.9 | 3.3 | 10.3 | 4.4 | 2.1 | 4.9 | .0 | 8.9 | 1.8 | 1.1 | 1.8 | 1.1 |
| C 176 | C3-9 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM? | 5.7 | 4.1 | 9.5 | 4.4 | .7 | 4.9 | .0 | 4.9 | 3.7 | 2.3 | 3.7 | 2.3 |
| C 177 | C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION? | 22.8 | 14.8 | 25.4 | 25.0 | 16.8 | 22.5 | 7.0 | 19.0 | 19.5 | 10.3 | 19.5 | 10.3 |
| C 178 | C3-11 DO YOU USE OR REFER TO FLUX DENSITY? | 12.2 | 8.2 | 20.6 | 19.1 | 8.4 | 9.2 | 2.3 | 16.9 | 10.4 | 5.7 | 16.9 | 10.4 |
| C 179 | C3-12 DO YOU USE OR REFER TO SATURABLE REACTANCE? | 13.0 | 28.7 | 23.8 | 14.7 | 12.6 | 18.3 | 7.0 | 17.6 | 17.7 | 8.0 | 17.6 | 17.7 |

D RCL CIRCUITS (D1), TIME CONSTANTS (D2), FILTERS (D3)

| | | | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|------|
| D 180 | D1-1 DO YOU WORK WITH RC, LR, OR RCL CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM D2-1; IF YES, CONTINUE. | 54.5 | 57.4 | 47.6 | 26.5 | 54.5 | 53.5 | 18.6 | 43.0 | 29.3 | 52.9 | 29.3 | 52.9 |
| D 181 | D1-2 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS? | 13.8 | 35.2 | 18.3 | 5.1 | 13.3 | 11.3 | 9.3 | 8.5 | 15.2 | 16.1 | 15.2 | 16.1 |
| D 182 | D1-3 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS? | 12.2 | 21.3 | 12.7 | 2.9 | 7.0 | 9.2 | 2.3 | 7.7 | 11.6 | 10.3 | 11.6 | 10.3 |
| D 183 | D1-4 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS? | 13.8 | 25.4 | 19.8 | 3.7 | 8.4 | 18.3 | 9.3 | 9.2 | 23.8 | 16.1 | 23.8 | 16.1 |
| D 184 | D1-5 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS? | 13.8 | 25.4 | 17.5 | 2.2 | 7.0 | 18.3 | 9.3 | 9.2 | 23.8 | 13.8 | 23.8 | 13.8 |
| D 185 | D1-6 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS? | 13.8 | 23.0 | 15.1 | 2.2 | 7.0 | 14.8 | 4.7 | 8.5 | 19.5 | 16.1 | 19.5 | 16.1 |
| D 186 | D1-7 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS? | 43.1 | 53.3 | 41.3 | 14.7 | 54.5 | 43.0 | 11.6 | 29.2 | 19.5 | 47.1 | 29.2 | 47.1 |
| D 187 | D1-8 DO YOU USE OR REFER TO TRUE POWER (P SUB T) WHEN WORKING WITH RCL CIRCUITS? | 26.0 | 32.8 | 31.0 | 5.9 | 27.3 | 31.0 | 7.0 | 17.6 | 12.8 | 31.0 | 17.6 | 12.8 |
| D 188 | D1-9 DO YOU USE OR REFER TO MAXIMUM POWER (P SUB M) WHEN WORKING WITH RCL CIRCUITS? | 33.3 | 38.5 | 30.2 | 5.9 | 33.6 | 35.9 | 9.3 | 21.1 | 15.9 | 37.9 | 21.1 | 15.9 |
| D 189 | D1-10 DO YOU USE OR REFER TO AVERAGE POWER (P SUB AVE) WHEN WORKING WITH RCL CIRCUITS? | 36.6 | 46.7 | 33.3 | 5.9 | 35.0 | 42.3 | 18.6 | 23.2 | 18.3 | 33.3 | 23.2 | 18.3 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 304 | 304 (M) | 304 | 305 | 328 | 328 (M) | 328 | 328 (M) | 328 | 328 (M) | 328 | 328 (M) | 328 | 328 (M) | 328 | 328 (M) | 328 | 328 (M) |
|-------|--|------|------------|------|------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|
| D 190 | D1-11 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) WHEN WORKING WITH RCL CIRCUITS? | 23.6 | 20.5 | 23.0 | 5.9 | 20.3 | 20.4 | 4.7 | 14.1 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 |
| D 191 | D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS? | 22.8 | 27.9 | 27.8 | 5.9 | 17.5 | 21.1 | 2.3 | 17.6 | 9.8 | 26.4 | 9.8 | 26.4 | 9.8 | 26.4 | 9.8 | 26.4 | 9.8 | 26.4 |
| D 192 | D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 49.6 | 54.9 | 50.8 | 14.7 | 51.7 | 45.1 | 9.3 | 38.0 | 20.7 | 50.6 | 20.7 | 50.6 | 20.7 | 50.6 | 20.7 | 50.6 | 20.7 | 50.6 |
| D 193 | D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS? | 53.7 | 59.8 | 56.3 | 5.9 | 58.0 | 56.3 | 18.6 | 42.3 | 23.2 | 55.2 | 23.2 | 55.2 | 23.2 | 55.2 | 23.2 | 55.2 | 23.2 | 55.2 |
| D 194 | D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS? | 42.8 | 55.7 | 54.8 | 6.6 | 58.0 | 52.8 | 11.6 | 38.7 | 17.7 | 52.9 | 17.7 | 52.9 | 17.7 | 52.9 | 17.7 | 52.9 | 17.7 | 52.9 |
| D 195 | D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS? | 51.2 | 57.4 | 54.0 | 11.8 | 53.8 | 49.3 | 9.3 | 38.7 | 23.2 | 50.6 | 23.2 | 50.6 | 23.2 | 50.6 | 23.2 | 50.6 | 23.2 | 50.6 |
| D 196 | D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS? | 44.7 | 50.8 | 35.7 | 3.7 | 24.5 | 50.7 | 16.3 | 35.9 | 12.2 | 40.2 | 12.2 | 40.2 | 12.2 | 40.2 | 12.2 | 40.2 | 12.2 | 40.2 |
| D 197 | D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS? | 45.5 | 50.8 | 41.3 | 5.9 | 40.6 | 45.8 | 16.3 | 40.1 | 20.7 | 46.0 | 20.7 | 46.0 | 20.7 | 46.0 | 20.7 | 46.0 | 20.7 | 46.0 |
| D 198 | D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS? | 35.8 | 51.6 | 38.1 | 5.9 | 27.3 | 31.7 | 4.7 | 21.1 | 11.6 | 31.0 | 11.6 | 31.0 | 11.6 | 31.0 | 11.6 | 31.0 | 11.6 | 31.0 |
| D 199 | D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 42.0 | 59.8 | 53.2 | 15.4 | 51.7 | 50.0 | 7.0 | 31.0 | 18.9 | 54.0 | 18.9 | 54.0 | 18.9 | 54.0 | 18.9 | 54.0 | 18.9 | 54.0 |
| D 200 | D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS SUCH AS: SINE OF AND ANGLE = OPPOSITE SIDE / HYPOTENUSE? | 10.6 | 25.4 | 8.7 | 1.5 | 4.2 | 8.5 | 4.7 | 4.9 | 18.3 | 8.0 | 18.3 | 8.0 | 18.3 | 8.0 | 18.3 | 8.0 | 18.3 | 8.0 |
| D 201 | D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS? | 10.6 | 23.0 | 12.7 | 3.7 | 7.7 | 12.0 | 2.3 | 4.9 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 |
| D 202 | D1-23 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS? | 26.8 | 30.3 | 23.8 | 7.4 | 18.9 | 23.9 | 4.7 | 14.1 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 |
| D 203 | D1-24 DO YOU USE OR REFER TO PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS? | 15.4 | 23.0 | 16.7 | 4.4 | 11.9 | 15.5 | 4.7 | 12.0 | 7.3 | 18.4 | 7.3 | 18.4 | 7.3 | 18.4 | 7.3 | 18.4 | 7.3 | 18.4 |
| D 204 | D1-25 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS? | 28.5 | 32.8 | 31.0 | 5.1 | 23.8 | 23.9 | 4.7 | 16.2 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 | 9.1 | 23.0 |

| O TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| D 205 | DI-26 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS? | 13.0 | 18.0 | 17.5 | 3.7 | 12.6 | 9.9 | 4.7 | 4.9 | 3.7 | 12.6 | 3.7 | 12.6 | 3.7 | 12.6 | 3.7 | 12.6 | 3.7 | 12.6 |
| D 206 | DI-27 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) FOR SERIES RCL CIRCUITS? | 17.1 | 15.6 | 17.5 | 2.9 | 11.2 | 19.0 | 4.7 | 11.3 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 |
| D 207 | DI-28 DO YOU USE OR REFER TO TRUE POWER (P SUB T) FOR SERIES RCL CIRCUITS? | 17.9 | 25.4 | 24.6 | 2.9 | 16.1 | 21.8 | 4.7 | 12.7 | 8.5 | 24.1 | 8.5 | 24.1 | 8.5 | 24.1 | 8.5 | 24.1 | 8.5 | 24.1 |
| D 208 | DI-29 DO YOU USE OR REFER TO POWER FACTORS (PF) FOR SERIES RCL CIRCUITS? | 13.8 | 21.3 | 23.0 | 2.9 | 9.1 | 17.6 | 2.3 | 13.4 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 | 6.7 | 17.2 |
| D 209 | DI-30 DO YOU USE OR REFER TO TOTAL CURRENT FOR PARALLEL RCL CIRCUITS? | 25.2 | 31.1 | 27.8 | 6.6 | 21.7 | 27.5 | 4.7 | 15.5 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 | 9.1 | 21.8 |
| D 210 | DI-31 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS? | 11.4 | 15.6 | 15.9 | 3.7 | 10.5 | 9.9 | 2.3 | 7.0 | 4.3 | 12.6 | 4.3 | 12.6 | 4.3 | 12.6 | 4.3 | 12.6 | 4.3 | 12.6 |
| D 211 | DI-32 DO YOU USE THE ASSUMED VOLTAGE METHOD FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 8.1 | 15.6 | 18.3 | 2.9 | 6.3 | 11.3 | 4.7 | 9.2 | 6.7 | 11.5 | 6.7 | 11.5 | 6.7 | 11.5 | 6.7 | 11.5 | 6.7 | 11.5 |
| D 212 | DI-33 DO YOU USE OHM'S LAW FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | 30.9 | 36.9 | 35.7 | 8.8 | 26.6 | 28.2 | 4.7 | 19.1 | 12.8 | 26.4 | 12.8 | 26.4 | 12.8 | 26.4 | 12.8 | 26.4 | 12.8 | 26.4 |
| D 213 | DI-34 DO YOU CHECK CAPACITORS USING OHMMETERS? | 49.6 | 56.6 | 50.0 | 25.0 | 53.1 | 57.0 | 4.7 | 42.3 | 33.5 | 51.7 | 33.5 | 51.7 | 33.5 | 51.7 | 33.5 | 51.7 | 33.5 | 51.7 |
| D 214 | DI-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION? | 35.8 | 35.2 | 35.7 | 19.9 | 49.7 | 49.3 | 2.3 | 27.5 | 26.8 | 40.2 | 26.8 | 40.2 | 26.8 | 40.2 | 26.8 | 40.2 | 26.8 | 40.2 |
| D 215 | DI-36 DO YOU CHECK INDUCTORS USING OHMMETERS? | 44.7 | 50.0 | 50.8 | 22.1 | 54.5 | 53.5 | 4.7 | 39.4 | 31.7 | 48.3 | 31.7 | 48.3 | 31.7 | 48.3 | 31.7 | 48.3 | 31.7 | 48.3 |
| D 216 | DI-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION? | 31.7 | 30.3 | 30.2 | 16.9 | 46.9 | 49.3 | 2.3 | 26.1 | 25.0 | 36.8 | 25.0 | 36.8 | 25.0 | 36.8 | 25.0 | 36.8 | 25.0 | 36.8 |
| D 217 | DI-38 DO YOU CHECK RESISTORS USING OHMMETERS? | 52.8 | 59.8 | 53.2 | 27.9 | 60.1 | 58.5 | 11.6 | 44.4 | 36.0 | 54.0 | 36.0 | 54.0 | 36.0 | 54.0 | 36.0 | 54.0 | 36.0 | 54.0 |
| D 218 | DI-39 DO YOU CHECK RESISTORS USING SUBSTITUTION? | 29.3 | 27.0 | 24.6 | 14.7 | 47.6 | 46.5 | 2.3 | 26.8 | 24.4 | 35.6 | 24.4 | 35.6 | 24.4 | 35.6 | 24.4 | 35.6 | 24.4 | 35.6 |
| D 219 | DI-40 DO YOU USE OR REFER TO THE RULE THAT PHASE ANGLE (THETA) = 0, POWER FACTOR (PF) = 1, AND APPARENT POWER (P SUB A) = TRUE POWER (P SUB T) FOR RESONANT CIRCUITS? | 7.3 | 18.0 | 9.5 | 1.5 | 4.2 | 7.0 | 2.3 | 5.6 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 | 4.9 | 11.5 |
| D 220 | DI-41 DO YOU USE OR REFER TO RESONANT FREQUENCIES FOR RCL CIRCUITS? | 46.3 | 51.6 | 46.8 | 9.6 | 42.7 | 42.3 | 7.0 | 31.7 | 19.5 | 37.9 | 19.5 | 37.9 | 19.5 | 37.9 | 19.5 | 37.9 | 19.5 | 37.9 |
| D 221 | DI-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS? | 34.1 | 43.4 | 43.7 | 7.4 | 34.3 | 31.7 | 7.0 | 15.5 | 12.8 | 28.7 | 15.5 | 28.7 | 15.5 | 28.7 | 15.5 | 28.7 | 15.5 | 28.7 |

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| D TSM | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| D 222 | 01-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS? | 70 (M) | 71 (M) | 74 (M) | 74 (M) | 70 (M) | 71 (M) | 72 (M) | 73 (M) | 74 (M) | 75 (M) | 76 (M) | 77 (M) | 78 (M) |
| D 223 | 01-44 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 OF THE PEAK CURRENT VALUE? | 32.5 | 37.7 | 39.7 | 3.7 | 30.8 | 26.8 | 4.7 | 11.3 | 9.1 | 23.0 | | | |
| D 224 | 01-45 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO THE QUALITY OF THE COIL (Q)? | 35.0 | 45.1 | 33.3 | 5.9 | 25.2 | 51.4 | 11.6 | 30.3 | 14.6 | 33.3 | | | |
| D 225 | 01-46 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS? | 22.8 | 32.0 | 31.0 | 4.4 | 18.2 | 21.1 | 4.7 | 11.3 | 6.1 | 19.5 | | | |
| D 226 | 02-1 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS? IF NO, GO TO ITEM D3-1; IF YES, CONTINUE. | 20.3 | 32.8 | 24.6 | 6.6 | 18.2 | 20.4 | 7.0 | 9.2 | 7.3 | 23.0 | | | |
| D 227 | 02-2 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)? | 22.0 | 43.4 | 33.3 | 16.2 | 12.6 | 33.8 | 9.3 | 19.0 | 11.0 | 27.6 | | | |
| D 228 | 02-3 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS? | 14.6 | 27.0 | 21.4 | 8.1 | 10.5 | 20.4 | 7.0 | 12.7 | 9.8 | 19.5 | | | |
| D 229 | 02-4 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS? | 9.8 | 17.2 | 10.3 | 5.1 | 4.9 | 9.9 | 4.7 | 7.0 | 2.4 | 8.0 | | | |
| D 230 | 02-5 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS? | 10.6 | 20.5 | 11.1 | 8.1 | 4.9 | 11.3 | 2.3 | 4.9 | 3.7 | 11.5 | | | |
| D 231 | 02-6 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES? | 12.2 | 19.7 | 14.3 | 5.9 | 4.2 | 12.0 | 2.3 | 5.6 | 5.5 | 12.6 | | | |
| D 232 | 02-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS? | 10.6 | 22.1 | 14.3 | 5.9 | 5.6 | 9.9 | 2.3 | 5.6 | 3.7 | 12.6 | | | |
| | | 13.0 | 22.1 | 18.3 | 5.9 | 7.0 | 17.6 | 2.3 | 9.2 | 5.5 | 14.9 | | | |

| O TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| E 250 | E1-2 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE CGMPONENTS ASSOCIATED WITH RC COUPLING? | 51.2 | 63.1 | 55.6 | 27.9 | 54.5 | 59.9 | 16.3 | 47.2 | 29.9 | 54.0 | | | | | | | |
| E 251 | E1-3 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING (MATCHING)? | 53.7 | 62.3 | 57.9 | 22.1 | 58.7 | 56.3 | 20.9 | 45.1 | 27.4 | 56.3 | | | | | | | |
| E 252 | E1-4 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH OPTICAL COUPLING? | 8.1 | 9.0 | 8.7 | 9.6 | 2.8 | 7.7 | 23.3 | 4.2 | 2.4 | 12.6 | | | | | | | |
| E 253 | E1-5 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING? | 52.8 | 63.1 | 57.9 | 24.3 | 55.9 | 60.6 | 20.9 | 40.8 | 28.0 | 58.6 | | | | | | | |
| E 254 | E1-6 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING? | 44.7 | 58.2 | 53.2 | 25.7 | 52.4 | 54.9 | 9.3 | 38.7 | 28.7 | 51.7 | | | | | | | |
| E 255 | E1-7 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING? | 43.9 | 59.0 | 54.8 | 19.1 | 55.2 | 50.7 | 18.6 | 35.2 | 25.6 | 52.9 | | | | | | | |
| E 256 | E1-8 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING? | 45.5 | 58.2 | 53.2 | 20.6 | 52.4 | 55.6 | 18.6 | 35.2 | 28.0 | 55.2 | | | | | | | |
| E 257 | E1-9 DO YOU WORK WITH DIRECT COUPLED CIRCUITS? | 51.2 | 57.4 | 56.3 | 26.5 | 52.4 | 58.5 | 23.3 | 45.1 | 30.5 | 57.5 | | | | | | | |
| E 258 | E1-10 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS? | 52.0 | 59.0 | 57.1 | 26.5 | 54.5 | 58.5 | 16.3 | 40.8 | 28.7 | 54.0 | | | | | | | |
| E 259 | E1-11 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS? | 48.0 | 55.7 | 55.6 | 18.4 | 54.5 | 57.0 | 11.6 | 38.7 | 24.4 | 54.0 | | | | | | | |
| E 260 | E1-12 DO YOU WORK WITH OPTICAL COUPLING? | 6.5 | 6.6 | 9.5 | 8.1 | 2.1 | 5.6 | 23.3 | 2.8 | 1.8 | 12.6 | | | | | | | |
| E 261 | E1-13 DO YOU WORK WITH OPTICAL COUPLING CIRCUITS? | 8.1 | 6.6 | 9.5 | 8.1 | 2.1 | 4.9 | 23.3 | 2.8 | 1.8 | 12.6 | | | | | | | |
| E 262 | E1-14 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS? | 51.2 | 62.3 | 56.3 | 23.5 | 53.8 | 61.3 | 25.6 | 39.4 | 30.5 | 57.5 | | | | | | | |
| E 263 | E2-1 IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONIC CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? IF NO, GO TO ITEM E3-1; IF YES, CONTINUE. | 61.0 | 60.7 | 61.9 | 57.4 | 81.8 | 74.6 | 23.3 | 73.9 | 74.4 | 71.3 | | | | | | | |
| E 264 | E2-2 DO YOU SOLDER CONNECTIONS? | 60.2 | 61.5 | 62.7 | 53.7 | 81.1 | 75.4 | 20.9 | 70.4 | 73.8 | 73.6 | | | | | | | |
| E 265 | E2-3 DO YOU DESOLDER CONNECTIONS? | 60.2 | 61.5 | 62.7 | 53.7 | 79.7 | 74.6 | 20.9 | 70.4 | 73.8 | 73.6 | | | | | | | |

| D | TSM | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| E 266 | E2-4 | DO YOU PERFORM HIGH RELIABILITY SOLDERING? | 43.9 | 51.6 | 53.2 | 44.1 | 46.9 | 47.2 | 47.2 | 14.0 | 55.6 | 53.7 | 56.3 | 328 | 328 |
| E 267 | E2-5 | DO YOU INSPECT SOLDERED CONNECTIONS? | 60.2 | 63.9 | 65.1 | 54.4 | 81.8 | 75.4 | 75.4 | 23.3 | 72.5 | 74.4 | 73.6 | 73 | 74 |
| E 268 | E2-6 | DO YOU CLEAN OR TIN CONNECTIONS? | 60.2 | 61.5 | 62.7 | 51.5 | 77.6 | 72.5 | 72.5 | 20.9 | 69.7 | 73.2 | 73.6 | 75 | 75 |
| E 269 | E2-7 | DO YOU MAKE HARDWIRE CONNECTIONS? | 57.7 | 58.2 | 61.9 | 51.5 | 78.3 | 70.4 | 70.4 | 20.9 | 66.2 | 68.3 | 73.6 | (M) | (M) |
| E 270 | E2-8 | DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS? | 58.5 | 56.6 | 61.1 | 52.2 | 66.4 | 62.0 | 62.0 | 14.0 | 57.7 | 51.2 | 67.8 | (M) | (M) |
| E 271 | E2-9 | DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS? | 58.5 | 61.5 | 61.1 | 52.2 | 69.9 | 66.2 | 66.2 | 14.0 | 60.6 | 57.9 | 71.3 | (M) | (M) |
| E 272 | E2-10 | DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS? | 57.7 | 58.2 | 61.1 | 50.7 | 67.1 | 64.1 | 64.1 | 14.0 | 57.7 | 55.5 | 70.1 | (M) | (M) |
| E 273 | E2-11 | DO YOU SOLDER ACTIVE COMPONENTS, SUCH AS INTEGRATED CIRCUITS? | 39.8 | 40.2 | 51.6 | 36.8 | 42.0 | 45.0 | 45.0 | 11.6 | 47.9 | 26.8 | 63.2 | (M) | (M) |
| E 274 | E2-12 | DO YOU PERFORM WIRE WRAPPING IN LIEU OF SOLDERING? | 37.4 | 20.5 | 22.2 | 33.1 | 14.7 | 12.7 | 18.6 | 19.7 | 10.4 | 24.1 | (M) | (M) | (M) |
| E 275 | E2-13 | DO YOU PERFORM CRIMPING IN LIEU OF SOLDERING? | 47.2 | 43.4 | 40.5 | 42.6 | 67.8 | 61.1 | 61.1 | 16.3 | 42.0 | 69.5 | 67.8 | (M) | (M) |
| E 276 | E2-14 | DO YOU PERFORM WIRE CONNECTIONS USING A 714 PUNCH-ON TOOL IN LIEU OF SOLDERING? | 20.3 | 3.3 | 11.1 | 8.8 | 10.5 | 8.5 | 8.5 | .0 | .7 | 8.5 | 14.9 | (M) | (M) |
| E 277 | E3-1 | DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB? IF NO, GO TO ITEM F1-1; IF YES, CONTINUE. | 58.5 | 65.6 | 54.8 | 50.0 | 80.4 | 78.2 | 78.2 | 48.8 | 61.3 | 79.3 | 79.3 | (M) | (M) |
| E 278 | E3-2 | DO YOU ADJUST RELAYS? | 35.8 | 46.7 | 42.1 | 23.5 | 35.7 | 29.6 | 29.6 | 2.3 | 16.9 | 13.4 | 39.1 | (M) | (M) |
| E 279 | E3-3 | DO YOU CLEAN RELAYS? | 45.5 | 54.9 | 50.8 | 34.6 | 51.0 | 45.1 | 45.1 | 9.1 | 32.4 | 27.4 | 43.7 | (M) | (M) |
| E 280 | E3-4 | DO YOU INSPECT RELAYS? | 51.2 | 61.5 | 54.8 | 42.6 | 64.3 | 66.9 | 66.9 | 23.3 | 50.0 | 57.9 | 66.7 | (M) | (M) |
| E 281 | E3-5 | DO YOU TROUBLESHOOT RELAYS? | 48.8 | 61.5 | 56.3 | 44.1 | 78.3 | 65.5 | 65.5 | 34.9 | 55.6 | 72.0 | 72.4 | (M) | (M) |
| E 282 | E3-6 | DO YOU MONITOR BIAS OUTPUT ON RELAYS? | 22.0 | 18.9 | 21.4 | 10.3 | 20.3 | 12.0 | 12.0 | 11.6 | 12.0 | 9.1 | 16.1 | (M) | (M) |
| E 283 | E3-7 | DO YOU REMOVE OR REPLACE RELAYS? | 48.8 | 56.6 | 56.3 | 45.6 | 74.1 | 66.2 | 66.2 | 20.9 | 57.0 | 73.2 | 72.4 | (M) | (M) |
| E 284 | E3-8 | DO YOU PERFORM TASKS ON CONTACTS OF RELAYS? | 43.1 | 57.4 | 53.2 | 32.4 | 45.5 | 40.1 | 40.1 | 4.7 | 26.8 | 20.1 | 37.9 | (M) | (M) |
| E 285 | E3-9 | DO YOU PERFORM TASKS ON COILS OF RELAYS? | 12.2 | 13.9 | 18.3 | 11.0 | 12.6 | 6.3 | 6.3 | .0 | 4.2 | 3.0 | 6.9 | (M) | (M) |
| E 286 | E3-10 | DO YOU PERFORM TASKS ON COILS OF RELAYS? | 16.3 | 31.1 | 27.6 | 17.6 | 17.5 | 12.0 | 12.0 | .0 | 5.6 | 6.1 | 13.8 | (M) | (M) |
| E 287 | E3-11 | DO YOU PERFORM TASKS ON ARMATURES OF RELAYS? | 18.7 | 28.7 | 31.0 | 21.3 | 16.1 | 18.3 | 18.3 | .0 | 6.3 | 6.1 | 14.9 | (M) | (M) |
| E 288 | E3-12 | DO YOU PERFORM TASKS ON SPRINGS OF RELAYS? | 20.3 | 34.4 | 34.1 | 24.3 | 19.6 | 14.1 | 14.1 | 2.3 | 9.9 | 6.1 | 14.9 | (M) | (M) |
| E 289 | E3-13 | DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS? | 52.0 | 64.8 | 58.7 | 42.6 | 73.4 | 70.4 | 70.4 | 34.9 | 58.5 | 70.7 | 73.6 | (M) | (M) |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| E 290 | E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS? | 70 | 71 | 74 | 74 | 70 | 71 | 72 | 73 | 74 | 74 | 75 | (M) | (M) | (M) |
| E 291 | E3-15 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS? | 52.0 | 64.8 | 57.9 | 42.6 | 72.7 | 71.8 | 37.2 | 58.5 | 70.1 | 73.6 | | | | |
| E 292 | E3-16 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS? | 49.6 | 60.7 | 55.6 | 38.2 | 72.7 | 69.7 | 34.9 | 57.0 | 67.7 | 74.7 | | | | |
| E 293 | E3-17 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS? | 50.4 | 60.7 | 55.6 | 36.8 | 72.7 | 68.3 | 30.2 | 54.9 | 66.5 | 74.7 | | | | |
| E 294 | E3-18 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE? | 44.7 | 59.8 | 50.8 | 36.0 | 65.7 | 67.6 | 39.5 | 54.9 | 62.8 | 69.0 | | | | |
| | | 44.7 | 58.2 | 54.0 | 34.6 | 68.5 | 64.1 | 14.0 | 51.4 | 57.9 | 54.4 | | | | |

 F MICROPHONES AND SENSING DEVICES (F1), SPEAKERS (F2), OSCILLOSCOPES (F3)

| | | | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|--|--|--|--|
| F 295 | F1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES OR OTHER SENSING DEVICES SUCH AS TRANSDUCERS? IF NO, GO TO ITEM F2-1; IF YES, CONTINUE. | 26.0 | 27.9 | 54.0 | 15.4 | 81.8 | 23.2 | 18.6 | 20.4 | 11.6 | 65.5 | | | | |
| F 296 | F1-2 DO YOU INSPECT MICROPHONES? | 22.0 | 23.8 | 54.0 | 5.9 | 71.3 | 18.3 | 9.7 | 16.2 | 3.7 | 57.5 | | | | |
| F 297 | F1-3 DO YOU CLEAN MICROPHONES? | 19.5 | 19.7 | 43.7 | 3.7 | 51.0 | 10.6 | 2.3 | 12.0 | 1.2 | 39.1 | | | | |
| F 298 | F1-4 DO YOU OPERATE MICROPHONES? | 22.0 | 25.4 | 50.8 | 8.8 | 83.9 | 22.5 | 16.3 | 16.9 | 7.3 | 65.5 | | | | |
| F 299 | F1-5 DO YOU TROUBLESHOOT MICROPHONES WIRE CONNECTIONS? | 22.0 | 23.0 | 52.4 | 5.9 | 76.9 | 20.4 | 2.3 | 16.9 | 4.9 | 59.8 | | | | |
| F 300 | F1-6 DO YOU TROUBLESHOOT MICROPHONE COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | 14.6 | 16.4 | 38.9 | 3.7 | 40.6 | 8.5 | .0 | 7.0 | 2.4 | 34.5 | | | | |
| F 301 | F1-7 DO YOU REMOVE AND REPLACE COMPLETE MICROPHONES? | 22.0 | 22.1 | 51.6 | 5.9 | 75.5 | 18.3 | 2.3 | 16.9 | 7.9 | 57.5 | | | | |
| F 302 | F1-8 DO YOU REMOVE OR REPLACE MICROPHONE COMPONENT PARTS? | 14.6 | 13.9 | 40.5 | 3.7 | 32.9 | 6.3 | .0 | 5.6 | 1.2 | 32.2 | | | | |
| F 303 | F1-9 DO YOU PERFORM TASKS ON CARBON MICROPHONES? | 10.5 | 18.9 | 50.0 | 3.7 | 58.7 | 16.9 | .0 | 9.9 | 3.0 | 49.4 | | | | |
| F 304 | F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES? | 8.9 | 4.9 | 16.7 | 2.2 | 10.5 | 2.8 | .0 | 4.9 | .6 | 18.4 | | | | |
| F 305 | F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES? | 7.3 | 7.4 | 16.7 | .7 | 11.2 | 4.9 | .0 | 4.2 | .6 | 16.1 | | | | |
| F 306 | F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES? | 10.6 | 12.3 | 51.6 | 1.5 | 77.6 | 15.5 | 2.3 | 8.5 | .6 | 58.6 | | | | |
| F 307 | F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES? | 1.6 | .8 | 4.8 | .7 | 1.4 | .0 | .0 | .7 | .6 | 1.1 | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| F 308 | F1-14 DO YOU PERFORM TASKS ON TRANSUCERS? | 8.1 | 6.6 | 15.9 | 5.9 | 7.0 | 2.1 | 2.3 | 4.2 | 8.5 | 11.5 | | | | | | |
| F 309 | F2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS? IF NO, GO TO ITEM F3-1; IF YES, CONTINUE. | 26.8 | 23.0 | 49.2 | 11.8 | 68.5 | 28.2 | .0 | 15.5 | 4.9 | 65.5 | | | | | | |
| F 310 | F2-2 DO YOU INSPECT SPEAKERS? | 28.5 | 22.1 | 50.8 | 10.3 | 67.1 | 23.2 | .0 | 17.6 | 3.0 | 60.9 | | | | | | |
| F 311 | F2-3 DO YOU CLEAN SPEAKERS? | 22.8 | 17.2 | 38.1 | 6.6 | 47.6 | 12.7 | .0 | 12.7 | 1.2 | 34.5 | | | | | | |
| F 312 | F2-4 DO YOU OPERATE SPEAKERS? | 26.0 | 19.7 | 42.1 | 9.6 | 72.0 | 27.5 | .0 | 15.5 | 5.5 | 60.9 | | | | | | |
| F 313 | F2-5 DO YOU TROUBLESHOOT SPEAKER WIRE CONNECTIONS? | 26.0 | 23.8 | 46.8 | 11.0 | 68.5 | 23.2 | .0 | 16.9 | 4.3 | 58.6 | | | | | | |
| F 314 | F2-6 DO YOU TROUBLESHOOT SPEAKER COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | 15.4 | 13.9 | 32.5 | .7 | 36.4 | 6.3 | .0 | 4.9 | 1.2 | 41.4 | | | | | | |
| F 315 | F2-7 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS? | 26.0 | 21.3 | 45.2 | 9.6 | 65.7 | 20.4 | .0 | 16.2 | 4.3 | 59.8 | | | | | | |
| F 316 | F2-8 DO YOU REMOVE OR REPLACE SPEAKER PARTS? | 8.1 | 6.6 | 19.8 | .7 | 21.7 | 3.5 | .0 | .7 | 1.2 | 33.3 | | | | | | |
| F 317 | F2-9 DO YOU PERFORM ANY TASKS ON CONE SPEAKER PARTS? | 4.9 | 5.7 | 15.1 | 1.5 | 7.0 | 3.5 | .0 | 1.4 | .6 | 9.2 | | | | | | |
| F 318 | F2-10 DO YOU PERFORM ANY TASKS ON SPIDER SPEAKER PARTS? | 3.3 | 1.6 | 3.2 | .7 | 2.1 | 2.1 | .0 | .7 | .6 | 3.4 | | | | | | |
| F 319 | F2-11 DO YOU PERFORM ANY TASKS ON FIELD COIL SPEAKER PARTS? | 2.4 | 2.5 | 12.7 | .7 | 4.9 | 2.1 | .0 | .7 | .6 | 5.7 | | | | | | |
| F 320 | F2-12 DO YOU PERFORM ANY TASKS ON VOICE COIL SPEAKER PARTS? | 4.1 | 3.3 | 15.9 | 1.5 | 5.6 | 2.1 | .0 | .7 | .6 | 6.9 | | | | | | |
| F 321 | F2-13 DO YOU PERFORM ANY TASKS ON PERMANENT MAGNET SPEAKER PARTS? | 4.9 | 3.3 | 11.9 | .7 | 5.6 | 2.1 | .0 | 1.4 | .6 | 8.0 | | | | | | |
| F 322 | F2-14 DO YOU PERFORM ANY TASKS ON ELECTROMAGNET SPEAKER PARTS? | 2.4 | 4.1 | 11.1 | .7 | 4.2 | 1.4 | .0 | .7 | .6 | 5.7 | | | | | | |
| F 323 | F2-15 DO YOU PERFORM ANY TASKS ON SOFT IRON CORE SPEAKER PARTS? | 2.4 | 2.5 | 8.7 | .0 | 2.1 | 1.4 | .0 | .7 | .6 | 3.4 | | | | | | |
| F 324 | F3-1 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB? IF NO, GO TO ITEM G1-1; IF YES, CONTINUE. | 69.1 | 73.8 | 68.3 | 70.6 | 69.9 | 79.6 | 44.2 | 77.5 | 72.0 | 78.2 | | | | | | |
| F 325 | F3-2 DO YOU PERFORM OPERATIONAL CHECKS USING OSCILLOSCOPES? | 66.7 | 72.1 | 65.1 | 65.4 | 65.0 | 76.8 | 41.9 | 73.9 | 69.5 | 77.0 | | | | | | |
| F 326 | F3-3 DO YOU PERFORM ALIGNMENTS OR ADJUSTMENTS USING OSCILLOSCOPES? | 61.8 | 67.2 | 61.9 | 63.2 | 64.3 | 70.4 | 41.9 | 66.9 | 61.6 | 75.9 | | | | | | |
| F 327 | F3-4 DO YOU TROUBLESHOOT ELECTRONIC CIRCUITS USING OSCILLOSCOPES? | 59.3 | 64.8 | 59.5 | 66.9 | 65.7 | 69.0 | 39.5 | 69.0 | 67.7 | 71.3 | | | | | | |
| F 328 | F3-5 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCIES? | 52.8 | 64.8 | 54.8 | 62.5 | 55.9 | 72.5 | 34.9 | 67.6 | 65.9 | 64.4 | | | | | | |
| F 329 | F3-6 DO YOU USE OSCILLOSCOPES TO MEASURE TIME? | 42.3 | 68.0 | 50.0 | 65.4 | 34.3 | 76.8 | 41.9 | 68.3 | 57.9 | 69.0 | | | | | | |

| D TSM | TITLES | 304 (M) | 304 (P) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| F 330 | F3-7 DO YOU USE OSCILLOSCOPES TO OBSERVE LISSAJOUS PATTERNS? | 26.8 | 34.4 | 31.0 | 22.8 | 33.6 | 33.1 | .0 | 14.1 | 31.7 | 67.8 | | | | |
| F 331 | F3-8 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE JITTERING ATTENUATOR PROBES. | 56.9 | 72.1 | 61.9 | 58.8 | 60.8 | 74.6 | 27.9 | 62.0 | 60.4 | 64.4 | | | | |
| F 332 | F3-9 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS? | 22.8 | 66.4 | 31.7 | 49.3 | 25.2 | 67.6 | 37.2 | 42.3 | 32.9 | 46.0 | | | | |
| F 333 | F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGES? | 63.4 | 70.5 | 64.3 | 62.5 | 67.1 | 77.5 | 25.6 | 72.5 | 69.5 | 70.1 | | | | |
| F 334 | F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGES? | 63.4 | 71.3 | 64.3 | 67.6 | 59.4 | 78.2 | 41.9 | 73.9 | 68.3 | 70.1 | | | | |
| F 335 | F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS? | 47.2 | 68.9 | 51.6 | 44.9 | 47.6 | 62.7 | 27.9 | 52.8 | 45.1 | 64.4 | | | | |
| F 336 | F3-13 DO YOU USE OSCILLOSCOPES TO OBSERVE DATA PATTERNS? | 44.7 | 42.6 | 44.4 | 62.5 | 41.3 | 41.5 | 30.2 | 52.8 | 48.2 | 66.7 | | | | |
| F 337 | F3-14 DO YOU USE OSCILLOSCOPES TO MEASURE RIPPLE VOLTAGES? | 60.2 | 69.7 | 62.7 | 56.6 | 42.7 | 62.7 | 20.9 | 57.7 | 48.2 | 66.7 | | | | |
| F 338 | F3-15 DO YOU USE OSCILLOSCOPES TO MEASURE PHASE JITTERS? | 31.7 | 57.4 | 25.4 | 33.1 | 15.4 | 40.1 | 18.6 | 28.9 | 17.7 | 31.0 | | | | |
| F 339 | F3-16 DO YOU USE OSCILLOSCOPES TO DISPLAY SWEEP GENERATOR PATTERNS? | 36.6 | 62.3 | 34.9 | 31.6 | 25.9 | 62.7 | 20.9 | 48.6 | 26.8 | 60.9 | | | | |
| F 340 | F3-17 DO YOU USE OSCILLOSCOPES TO OBSERVE PHASE RELATIONSHIPS? | 43.9 | 54.9 | 39.7 | 54.4 | 36.4 | 65.5 | 27.9 | 53.5 | 50.0 | 59.8 | | | | |
| F 341 | F3-18 DO YOU USE OSCILLOSCOPES TO OBSERVE SAMPLING DISPLAYS? | 33.3 | 60.7 | 37.3 | 37.5 | 33.6 | 50.0 | 23.3 | 52.8 | 39.6 | 55.2 | | | | |

6 SEMICONDUCTOR DIODES (G1), TRANSISTORS (G2), TRANSISTOR AMPLIFIERS (G3)

| | | | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|--|--|--|--|
| G 342 | G1-1 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB? IF NO, GO TO ITEM G2-1; IF YES, CONTINUE. | 65.9 | 66.4 | 66.7 | 58.8 | 68.5 | 76.8 | 34.9 | 59.9 | 64.0 | 75.9 | | | | |
| G 343 | G1-2 DO YOU INSPECT DIODES? | 58.5 | 63.1 | 62.7 | 52.9 | 66.4 | 70.4 | 14.0 | 56.3 | 59.1 | 72.4 | | | | |
| G 344 | G1-3 DO YOU CHECK DIODES? | 58.5 | 62.3 | 60.3 | 55.9 | 66.4 | 69.0 | 11.6 | 54.2 | 61.6 | 71.3 | | | | |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 6 405 | 62-23 DO YOU USE OR REFER TO THE POWER GAIN FOR SPECIFIC TRANSISTORS BY MULTIPLYING THE CURRENT GAIN TIMES THE VOLTAGE GAIN (AP = AI X AV)? | 15.4 | 15.6 | 15.1 | 2.9 | 7.0 | 12.7 | 2.3 | 4.9 | 5.5 | 12.6 | | | | | | | |
| 6 406 | 62-24 DO YOU PERFORM TRANSISTOR MATCHING THROUGH THE USE OF CURVE TRACING? | 8.1 | 7.4 | 13.5 | 7.4 | 2.8 | 7.7 | .0 | 3.5 | 3.0 | 11.5 | | | | | | | |
| 6 407 | 63-1 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM HI-14 IF YES, CONTINUE. | 59.3 | 52.5 | 60.3 | 32.4 | 60.1 | 61.3 | 23.3 | 52.1 | 37.8 | 71.3 | | | | | | | |
| 6 408 | 63-2 DO YOU INSPECT TRANSISTOR AMPLIFIERS? | 52.8 | 52.5 | 58.7 | 27.9 | 58.0 | 58.5 | 14.0 | 46.5 | 34.8 | 65.5 | | | | | | | |
| 6 409 | 63-3 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS? | 53.7 | 54.1 | 54.8 | 21.3 | 59.5 | 58.6 | 14.0 | 36.6 | 20.7 | 57.5 | | | | | | | |
| 6 410 | 63-4 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL? | 52.0 | 50.8 | 55.6 | 30.9 | 57.3 | 52.1 | 18.6 | 40.1 | 32.9 | 60.9 | | | | | | | |
| 6 411 | 63-5 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS? | 50.4 | 51.6 | 55.6 | 28.7 | 49.7 | 53.5 | 9.3 | 37.3 | 23.8 | 52.9 | | | | | | | |
| 6 412 | 63-6 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER? | 51.2 | 47.5 | 52.4 | 30.1 | 58.7 | 54.9 | 20.9 | 42.3 | 34.1 | 63.2 | | | | | | | |
| 6 413 | 63-7 DO YOU REMOVE OR REPLACE AMPLIFIER CIRCUIT COMPONENTS? | 47.2 | 47.5 | 53.2 | 28.7 | 46.2 | 51.4 | 9.3 | 38.0 | 22.0 | 49.4 | | | | | | | |
| 6 414 | 63-8 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR CURRENT RESULTS FROM A CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS? | 27.6 | 41.0 | 27.0 | 11.0 | 24.5 | 34.5 | 11.6 | 19.0 | 10.4 | 24.1 | | | | | | | |
| 6 415 | 63-9 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS? | 14.6 | 16.4 | 18.3 | 4.4 | 9.8 | 16.9 | 2.3 | 8.5 | 5.5 | 11.5 | | | | | | | |
| 6 416 | 63-10 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT? | 30.1 | 40.2 | 29.4 | 11.0 | 27.3 | 35.9 | 7.0 | 17.6 | 11.6 | 20.7 | | | | | | | |
| 6 417 | 63-11 DO YOU USE OR REFER TO THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS? | 30.1 | 36.9 | 31.0 | 11.0 | 28.7 | 35.2 | 14.0 | 18.3 | 13.4 | 24.1 | | | | | | | |
| 6 418 | 63-12 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS? | 15.4 | 14.8 | 15.9 | 5.9 | 10.5 | 14.8 | 4.7 | 8.5 | 7.3 | 12.6 | | | | | | | |

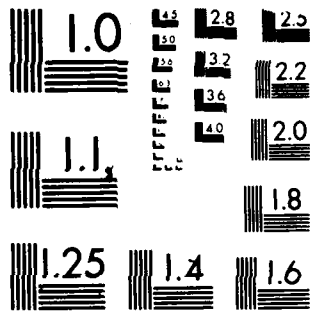
| D TSM | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 305 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 6 447 | G3-41 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY AMPLIFIERS? | 21.1 | 23.8 | 25.4 | 8.2 | 17.5 | 31.0 | 4.7 | 25.4 | 10.4 | 29.9 | | | | | | |
| 6 448 | G3-42 DO YOU TROUBLESHOOT OR REPAIR IF AMPLIFIERS? | 43.9 | 48.4 | 52.4 | 5.9 | 53.8 | 54.9 | 16.3 | 40.1 | 22.0 | 52.9 | | | | | | |
| 6 449 | G3-43 DO YOU TROUBLESHOOT OR REPAIR DIFFERENTIATING AMPLIFIERS (DIFF AMPS)? | 29.3 | 41.8 | 36.5 | 22.8 | 21.0 | 35.9 | 9.3 | 35.9 | 17.7 | 39.1 | | | | | | |
| 6 450 | G3-44 DO YOU TROUBLESHOOT OR REPAIR OPERATIONAL AMPLIFIERS (OP AMPS)? | 31.7 | 44.3 | 37.3 | 21.3 | 24.5 | 38.0 | 11.6 | 36.6 | 25.0 | 33.3 | | | | | | |
| 6 451 | G3-45 DO YOU TROUBLESHOOT OR REPAIR INTEGRATING AMPLIFIERS? | 24.4 | 40.2 | 32.5 | 13.2 | 24.5 | 35.9 | 14.0 | 31.7 | 25.6 | 33.3 | | | | | | |
| 6 452 | G3-46 DO YOU TROUBLESHOOT OR REPAIR SUMMING AMPLIFIERS? | 16.3 | 25.4 | 17.5 | 8.1 | 13.3 | 22.5 | 11.6 | 23.2 | 25.0 | 32.2 | | | | | | |
| H | SOLID-STATE SPECIAL PURPOSE DEVICES (H1), POWER SUPPLIES (H2), OSCILLATORS (H3) | | | | | | | | | | | | | | | | |
| H 453 | H1-1 DO YOU USE OR REFER TO VARACTORS/VARICAP COMPONENTS? | 55.3 | 36.9 | 59.5 | 14.7 | 57.3 | 46.5 | 25.6 | 46.5 | 11.6 | 65.5 | | | | | | |
| H 454 | H1-2 DO YOU USE OR REFER TO TUNNEL DIODE COMPONENTS? | 61.0 | 49.2 | 39.7 | 11.8 | 44.1 | 40.8 | 14.0 | 47.2 | 14.6 | 56.3 | | | | | | |
| H 455 | H1-3 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTOR (FET) COMPONENTS? | 52.0 | 63.1 | 65.1 | 33.8 | 48.3 | 56.3 | 25.6 | 54.2 | 26.2 | 62.1 | | | | | | |
| H 456 | H1-4 DO YOU USE OR REFER TO UNIUNCTION TRANSISTOR COMPONENTS? | 45.5 | 63.1 | 57.9 | 25.7 | 52.4 | 60.6 | 23.3 | 48.6 | 20.1 | 57.5 | | | | | | |
| H 457 | H1-5 DO YOU USE OR REFER TO ZENER DIODE COMPONENTS? | 69.9 | 77.0 | 73.8 | 63.2 | 67.8 | 76.1 | 44.2 | 63.4 | 51.2 | 71.3 | | | | | | |
| H 458 | H1-6 DO YOU USE OR REFER TO INTEGRATED CIRCUIT COMPONENTS? | 67.5 | 74.6 | 71.4 | 69.1 | 67.8 | 74.6 | 69.8 | 71.1 | 56.7 | 71.3 | | | | | | |
| H 459 | H1-7 DO YOU USE OR REFER TO PIN DIODE COMPONENTS? | 25.2 | 34.4 | 35.7 | 9.6 | 28.7 | 16.9 | 30.2 | 54.2 | 9.8 | 29.9 | | | | | | |
| H 460 | H1-8 DO YOU USE OR REFER TO LED'S/LCD'S COMPONENTS? | 59.3 | 67.2 | 61.1 | 61.8 | 58.0 | 48.6 | 65.1 | 63.4 | 45.7 | 67.8 | | | | | | |
| H 461 | H1-9 DO YOU USE OR REFER TO FANTAIL TRANSISTOR COMPONENTS? | 9.6 | 11.5 | 18.3 | 5.1 | 7.0 | 12.0 | 7.0 | 9.9 | 3.7 | 9.2 | | | | | | |
| H 462 | H1-10 DO YOU USE OR REFER TO SILICON CONTROL RECTIFIER (SCR) COMPONENTS? | 57.7 | 66.4 | 61.9 | 44.9 | 44.1 | 57.0 | 18.6 | 49.3 | 29.9 | 63.2 | | | | | | |
| H 463 | H1-11 DO YOU USE OR REFER TO TRIAC COMPONENTS? | 18.7 | 37.7 | 27.8 | 15.4 | 16.8 | 19.7 | 11.6 | 19.7 | 8.5 | 28.7 | | | | | | |
| H 464 | H1-12 DO YOU USE OR REFER TO PROGRAMMABLE UNIUNCTION TRANSISTOR (PUT) COMPONENTS? | 8.9 | 9.8 | 13.5 | 1.5 | 4.2 | 10.6 | 9.3 | 10.6 | 4.3 | 18.4 | | | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| H #65 | H1-13 DO YOU USE OR REFER TO SILICON CONTROLLED SWITCH (SCS) COMPONENTS? | 16.3 | 29.5 | 21.4 | 9.6 | 11.2 | 23.2 | 11.6 | 19.0 | 9.8 | 27.6 | | | | | | | |
| H #66 | H1-14 DO YOU USE OR REFER TO SILICON UNILATERAL SWITCH (SUS) COMPONENTS? | 10.6 | 13.1 | 11.1 | 3.7 | 4.9 | 9.9 | 4.7 | 8.5 | 4.9 | 14.9 | | | | | | | |
| H #67 | H2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES? IF NO, GO TO ITEM H3-1; IF YES, CONTINUE. | 69.1 | 70.5 | 62.7 | 63.2 | 65.7 | 75.4 | 69.8 | 70.4 | 61.6 | 81.6 | | | | | | | |
| H #68 | H2-2 DO YOU INSPECT POWER SUPPLIES? | 58.5 | 61.2 | 60.3 | 59.6 | 65.7 | 69.7 | 65.1 | 65.5 | 59.1 | 72.4 | | | | | | | |
| H #69 | H2-3 DO YOU CLEAN POWER SUPPLIES? | 52.0 | 58.2 | 52.4 | 45.6 | 52.4 | 51.4 | 25.6 | 48.6 | 42.1 | 50.6 | | | | | | | |
| H #70 | H2-4 DO YOU ALIGN OR ADJUST POWER SUPPLIES? | 58.5 | 67.2 | 55.6 | 55.9 | 58.0 | 66.9 | 27.9 | 58.5 | 47.6 | 71.3 | | | | | | | |
| H #71 | H2-5 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL? | 56.1 | 66.4 | 57.9 | 53.7 | 58.7 | 59.9 | 44.2 | 52.1 | 48.2 | 66.7 | | | | | | | |
| H #72 | H2-6 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS? | 49.6 | 64.8 | 57.9 | 47.1 | 99.7 | 52.9 | 11.6 | 43.7 | 41.5 | 56.3 | | | | | | | |
| H #73 | H2-7 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | 56.9 | 59.0 | 54.0 | 53.7 | 58.7 | 66.9 | 58.1 | 63.4 | 56.1 | 70.1 | | | | | | | |
| H #74 | H2-8 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS? | 48.8 | 59.8 | 54.8 | 43.4 | 42.0 | 58.5 | 7.0 | 43.0 | 41.5 | 57.5 | | | | | | | |
| H #75 | H2-9 DO YOU INSPECT OR SERVICE COOLANT LEVELS? | 17.1 | 9.0 | 11.1 | 7.4 | 3.5 | 6.3 | 44.2 | 25.4 | 3.7 | 16.1 | | | | | | | |
| H #76 | H2-10 DO YOU WORK WITH HALF-WAVE RECTIFIERS? | 52.8 | 64.8 | 58.7 | 37.5 | 51.0 | 64.1 | 20.9 | 45.8 | 34.8 | 58.6 | | | | | | | |
| H #77 | H2-11 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS? | 52.8 | 64.8 | 57.1 | 41.2 | 53.8 | 63.4 | 25.6 | 45.1 | 32.9 | 63.2 | | | | | | | |
| H #78 | H2-12 DO YOU WORK WITH BRIDGE RECTIFIERS? | 57.7 | 64.8 | 62.7 | 45.6 | 58.0 | 68.3 | 27.9 | 47.9 | 37.8 | 66.7 | | | | | | | |
| H #79 | H2-13 DO YOU WORK WITH THREE-PHASE RECTIFIERS? | 30.9 | 43.4 | 28.2 | 19.9 | 44.1 | 28.9 | 30.2 | 45.8 | 25.0 | 63.2 | | | | | | | |
| H #80 | H2-14 DO YOU USE OR REFER TO INPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 62.6 | 71.3 | 62.7 | 56.6 | 61.5 | 66.9 | 39.5 | 56.3 | 48.8 | 69.0 | | | | | | | |
| H #81 | H2-15 DO YOU USE OR REFER TO INPUT FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | 48.8 | 56.6 | 54.8 | 38.2 | 50.3 | 53.5 | 27.9 | 49.3 | 40.2 | 60.9 | | | | | | | |
| H #82 | H2-16 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 51.2 | 60.7 | 57.1 | 47.8 | 52.4 | 62.0 | 25.6 | 45.8 | 37.2 | 56.3 | | | | | | | |
| H #83 | H2-17 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 52.8 | 63.1 | 54.0 | 44.1 | 55.9 | 62.7 | 27.9 | 52.1 | 37.8 | 56.3 | | | | | | | |
| H #84 | H2-18 DO YOU USE OR REFER TO RIPPLE AMPLITUDE IN YOUR WORK WITH RECTIFIERS? | 56.1 | 61.5 | 54.8 | 45.6 | 39.9 | 52.8 | 18.6 | 46.5 | 36.0 | 59.8 | | | | | | | |
| H #85 | H2-19 DO YOU USE OR REFER TO RIPPLE FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | 43.9 | 42.6 | 47.6 | 35.3 | 32.2 | 34.5 | 16.3 | 40.8 | 23.8 | 52.9 | | | | | | | |

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| M 486 | H2-20 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 28.5 | 29.5 | 36.5 | 19.1 | 27.3 | 31.7 | 11.6 | 29.6 | 14.0 | 32.2 | | | | | | | |
| M 487 | H2-21 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS IN YOUR WORK WITH RECTIFIERS? | 44.0 | 59.0 | 49.2 | 46.3 | 44.1 | 57.7 | 25.6 | 47.2 | 35.4 | 54.0 | | | | | | | |
| M 488 | H2-22 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | 53.7 | 55.7 | 54.0 | 48.5 | 48.3 | 56.3 | 27.9 | 52.1 | 35.4 | 52.9 | | | | | | | |
| M 489 | H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS? | 57.7 | 67.2 | 58.7 | 47.1 | 52.4 | 65.5 | 20.9 | 48.6 | 40.2 | 60.9 | | | | | | | |
| M 490 | H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS? | 54.5 | 66.4 | 56.3 | 34.6 | 52.4 | 62.0 | 23.3 | 43.7 | 36.0 | 60.9 | | | | | | | |
| M 491 | H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS? | 46.3 | 56.6 | 55.6 | 24.3 | 46.2 | 59.9 | 11.6 | 42.3 | 28.7 | 56.3 | | | | | | | |
| M 492 | H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS? | 44.7 | 53.3 | 54.0 | 22.1 | 45.5 | 55.6 | 11.6 | 40.8 | 25.0 | 56.3 | | | | | | | |
| M 493 | H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS? | 46.3 | 54.9 | 53.2 | 19.1 | 46.2 | 51.4 | 14.0 | 38.7 | 21.3 | 49.4 | | | | | | | |
| M 494 | H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS? | 44.7 | 52.5 | 50.0 | 20.6 | 44.8 | 54.2 | 11.6 | 41.5 | 25.0 | 49.4 | | | | | | | |
| M 495 | H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER? | 4.9 | 4.9 | 4.8 | .0 | 5.6 | 2.8 | 4.7 | 4.9 | .6 | 2.3 | | | | | | | |
| M 496 | H2-30 DO YOU WORK WITH POWER SUPPLY REGULATOR CIRCUITS OTHER THAN SOLID-STATE? | 26.0 | 61.5 | 30.2 | 15.4 | 26.6 | 38.0 | 9.3 | 26.1 | 26.8 | 25.3 | | | | | | | |
| M 497 | H2-31 DO YOU WORK WITH SOLID-STATE POWER SUPPLY REGULATOR CIRCUITS? | 58.5 | 63.1 | 55.6 | 45.6 | 57.3 | 65.5 | 46.5 | 52.1 | 39.0 | 60.9 | | | | | | | |
| M 498 | H3-1 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM H-1; IF YES, CONTINUE. | 56.9 | 67.2 | 54.8 | 36.8 | 59.4 | 58.5 | 60.5 | 56.3 | 32.9 | 69.0 | | | | | | | |
| M 499 | H3-2 DO YOU INSPECT OSCILLATORS? | 50.4 | 64.8 | 54.0 | 27.9 | 58.0 | 53.5 | 30.2 | 48.6 | 28.0 | 59.8 | | | | | | | |
| M 500 | H3-3 DO YOU ALIGN OR ADJUST OSCILLATORS? | 53.7 | 66.4 | 52.4 | 24.3 | 58.0 | 51.4 | 23.3 | 42.3 | 24.4 | 59.8 | | | | | | | |
| M 501 | H3-4 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS? | 45.5 | 53.3 | 49.2 | 30.9 | 54.5 | 47.2 | 27.9 | 47.9 | 25.0 | 59.8 | | | | | | | |
| M 502 | H3-5 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS? | 36.6 | 54.9 | 46.0 | 19.9 | 44.8 | 40.8 | 11.6 | 26.1 | 18.3 | 47.1 | | | | | | | |
| M 503 | H3-6 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL? | 43.9 | 59.0 | 51.6 | 27.9 | 52.4 | 46.5 | 46.5 | 36.6 | 25.6 | 55.2 | | | | | | | |



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

O TSK TITLES

| | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|
| M 523 | M3-26 DO YOU WORK WITH WIEN BRIDGE OSCILLATORS SINUSOIDAL OSCILLATORS? | 11.4 | 31.1 | 20.6 | 4.4 | 18.2 | 16.9 | 0.0 | 15.5 | 8.5 | 23.0 |
| M 524 | M3-27 DO YOU WORK WITH - DON'T KNOW WHICH TYPE OF SINUSOIDAL OSCILLATOR? | 13.0 | 16.4 | 13.5 | 14.7 | 21.0 | 16.9 | 4.7 | 14.8 | 15.2 | 21.8 |
| M 525 | M3-28 DO YOU WORK WITH PULSE GENERATING CIRCUITS? | 35.0 | 61.5 | 31.7 | 26.5 | 32.9 | 54.2 | 51.2 | 39.4 | 20.1 | 48.3 |
| M 526 | M3-29 DO YOU WORK WITH BLOCKING OSCILLATORS? | 21.1 | 45.9 | 20.6 | 12.5 | 23.8 | 50.7 | 14.0 | 28.9 | 18.3 | 28.7 |
| M 527 | M3-30 DO YOU WORK WITH BURST GENERATORS? | 8.9 | 46.7 | 11.9 | 9.6 | 6.3 | 31.7 | 11.6 | 12.7 | 2.4 | 10.3 |
| M 528 | M3-31 DO YOU WORK WITH BLOCKED OSCILLATORS? | 8.1 | 33.6 | 12.7 | 8.1 | 17.5 | 34.5 | 11.6 | 16.2 | 7.9 | 19.5 |

I MULTIVIBRATORS (11), LIMITERS AND CLAMPERS (12), ELECTRON
TUBES (13)

I 529 II-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB?
IF NO, GO TO ITEM 12-1; IF YES, CONTINUE.

| | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|
| I 529 | II-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 12-1; IF YES, CONTINUE. | 40.7 | 63.1 | 45.2 | 43.4 | 37.8 | 57.0 | 37.2 | 35.9 | 26.2 | 51.7 |
| I 530 | II-2 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUIT FREQUENCY DETERMINING DEVICES (FDD)? | 29.3 | 48.4 | 31.0 | 16.9 | 30.8 | 48.6 | 11.6 | 26.8 | 16.5 | 35.6 |
| I 531 | II-3 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORK FREQUENCY DETERMINING DEVICES (FDD)? | 35.0 | 55.7 | 35.7 | 30.9 | 32.9 | 54.2 | 14.0 | 31.7 | 22.0 | 39.1 |
| I 532 | II-4 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTAL FREQUENCY DETERMINING DEVICES (FDD)? | 26.8 | 44.3 | 30.2 | 25.7 | 28.7 | 45.8 | 16.3 | 27.5 | 11.6 | 36.8 |
| I 533 | II-5 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | 9.8 | 13.9 | 9.5 | 9.6 | 11.9 | 13.4 | 14.0 | 6.3 | 7.3 | 8.0 |
| I 534 | II-6 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS? | 38.2 | 58.2 | 35.7 | 31.6 | 31.5 | 55.6 | 30.2 | 32.4 | 19.5 | 46.0 |
| I 535 | II-7 DO YOU WORK WITH MONOSTABLE (ONE SHOT) MULTIVIBRATORS? | 38.2 | 62.3 | 42.1 | 41.2 | 31.5 | 54.9 | 32.6 | 35.2 | 25.0 | 46.0 |
| I 536 | II-8 DO YOU WORK WITH BISTABLE (FLIP FLOP) MULTIVIBRATORS? | 43.1 | 64.8 | 42.9 | 43.4 | 37.1 | 56.3 | 39.5 | 35.9 | 27.4 | 49.4 |
| I 537 | II-9 DO YOU WORK WITH R-S FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | 20.3 | 35.2 | 16.7 | 24.3 | 13.3 | 21.1 | 32.6 | 26.1 | 15.9 | 35.6 |

| D TSK | TITLES | 304 (M) | 304 71 (M) | 304 74 (M) | 305 74 (M) | 328 70 (M) | 328 71 (M) | 328 72 (M) | 328 73 (M) | 328 74 (M) | 328 75 (M) |
|-------|---|------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| I 561 | 13-12 DO YOU USE OR REFER TO SATURATION? | 19.5 | 48.4 | 35.7 | 2.9 | 27.3 | 35.2 | .0 | 19.7 | 16.5 | 20.7 |
| I 562 | 13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE? | 13.8 | 32.8 | 28.6 | .7 | 25.2 | 23.2 | .0 | 13.4 | 11.0 | 16.1 |
| I 563 | 13-14 DO YOU USE OR REFER TO PLATE VOLTAGE? | 27.6 | 60.7 | 52.4 | 7.4 | 47.6 | 46.5 | .0 | 23.9 | 24.4 | 42.5 |
| I 564 | 13-15 DO YOU USE OR REFER TO PLATE CURRENT? | 22.0 | 53.3 | 46.0 | 5.9 | 39.9 | 35.2 | .0 | 19.7 | 19.5 | 37.9 |
| I 565 | 13-16 DO YOU USE OR REFER TO GRID VOLTAGE? | 28.5 | 61.5 | 52.4 | 8.1 | 49.0 | 44.4 | 2.3 | 23.9 | 23.2 | 43.7 |
| I 566 | 13-17 DO YOU USE OR REFER TO GRID CURRENT? | 22.0 | 50.8 | 44.4 | 6.6 | 39.9 | 35.9 | .0 | 19.7 | 20.7 | 36.8 |
| I 567 | 13-18 DO YOU USE OR REFER TO CATHODE VOLTAGE? | 29.3 | 60.7 | 51.6 | 7.4 | 46.2 | 44.4 | 2.3 | 24.6 | 23.8 | 39.1 |
| I 568 | 13-19 DO YOU USE OR REFER TO CATHODE CURRENT? | 22.0 | 48.4 | 40.5 | 5.9 | 37.8 | 35.2 | .0 | 19.7 | 19.5 | 33.3 |
| I 569 | 13-20 DO YOU USE OR REFER TO FILAMENT VOLTAGE? | 29.3 | 61.5 | 53.2 | 11.8 | 48.3 | 46.5 | .0 | 25.4 | 23.2 | 41.4 |
| I 570 | 13-21 DO YOU USE OR REFER TO TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)? | 8.1 | 21.3 | 17.5 | .0 | 18.9 | 16.9 | .0 | 3.5 | 6.7 | 8.0 |
| I 571 | 13-22 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC.) AMPLIFICATION FACTORS? | 11.4 | 20.5 | 17.5 | .7 | 16.8 | 18.3 | .0 | 7.7 | 7.9 | 8.0 |
| I 572 | 13-23 DO YOU USE OR REFER TO ELECTRON TUBE TRANSMITTANCE (μ), WHICH IS MEASURED IN MHOS)? | 7.3 | 13.1 | 11.9 | .0 | 8.4 | 12.0 | .0 | 7.0 | 4.9 | 3.4 |
| I 573 | 13-24 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE? | 7.3 | 13.9 | 12.7 | .7 | 9.1 | 9.2 | .0 | 4.9 | 4.3 | 5.7 |
| I 574 | 13-25 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE? | 16.3 | 25.4 | 22.2 | .0 | 21.0 | 21.8 | .0 | 10.6 | 5.5 | 14.9 |
| I 575 | 13-26 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES? | 8.1 | 13.9 | 8.7 | .0 | 10.5 | 7.0 | .0 | 2.8 | 3.7 | 5.7 |
| I 576 | 13-27 DO YOU USE OR REFER TO PLATE VOLTAGE FOR A SPECIFIED BIAS? | 13.0 | 35.2 | 27.8 | 2.2 | 26.6 | 21.1 | .0 | 12.7 | 11.0 | 14.9 |
| I 577 | 13-28 DO YOU USE OR REFER TO PLATE CURRENT FOR A SPECIFIED BIAS? | 10.6 | 30.3 | 27.0 | 1.5 | 23.8 | 19.0 | .0 | 12.0 | 11.0 | 11.5 |
| I 578 | 13-29 DO YOU USE OR REFER TO BIAS REQUIRED FOR CUTOFF? | 20.3 | 50.8 | 27.8 | 3.7 | 27.3 | 28.2 | .0 | 12.0 | 12.2 | 18.4 |
| I 579 | 13-30 DO YOU USE OR REFER TO BIAS REQUIRED FOR SATURATION? | 19.5 | 48.4 | 26.2 | 2.9 | 24.5 | 26.8 | .0 | 11.3 | 11.6 | 13.8 |
| I 580 | 13-31 DO YOU USE OR REFER TO GAIN? | 24.4 | 41.0 | 42.1 | 2.9 | 31.5 | 36.6 | .0 | 21.1 | 16.5 | 26.4 |
| I 581 | 13-32 DO YOU USE OR REFER TO EFFICIENCY? | 16.3 | 28.7 | 23.0 | .7 | 23.8 | 23.2 | .0 | 9.9 | 10.4 | 16.1 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSN | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|-----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |
| I 582 | I3-33 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 18.7 | 92.6 | 34.9 | 3.7 | 35.7 | 30.3 | .0 | 16.9 | 13.4 | 28.7 | | | | | | | |
| I 583 | I3-34 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 21.1 | 51.6 | 93.7 | 5.1 | 33.6 | 90.1 | .0 | 19.0 | 15.2 | 26.4 | | | | | | | |
| I 584 | I3-35 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | 7.3 | 10.7 | 7.1 | .7 | 7.0 | 8.5 | .0 | 4.2 | 3.0 | 5.7 | | | | | | | |
| I 585 | I3-36 DO YOU USE OR REFER TO TUBE SOCKET NOTATION? | 25.2 | 59.0 | 99.2 | 10.3 | 94.1 | 80.8 | .0 | 22.5 | 23.2 | 39.1 | | | | | | | |
| I 586 | I3-37 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS? | 27.6 | 61.5 | 52.4 | 11.8 | 49.7 | 45.8 | .0 | 22.5 | 25.6 | 41.4 | | | | | | | |
| I 587 | I3-38 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS? | 22.0 | 50.8 | 91.3 | 5.1 | 32.2 | 28.9 | .0 | 16.9 | 16.5 | 23.0 | | | | | | | |
| I 588 | I3-39 DO YOU USE OR REFER TO ELECTRON TUBE DIODES? | 20.3 | 50.8 | 39.9 | 2.9 | 28.7 | 35.9 | .0 | 19.1 | 15.2 | 12.6 | | | | | | | |

J ELECTRON TUBE AMPLIFIERS AND CIRCUITS (J1), SPECIAL PURPOSE ELECTRON TUBES (J2), METODYNING AND MODULATION - DEMODULATION (MODENS) (J3)

| | | | | | | | | | | | | | | | | | | |
|-------|---|------|------|------|-----|------|------|------|------|------|------|--|--|--|--|--|--|--|
| J 589 | J1-1 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM J2-1; IF YES, CONTINUE. | 39.0 | 58.2 | 99.2 | 8.8 | 95.5 | 95.1 | 16.3 | 26.1 | 25.0 | 92.5 | | | | | | | |
| J 590 | J1-2 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? | 13.8 | 27.0 | 20.6 | 1.5 | 9.8 | 14.8 | 4.7 | 7.0 | 6.1 | 8.0 | | | | | | | |
| J 591 | J1-3 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | 12.2 | 21.3 | 12.7 | .7 | 20.3 | 29.6 | 2.3 | 9.9 | 7.9 | 11.5 | | | | | | | |
| J 592 | J1-4 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? | 24.4 | 52.5 | 43.7 | 2.9 | 39.2 | 38.7 | 2.3 | 14.8 | 14.0 | 18.4 | | | | | | | |
| J 593 | J1-5 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? | 16.3 | 27.9 | 22.2 | .7 | 23.8 | 23.2 | 2.3 | 12.0 | 7.9 | 17.2 | | | | | | | |
| J 594 | J1-6 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? | 17.9 | 49.2 | 34.1 | 2.2 | 21.0 | 35.2 | 4.7 | 17.6 | 9.8 | 17.2 | | | | | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 308 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| J 595 | J1-7 DO YOU TROUBLESHOOT OR REPAIR - DON'T KNOW WHICH TYPE OF AMPLIFIER? | 9.8 | 13.9 | 5.6 | 4.4 | 15.4 | 10.6 | 7.0 | 3.5 | 9.8 | 18.4 | | | | | | | |
| J 596 | J2-1 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)? | 18.7 | 56.6 | 20.6 | 5.9 | 21.0 | 39.4 | 4.7 | 22.5 | 15.2 | 19.5 | | | | | | | |
| J 597 | J2-2 DO YOU WORK WITH CATHODE-RAY TUBES (CRT)? | 29.3 | 45.1 | 35.7 | 54.4 | 21.0 | 67.6 | 14.0 | 67.6 | 29.9 | 28.7 | | | | | | | |
| J 598 | J2-3 DO YOU WORK WITH BEAM POWER TUBES? | 24.4 | 47.5 | 15.9 | 3.7 | 8.4 | 14.8 | 46.5 | 18.3 | 3.0 | 13.8 | | | | | | | |
| J 599 | J2-4 DO YOU WORK WITH THYRATRON? | 6.5 | 43.4 | 7.1 | 5.9 | 15.4 | 55.6 | 7.0 | 13.4 | 9.8 | 8.0 | | | | | | | |
| J 600 | J2-5 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)? | 28.5 | 25.4 | 27.0 | 34.6 | 10.5 | 41.5 | 27.9 | 49.3 | 15.9 | 13.8 | | | | | | | |
| J 601 | J2-6 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 25.2 | 22.1 | 27.8 | 30.9 | 9.8 | 48.6 | 27.9 | 44.4 | 14.0 | 13.8 | | | | | | | |
| J 602 | J2-7 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 17.9 | 20.5 | 21.4 | 27.9 | 10.5 | 41.5 | 18.6 | 33.1 | 12.2 | 12.6 | | | | | | | |
| J 603 | J2-8 DO YOU USE OR REFER TO PHOSPHOR SCREENS CONCERNING CRT'S? | 18.7 | 23.0 | 34.1 | 45.6 | 12.6 | 31.0 | 11.6 | 39.4 | 15.9 | 18.4 | | | | | | | |
| J 604 | J2-9 DO YOU USE OR REFER TO AQUADAG COATINGS CONCERNING CRT'S? | 14.6 | 19.7 | 24.6 | 33.1 | 9.1 | 30.3 | 7.0 | 34.5 | 15.2 | 17.2 | | | | | | | |
| J 605 | J2-10 DO YOU USE OR REFER TO ELECTRON OPTICS CONCERNING CRT'S? | 9.8 | 9.0 | 15.1 | 15.4 | 4.2 | 10.6 | 9.3 | 10.6 | 6.1 | 5.7 | | | | | | | |
| J 606 | J2-11 DO YOU USE OR REFER TO PERSISTENCE CONCERNING CRT'S? | 18.7 | 15.6 | 31.7 | 22.1 | 7.0 | 35.2 | 7.0 | 50.7 | 20.7 | 36.8 | | | | | | | |
| J 607 | J2-12 DO YOU USE OR REFER TO DECAY TIMES CONCERNING CRT'S? | 12.2 | 13.1 | 27.0 | 16.9 | 4.9 | 23.9 | 7.0 | 26.1 | 12.2 | 14.9 | | | | | | | |
| J 608 | J2-13 DO YOU USE OR REFER TO FLOURESCENCE CONCERNING CRT'S? | 13.0 | 13.9 | 24.6 | 19.9 | 5.6 | 20.4 | 7.0 | 30.3 | 13.4 | 16.1 | | | | | | | |
| J 609 | J2-14 DO YOU USE OR REFER TO PHOSPHORESCENCE CONCERNING CRT'S? | 15.4 | 18.0 | 27.8 | 22.8 | 7.7 | 20.4 | 7.0 | 31.0 | 14.0 | 17.2 | | | | | | | |
| J 610 | J2-15 DO YOU USE OR REFER TO SHADOW MASK CONCERNING CRT'S? | 7.3 | 7.4 | 14.3 | 12.5 | 2.8 | 10.6 | 4.7 | 10.6 | 7.3 | 8.0 | | | | | | | |
| J 611 | J3-1 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM KI-1; IF YES, CONTINUE. | 59.3 | 60.7 | 64.3 | 23.5 | 79.7 | 75.4 | 58.1 | 69.0 | 36.6 | 75.9 | | | | | | | |
| J 612 | J3-2 DO YOU PERFORM TASKS ON FREQUENCY CONVERTER SYSTEMS STAGES? | 55.3 | 36.9 | 56.3 | 5.1 | 55.2 | 47.2 | 30.2 | 41.5 | 16.5 | 57.5 | | | | | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT03 PAGE 40

| O TSK | TITLES | 304 (M) | 304 71 (M) | 304 74 (M) | 305 74 (M) | 328 70 (M) | 328 71 (M) | 328 72 (M) | 328 73 (M) | 328 74 (M) | 328 75 (M) |
|-------|---|------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| K 631 | K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 18.7 | 41.8 | 54.0 | .0 | 60.1 | 38.7 | 14.0 | 34.5 | 3.0 | 52.9 |
| K 632 | K1-15 DO YOU PERFORM TASKS ON DETECTORS? | 19.5 | 41.0 | 51.6 | .7 | 58.7 | 38.7 | 14.0 | 33.8 | 3.0 | 49.4 |
| K 633 | K1-16 DO YOU PERFORM TASKS ON MIXER AMPLIFIERS? | 18.7 | 37.7 | 50.8 | .0 | 59.4 | 38.0 | 14.0 | 31.7 | 3.0 | 51.7 |
| K 634 | K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS? | 13.8 | 33.6 | 34.1 | .7 | 50.3 | 22.5 | 4.7 | 19.0 | 1.8 | 41.4 |
| K 635 | K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS? | 18.7 | 40.2 | 44.4 | .7 | 61.5 | 31.0 | 11.6 | 22.5 | 1.4 | 56.3 |
| K 636 | K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS? | 21.1 | 42.6 | 59.5 | .7 | 74.8 | 47.2 | 14.0 | 40.8 | 2.4 | 66.7 |
| K 637 | K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS? | 20.3 | 38.5 | 54.8 | .0 | 70.6 | 44.4 | 14.0 | 36.6 | 3.0 | 62.1 |
| K 638 | K2-1 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K3-1; IF YES, CONTINUE. | 57.7 | 37.7 | 30.2 | 3.7 | 46.2 | 52.1 | 23.3 | 50.0 | 20.1 | 78.2 |
| K 639 | K2-2 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS? | 54.5 | 36.1 | 28.6 | 2.9 | 42.7 | 48.6 | 16.3 | 48.6 | 19.5 | 75.9 |
| K 640 | K2-3 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS? | 46.3 | 29.5 | 23.0 | 2.2 | 33.6 | 41.5 | 2.3 | 39.4 | 15.9 | 57.5 |
| K 641 | K2-4 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS? | 53.7 | 36.9 | 23.0 | 2.2 | 32.2 | 45.1 | 9.3 | 38.0 | 14.6 | 73.6 |
| K 642 | K2-5 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS? | 52.0 | 35.2 | 23.8 | 2.2 | 39.9 | 48.6 | 16.3 | 42.3 | 17.7 | 72.4 |
| K 643 | K2-6 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS? | 48.0 | 35.2 | 23.8 | 2.2 | 30.1 | 43.0 | 9.3 | 35.9 | 15.2 | 71.3 |
| K 644 | K2-7 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS? | 43.1 | 32.8 | 23.0 | 1.5 | 37.8 | 48.6 | 16.3 | 40.8 | 17.1 | 70.1 |
| K 645 | K2-8 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS? | 42.0 | 32.0 | 22.2 | 2.2 | 29.4 | 43.0 | 4.7 | 35.2 | 15.2 | 69.0 |
| K 646 | K2-9 DO YOU PERFORM LINK PERFORMANCE ASSESSMENTS? | 50.4 | 9.8 | 9.5 | 1.5 | 14.7 | 12.0 | 4.7 | 14.1 | 4.9 | 62.1 |
| K 647 | K2-10 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 49.6 | 33.6 | 23.8 | 2.2 | 24.5 | 38.0 | .0 | 25.4 | 15.2 | 52.9 |
| K 648 | K2-11 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS? | 50.4 | 35.2 | 22.2 | 2.2 | 24.5 | 38.0 | 16.3 | 23.9 | 11.0 | 51.0 |
| K 649 | K2-12 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)? | 43.1 | 35.2 | 22.2 | 2.2 | 24.5 | 38.7 | 18.6 | 28.2 | 12.8 | 60.9 |
| K 650 | K2-13 DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 43.9 | 36.9 | 21.4 | 1.5 | 25.2 | 38.7 | 18.6 | 27.5 | 14.0 | 64.4 |
| K 651 | K2-14 DO YOU PERFORM TASKS ON RF AMPLIFIER? | 49.6 | 36.1 | 25.4 | .7 | 25.2 | 41.5 | 16.3 | 35.2 | 14.6 | 60.9 |
| K 652 | K2-15 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS? | 48.8 | 28.7 | 23.0 | 2.2 | 24.5 | 37.3 | 14.0 | 26.8 | 11.6 | 51.7 |
| K 653 | K2-16 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 50.4 | 34.4 | 23.8 | .7 | 25.2 | 41.5 | 16.3 | 30.3 | 15.9 | 57.5 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| K 654 | K2-17 DO YOU PERFORM TASKS ON LIMITERS? | 47.2 | 32.8 | 24.6 | 2.2 | 23.1 | 39.4 | 14.0 | 28.2 | 9.1 | 49.4 | | | | | | | |
| K 655 | K2-18 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS? | 47.2 | 33.6 | 24.6 | 2.2 | 23.1 | 38.7 | 16.3 | 30.3 | 9.1 | 54.0 | | | | | | | |
| K 656 | K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS? | 56.1 | 34.4 | 17.5 | 2.9 | 26.6 | 40.8 | 14.0 | 20.4 | 15.2 | 59.8 | | | | | | | |
| K 657 | K2-20 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS? | 56.1 | 31.1 | 23.0 | 2.9 | 28.7 | 44.4 | 16.3 | 39.4 | 15.2 | 58.6 | | | | | | | |
| K 658 | K2-21 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSCIEVERS? | 53.1 | 24.6 | 20.6 | 2.9 | 26.6 | 37.3 | 9.3 | 17.6 | 14.6 | 47.1 | | | | | | | |
| K 659 | K2-22 DO YOU PLOT RECEIVE SIGNAL LEVEL CURVES (RSL)? | 51.2 | 9.8 | 6.3 | .7 | 1.5 | 2.8 | 4.7 | 4.2 | 1.2 | 10.3 | | | | | | | |
| K 660 | K3-1 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS? | 10.6 | 17.2 | 14.3 | 55.1 | 11.9 | 21.1 | 88.4 | 47.9 | 39.6 | 37.9 | | | | | | | |
| K 661 | K3-2 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS? | 22.0 | 36.1 | 34.1 | 61.0 | 23.1 | 38.0 | 81.4 | 46.5 | 46.3 | 47.1 | | | | | | | |
| K 662 | K3-3 DO YOU CONVERT DECIMAL NUMBERS TO HEXADECIMAL (BASE 16) NUMBERS? | 6.5 | 8.2 | 11.9 | 51.5 | 7.0 | 10.6 | 25.6 | 28.9 | 13.4 | 26.4 | | | | | | | |
| K 663 | K3-4 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS? | 9.8 | 14.8 | 13.5 | 52.2 | 11.9 | 20.4 | 88.4 | 46.5 | 42.1 | 39.1 | | | | | | | |
| K 664 | K3-5 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS? | 9.8 | 15.6 | 15.1 | 58.1 | 10.5 | 20.4 | 88.4 | 47.2 | 40.2 | 36.8 | | | | | | | |
| K 665 | K3-6 DO YOU CONVERT OCTAL NUMBERS TO HEXADECIMAL NUMBERS? | 6.5 | 7.4 | 7.9 | 39.7 | 4.2 | 9.2 | 20.9 | 26.8 | 11.6 | 21.8 | | | | | | | |
| K 666 | K3-7 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS? | 22.8 | 35.2 | 34.9 | 61.8 | 25.2 | 37.3 | 83.7 | 45.1 | 43.3 | 47.1 | | | | | | | |
| K 667 | K3-8 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS? | 9.8 | 14.8 | 11.9 | 56.6 | 9.1 | 21.8 | 86.0 | 44.4 | 38.4 | 35.6 | | | | | | | |
| K 668 | K3-9 DO YOU CONVERT BINARY NUMBERS TO HEXADECIMAL NUMBERS? | 6.5 | 8.2 | 11.9 | 47.1 | 5.6 | 10.6 | 18.6 | 27.5 | 11.6 | 24.1 | | | | | | | |
| K 669 | K3-10 DO YOU CONVERT HEXADECIMAL NUMBERS TO DECIMAL NUMBERS? | 6.5 | 9.0 | 11.1 | 50.7 | 5.6 | 10.6 | 25.6 | 28.2 | 11.0 | 25.3 | | | | | | | |
| K 670 | K3-11 DO YOU CONVERT HEXADECIMAL NUMBERS TO OCTAL NUMBERS? | 6.5 | 7.4 | 7.9 | 38.2 | 4.2 | 9.9 | 16.3 | 26.1 | 11.0 | 19.5 | | | | | | | |
| K 671 | K3-12 DO YOU CONVERT HEXADECIMAL NUMBERS TO BINARY NUMBERS? | 6.5 | 9.0 | 10.3 | 47.1 | 5.6 | 9.9 | 18.6 | 27.5 | 11.6 | 21.8 | | | | | | | |
| K 672 | K3-13 DO YOU ADD BINARY NUMBERS? | 19.5 | 32.0 | 35.7 | 55.9 | 18.9 | 32.4 | 67.4 | 34.5 | 34.8 | 37.9 | | | | | | | |
| K 673 | K3-14 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD? | 15.4 | 20.5 | 27.8 | 39.0 | 11.9 | 23.2 | 51.2 | 28.2 | 23.8 | 32.2 | | | | | | | |
| K 674 | K3-15 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD? | 17.9 | 26.2 | 28.6 | 41.9 | 15.4 | 25.4 | 58.1 | 31.0 | 29.9 | 32.2 | | | | | | | |
| K 675 | K3-16 DO YOU ADD OCTAL NUMBERS? | 8.9 | 11.5 | 11.1 | 46.3 | 7.0 | 19.0 | 67.4 | 30.3 | 32.3 | 25.3 | | | | | | | |

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| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 304 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| K 676 | K3-17 DO YOU SUBTRACT OCTAL NUMBERS? | 8.9 | 11.5 | 11.1 | 46.3 | 7.0 | 19.0 | 62.8 | 29.6 | 32.3 | 24.1 | 24.1 | 24.1 |
| K 677 | K3-18 DO YOU ADD HEXADECIIMAL NUMBERS? | 5.7 | 8.2 | 9.5 | 40.4 | 3.5 | 9.9 | 14.0 | 19.7 | 9.8 | 14.9 | 14.9 | 14.9 |
| K 678 | K3-19 DO YOU SUBTRACT HEXADECIIMAL NUMBERS? | 5.7 | 8.2 | 8.7 | 39.0 | 3.5 | 9.9 | 14.0 | 19.0 | 9.8 | 14.9 | 14.9 | 14.9 |
| K 679 | K3-20 DO YOU DIVIDE BINARY NUMBERS? | 9.8 | 16.9 | 19.8 | 30.9 | 8.4 | 15.5 | 30.2 | 21.8 | 23.2 | 21.8 | 21.8 | 21.8 |
| K 680 | K3-21 DO YOU MULTIPLY BINARY NUMBERS? | 9.8 | 19.7 | 22.2 | 30.9 | 9.1 | 16.9 | 30.2 | 21.1 | 24.4 | 21.8 | 21.8 | 21.8 |
| K 681 | K3-22 DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 19.5 | 27.9 | 33.3 | 46.3 | 23.8 | 29.6 | 51.2 | 41.5 | 29.3 | 41.4 | 41.4 | 41.4 |
| K 682 | K3-23 DO YOU USE OR REFER TO GRAY CODE? | 2.4 | 4.1 | 9.5 | 30.1 | 2.8 | 13.4 | 34.9 | 18.3 | 3.7 | 8.0 | 8.0 | 8.0 |
| K 683 | K3-24 DO YOU USE OR REFER TO ICAO CODE? | 1.6 | 8.2 | 4.0 | 2.2 | 2.1 | 3.5 | .0 | 4.9 | 3.7 | 4.6 | 4.6 | 4.6 |
| K 684 | K3-25 DO YOU USE OR REFER TO EXCESS-3 CODE? | 1.6 | 4.1 | 4.8 | 7.4 | 5.6 | 9.2 | 9.3 | 14.1 | 17.1 | 10.3 | 10.3 | 10.3 |

L LOGIC FUNCTIONS (L1), BOOLEAN EQUATIONS (L2), COUNTERS (L3)

| | | | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| L 685 | L1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS? IF NO, GO TO ITEM L2-1; IF YES, CONTINUE. | 27.6 | 57.4 | 40.5 | 66.9 | 21.0 | 42.3 | 60.5 | 45.8 | 26.8 | 47.1 | 47.1 | 47.1 |
| L 686 | L1-2 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | 12.2 | 32.8 | 23.8 | 36.8 | 11.2 | 21.8 | 39.5 | 27.5 | 16.5 | 31.0 | 31.0 | 31.0 |
| L 687 | L1-3 DO YOU CONSTRUCT TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | 12.2 | 32.8 | 23.8 | 36.8 | 11.2 | 21.1 | 39.5 | 27.5 | 16.5 | 31.0 | 31.0 | 31.0 |
| L 688 | L1-4 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | 13.0 | 32.8 | 23.0 | 36.8 | 11.2 | 20.4 | 37.2 | 26.8 | 16.5 | 31.0 | 31.0 | 31.0 |
| L 689 | L1-5 DO YOU CONSTRUCT TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS OR GATES? | 13.0 | 31.1 | 23.0 | 34.6 | 11.2 | 18.3 | 39.5 | 26.1 | 16.5 | 31.0 | 31.0 | 31.0 |
| L 690 | L1-6 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | 18.7 | 52.5 | 34.1 | 47.1 | 14.7 | 28.9 | 44.2 | 38.7 | 22.0 | 36.8 | 36.8 | 36.8 |
| L 691 | L1-7 DO YOU USE OR REFER TO TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | 18.7 | 52.5 | 34.1 | 47.1 | 14.7 | 28.9 | 44.2 | 38.7 | 21.3 | 36.8 | 36.8 | 36.8 |
| L 692 | L1-8 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | 17.1 | 52.5 | 33.3 | 47.1 | 14.7 | 28.2 | 44.2 | 38.7 | 21.3 | 36.8 | 36.8 | 36.8 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 70 (M) | 71 (M) | 72 (M) | 73 (M) | 74 (M) | 75 (M) | |
|-------------|---|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| L 693 LI-9 | DO YOU USE OR REFER TO TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS? | 17.9 | 50.8 | 29.4 | 45.6 | 14.7 | 24.6 | 46.5 | 38.0 | 22.0 | 36.0 |
| L 694 LI-10 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'AND' GATES? | 26.0 | 57.4 | 38.1 | 66.9 | 18.9 | 40.0 | 60.5 | 45.0 | 26.0 | 47.1 |
| L 695 LI-11 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'OR' GATES? | 26.0 | 57.4 | 38.1 | 66.9 | 18.9 | 41.5 | 60.5 | 45.0 | 26.0 | 47.1 |
| L 696 LI-12 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'NAND' OR 'NOR' GATES? | 26.0 | 57.4 | 38.1 | 65.4 | 18.9 | 41.5 | 60.5 | 45.0 | 26.0 | 47.1 |
| L 697 LI-13 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'EXCLUSIVE OR' GATES? | 24.4 | 55.7 | 35.7 | 63.2 | 18.9 | 35.9 | 60.5 | 44.4 | 25.6 | 47.1 |
| L 698 LI-14 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR INHIBITED 'AND' GATES? | 23.6 | 49.2 | 31.7 | 49.3 | 16.8 | 31.5 | 44.2 | 39.4 | 21.3 | 46.0 |
| L 699 LI-15 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'B' BARS? | 4.1 | 6.6 | 6.3 | 5.9 | .7 | 4.2 | .0 | 7.0 | 4.9 | 4.6 |
| L 700 LI-16 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'M' BARS? | 4.1 | 5.7 | 5.6 | 5.1 | .7 | 4.2 | .0 | 7.0 | 4.9 | 4.6 |
| L 701 LI-17 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR COMBINERS? | 13.8 | 17.2 | 11.9 | 11.8 | 3.5 | 9.9 | 14.0 | 16.9 | 6.7 | 25.3 |
| L 702 LI-18 | DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS? | 26.0 | 53.3 | 35.7 | 62.5 | 18.2 | 40.1 | 37.2 | 39.4 | 23.2 | 41.4 |
| L 703 LI-19 | DO YOU USE OR REFER TO ONE-SHOT MULTIVIBRATOR SYMBOLS? | 23.6 | 54.1 | 35.7 | 60.3 | 16.1 | 39.4 | 34.9 | 36.6 | 21.3 | 39.1 |
| L 704 LI-20 | DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT OR SCHEMATIC DIAGRAMS? | 25.2 | 55.7 | 36.5 | 61.0 | 18.2 | 40.8 | 32.6 | 38.7 | 24.4 | 40.2 |
| L 705 LI-21 | DO YOU USE OR REFER TO ONE-SHOT CIRCUIT OR SCHEMATIC DIAGRAMS? | 22.8 | 54.9 | 36.5 | 54.4 | 15.4 | 38.7 | 32.6 | 35.2 | 21.3 | 39.1 |
| L 706 LI-22 | DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES? | 15.4 | 48.4 | 30.2 | 45.6 | 13.3 | 23.9 | 34.9 | 35.9 | 20.7 | 31.0 |
| L 707 LI-23 | DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | 14.6 | 35.2 | 25.4 | 43.4 | 11.9 | 27.5 | 30.2 | 28.9 | 20.1 | 26.4 |
| L 708 LI-24 | DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS? | 14.6 | 35.2 | 24.6 | 41.2 | 11.2 | 27.5 | 30.2 | 28.9 | 20.7 | 25.3 |
| L 709 LI-25 | DO YOU USE OR REFER TO NONCOMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | 12.2 | 28.7 | 19.8 | 40.4 | 9.8 | 21.8 | 27.9 | 25.4 | 17.7 | 23.0 |
| L 710 LI-26 | DO YOU CONSTRUCT TRUTH TABLES FOR 'B' BARS? | 2.4 | 3.3 | 4.0 | .7 | .7 | 5.6 | .0 | 2.8 | 1.8 | 3.4 |
| L 711 LI-27 | DO YOU CONSTRUCT TRUTH TABLES FOR 'M' BARS? | 2.4 | 3.3 | 4.0 | .0 | .7 | 4.9 | .0 | 2.1 | 1.8 | 2.3 |
| L 712 LI-28 | DO YOU CONSTRUCT TRUTH TABLES FOR COMBINERS? | 4.9 | 6.6 | 5.6 | 3.7 | .7 | 6.3 | 4.7 | 6.3 | 3.7 | 8.0 |

| O TSK | TITLES | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|-------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| L 749 | L3-20 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS? | 70 | 71 | 74 | 70 | 71 | 72 | 73 | 74 | 75 | (M) | (M) | (M) | (M) |
| L 750 | L3-21 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES? | 4.9 | 13.9 | 10.3 | 4.9 | 6.3 | 14.0 | 9.9 | 4.9 | 13.8 | | | | |
| L 751 | L3-22 DO YOU DETERMINE THE APPROPRIATE 'AND' GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT? | 7.3 | 17.2 | 15.1 | 23.5 | 7.0 | 12.0 | 14.0 | 19.7 | 8.5 | 16.1 | | | |
| ----- | | | | | | | | | | | | | | |
| M | TIMING CIRCUITS (M1), USE OF SIGNAL GENERATORS (M2), MOTORS AND GENERATORS (M3) | ----- | | | | | | | | | | | | |
| M 752 | M1-1 DO YOU WORK WITH SAWTOOTH WAVE GENERATOR TIMING CIRCUITS? | 24.4 | 42.6 | 33.3 | 20.6 | 26.6 | 55.6 | 14.0 | 47.2 | 18.9 | 36.8 | | | |
| M 753 | M1-2 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATOR TIMING CIRCUITS? | 14.6 | 28.7 | 13.5 | 9.6 | 15.4 | 51.4 | 7.0 | 26.1 | 8.5 | 14.9 | | | |
| M 754 | M1-3 DO YOU WORK WITH PULSED OSCILLATOR TIMING CIRCUITS? | 21.1 | 43.4 | 22.2 | 24.3 | 20.3 | 54.9 | 27.9 | 42.3 | 17.1 | 35.6 | | | |
| M 755 | M1-4 DO YOU WORK WITH BLOCKING OSCILLATOR TIMING CIRCUITS? | 19.5 | 39.3 | 17.5 | 16.2 | 20.3 | 58.5 | 9.3 | 30.3 | 16.5 | 19.5 | | | |
| M 756 | M1-5 DO YOU WORK WITH MASTER SLAVION TIMING CIRCUITS? | 22.8 | 21.3 | 20.6 | 31.6 | 11.9 | 26.8 | 14.0 | 16.2 | 9.8 | 25.3 | | | |
| M 757 | M1-6 DO YOU USE OR REFER TO RISE TIME? | 26.0 | 63.1 | 41.3 | 58.1 | 17.5 | 59.9 | 37.2 | 47.2 | 21.3 | 44.8 | | | |
| M 758 | M1-7 DO YOU USE OR REFER TO FALL OR FLYBACK TIME? | 24.4 | 56.6 | 33.3 | 47.1 | 16.8 | 50.0 | 32.6 | 45.8 | 19.5 | 35.6 | | | |
| M 759 | M1-8 DO YOU USE OR REFER TO SWEEP TIME? | 33.3 | 55.7 | 40.5 | 44.9 | 18.2 | 59.9 | 25.6 | 56.3 | 29.9 | 42.5 | | | |
| M 760 | M1-9 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS? | 19.5 | 31.1 | 25.4 | 14.7 | 16.1 | 57.7 | 11.6 | 33.8 | 16.5 | 28.7 | | | |
| M 761 | M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS? | 17.9 | 27.9 | 22.2 | 15.4 | 14.0 | 54.9 | 7.0 | 35.9 | 17.7 | 21.8 | | | |
| M 762 | M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS? | 19.5 | 29.5 | 20.6 | 14.7 | 11.9 | 46.5 | 14.0 | 31.7 | 14.0 | 21.8 | | | |
| M 763 | M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS? | 19.5 | 31.1 | 20.6 | 14.0 | 11.2 | 50.0 | 11.6 | 26.1 | 16.5 | 20.7 | | | |

O YSK TITLES

| | | | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|------|
| M 764 | M2-1 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 61.0 | 63.9 | 62.7 | 36.8 | 72.0 | 64.1 | 32.6 | 66.2 | 45.1 | 72.4 |
| M 765 | M2-2 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS? | 61.0 | 62.3 | 64.3 | 31.6 | 70.6 | 62.7 | 30.2 | 64.0 | 43.3 | 71.3 |
| M 766 | M2-3 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS? | 48.0 | 50.0 | 50.8 | 27.9 | 58.0 | 47.9 | 23.3 | 40.6 | 30.5 | 59.0 |
| M 767 | M2-4 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS? | 43.1 | 43.4 | 48.4 | 24.3 | 58.0 | 43.7 | 25.6 | 45.8 | 31.7 | 50.6 |
| M 768 | M2-5 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS? | 36.6 | 31.1 | 43.7 | 23.5 | 47.6 | 38.0 | 9.3 | 31.0 | 17.1 | 34.5 |
| M 769 | M2-6 DO YOU USE AUDIO SINE-WAVE GENERATORS? | 59.3 | 47.5 | 59.5 | 21.3 | 68.5 | 47.9 | 4.7 | 31.0 | 38.4 | 70.1 |
| M 770 | M2-7 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE? | 35.0 | 31.1 | 31.0 | 14.7 | 26.6 | 38.7 | 4.7 | 35.9 | 15.2 | 51.7 |
| M 771 | M2-8 DO YOU USE RF GENERATORS LESS THAN 1,000 MHZ? | 49.6 | 50.8 | 58.7 | 8.8 | 67.1 | 50.0 | 11.6 | 47.9 | 18.3 | 64.4 |
| M 772 | M2-9 DO YOU USE RF GENERATORS GREATER THAN 1,000 MHZ? | 52.0 | 50.0 | 27.0 | 5.9 | 28.0 | 53.5 | 30.2 | 43.4 | 17.7 | 39.5 |
| M 773 | M2-10 DO YOU USE WHITE NOISE GENERATORS? | 35.8 | 9.8 | 11.1 | 6.6 | 1.4 | 2.8 | .0 | 17.6 | 6.1 | 20.7 |
| M 774 | M2-11 DO YOU USE PATTERN GENERATORS? | 22.8 | 9.8 | 14.3 | 13.2 | 3.5 | 12.7 | 2.3 | 14.8 | .6 | 25.3 |
| M 775 | M2-12 DO YOU USE PSEUDO-RANDOM GENERATORS? | 10.6 | 9.8 | 7.9 | 2.2 | 1.4 | 2.8 | 2.3 | 9.2 | .6 | 21.8 |
| M 776 | M2-13 DO YOU USE TIME MARK GENERATORS? | 17.1 | 44.3 | 10.3 | 5.9 | 2.8 | 29.6 | 4.7 | 20.4 | 2.4 | 25.3 |
| M 777 | M2-14 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS? | 30.1 | 43.4 | 24.6 | 12.5 | 15.4 | 42.3 | 11.6 | 45. | 17.7 | 32.2 |
| M 778 | M3-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS, GENERATORS (SERVO), OR ALTERNATORS? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 26.0 | 53.3 | 36.5 | 36.8 | 32.2 | 48.6 | 11.6 | 31.7 | 45.1 | 42.5 |
| M 779 | M3-2 DO YOU INSPECT MOTORS? | 23.6 | 52.5 | 34.1 | 33.8 | 29.4 | 45.0 | 9.3 | 28.2 | 37.8 | 43.7 |
| M 780 | M3-3 DO YOU CLEAN OR LUBRICATE MOTORS? | 22.0 | 44.3 | 32.5 | 32.4 | 26.6 | 34.5 | 4.7 | 23.2 | 21.3 | 31.0 |
| M 781 | M3-4 DO YOU OPERATE MOTORS? | 23.6 | 43.4 | 30.2 | 28.7 | 28.0 | 39.4 | 11.6 | 23.9 | 30.5 | 34.5 |
| M 782 | M3-5 DO YOU REMOVE OR REPLACE COMPLETE MOTORS? | 22.0 | 48.4 | 34.1 | 31.6 | 30.1 | 40.1 | 4.7 | 25.4 | 36.0 | 36.8 |
| M 783 | M3-6 DO YOU REMOVE OR REPLACE MOTOR PARTS? | 15.4 | 23.0 | 25.4 | 25.7 | 12.6 | 12.7 | .0 | 9.9 | 4.9 | 9.2 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 375 (M) | 375 (M) |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| M 784 | M3-7 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIPE CONNECTIONS OF MOTORS? | 22.8 | 50.0 | 33.3 | 33.8 | 31.5 | 40.1 | 4.7 | 26.1 | 37.2 | 37.9 | |
| M 785 | M3-8 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS? | 14.6 | 14.8 | 18.3 | 20.6 | 7.0 | 9.9 | .0 | 9.2 | 6.1 | 6.9 | |
| M 786 | M3-9 DO YOU PERFORM TASKS ON MOTOR FIELD COILS? | 9.8 | 8.2 | 7.9 | 4.4 | 2.1 | 4.9 | .0 | 2.1 | 2.4 | 2.3 | |
| M 787 | M3-10 DO YOU PERFORM ANY TASKS ON MOTOR ARMATURES? | 11.4 | 10.7 | 12.7 | 8.8 | 4.2 | 5.6 | .0 | 4.2 | 2.4 | 4.6 | |
| M 788 | M3-11 DO YOU PERFORM ANY TASKS ON MOTOR ROTORS? | 8.9 | 10.7 | 10.3 | 8.8 | 3.5 | 4.9 | .0 | 5.6 | 3.0 | 2.3 | |
| M 789 | M3-12 DO YOU PERFORM ANY TASKS ON MOTOR BRUSHES? | 14.6 | 17.2 | 18.3 | 22.1 | 10.5 | 8.5 | 2.3 | 9.9 | 2.4 | 8.0 | |
| M 790 | M3-13 DO YOU PERFORM ANY TASKS ON MOTOR SLIP RINGS? | 8.1 | 8.2 | 12.7 | 10.3 | 4.2 | 8.5 | 2.3 | 6.3 | 3.0 | 3.4 | |
| M 791 | M3-14 DO YOU PERFORM ANY TASKS ON MOTOR COMMUTATORS? | 8.1 | 9.8 | 11.9 | 9.6 | 4.9 | 6.3 | .0 | 4.9 | 1.2 | 2.3 | |
| M 792 | M3-15 DO YOU PERFORM ANY TASKS ON MOTOR POLE PIECES? | 5.7 | 7.4 | 7.9 | 4.4 | 2.1 | 4.2 | .0 | 2.8 | 1.2 | 2.3 | |
| M 793 | M3-16 DO YOU DETERMINE OR MEASURE FORCE OR TORQUE CREATED BY A MOTOR? | 1.6 | 3.3 | 11.1 | 2.2 | 4.9 | 11.3 | .0 | 4.9 | 3.0 | 2.3 | |
| M 794 | M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR? | 2.4 | 14.8 | 13.5 | 5.1 | 5.6 | 17.6 | .0 | 6.3 | 7.3 | 3.4 | |
| M 795 | M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS? | 1.6 | 9.0 | 5.6 | 3.7 | 2.1 | 9.2 | 2.3 | 4.9 | 3.7 | 1.1 | |
| M 796 | M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS? | 11.4 | 26.2 | 25.4 | 14.7 | 17.5 | 37.3 | 7.0 | 14.8 | 26.8 | 19.5 | |
| M 797 | M3-20 DO YOU WORK WITH INDUCTION MOTORS? | 13.8 | 28.7 | 22.2 | 18.4 | 12.6 | 33.8 | 4.7 | 15.5 | 12.8 | 16.1 | |
| M 798 | M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS? | 9.8 | 22.1 | 12.7 | 8.8 | 7.0 | 24.6 | 4.7 | 7.7 | 6.7 | 14.9 | |
| M 799 | M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS? | 13.8 | 25.4 | 18.3 | 15.4 | 14.7 | 31.0 | 4.7 | 13.4 | 15.2 | 20.7 | |
| M 800 | M3-23 DO YOU WORK WITH SERVOES OR SYNCHROS MOTORS? | 12.2 | 23.0 | 27.0 | 19.1 | 23.8 | 46.5 | 9.3 | 14.8 | 40.2 | 34.5 | |
| M 801 | M3-24 DO YOU WORK WITH SHADED-POLE MOTOR? | 4.1 | 3.3 | 5.6 | 5.9 | 1.4 | 5.6 | 2.3 | 4.2 | 1.8 | 2.3 | |
| M 802 | M3-25 DO YOU INSPECT GENERATORS OR ALTERNATORS? | 9.8 | 21.3 | 14.3 | 11.8 | 5.6 | 13.4 | 2.3 | 7.7 | 9.8 | 3.4 | |
| M 803 | M3-26 DO YOU CLEAN OR LUBRICATE GENERATORS OR ALTERNATORS? | 7.3 | 10.7 | 11.1 | 11.8 | 4.2 | 7.7 | .0 | 2.8 | 6.1 | 3.4 | |
| M 804 | M3-27 DO YOU OPERATE GENERATORS OR ALTERNATORS? | 11.4 | 22.1 | 14.3 | 9.6 | 6.3 | 11.3 | 2.3 | 8.5 | 7.3 | 5.7 | |
| M 805 | M3-28 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS OR ALTERNATORS? | 6.5 | 7.4 | 11.9 | 4.4 | 3.5 | 7.0 | .0 | 2.8 | 7.9 | 1.1 | |
| M 806 | M3-29 DO YOU REMOVE OR REPLACE GENERATOR, ALTERNATOR, OR PARTS? | 5.7 | 5.7 | 7.1 | 5.9 | 1.4 | 3.5 | .0 | .7 | .6 | 2.3 | |

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| D TSK | TITLES | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|-----|------|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|
| M 007 | M3-30 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS OR ALTERNATORS? | 70 | 71 | 74 | 74 | 70 | 71 | 72 | 73 | 74 | 75 | (M) | (M) | (M) |
| M 008 | M3-31 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS OR ALTERNATORS? | 8.9 | 15.6 | 11.9 | 8.1 | 5.6 | 9.2 | 2.3 | 4.2 | 10.4 | 2.3 | 5.7 | 2.5 | 4.8 |
| | | | | | | | | | | | | | | |

M METER MOVEMENTS (M1), SATURABLE REACTORS AND MAGNETIC AMPLIFIERS (M2), WAVESHAPING CIRCUITS (M3)

| | | | | | | | | | | | | | | |
|-------|--|------|------|------|------|------|------|------|------|------|------|--|--|--|
| M 009 | M1-1 DO YOU WORK WITH METERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M2-1; IF YES, CONTINUE. | 64.2 | 68.9 | 63.5 | 56.6 | 81.6 | 76.1 | 60.5 | 66.9 | 74.4 | 75.9 | | | |
| M 010 | M1-2 DO YOU CONSIDER THE FUNCTIONS OF PERMANENT MAGNET INTERNAL METER PARTS? | 21.1 | 31.6 | 22.2 | 10.3 | 18.2 | 27.5 | 9.3 | 15.5 | 19.0 | 18.4 | | | |
| M 011 | M1-3 DO YOU CONSIDER THE FUNCTIONS OF MOVING COIL INTERNAL METER PARTS? | 22.8 | 34.4 | 25.4 | 14.7 | 23.8 | 31.7 | 11.6 | 21.1 | 20.7 | 23.0 | | | |
| M 012 | M1-4 DO YOU CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS INTERNAL METER PARTS? | 17.9 | 23.8 | 20.6 | 13.2 | 17.5 | 21.8 | 7.0 | 18.3 | 12.8 | 12.6 | | | |
| M 013 | M1-5 DO YOU READ METER SCALES? | 65.9 | 72.1 | 64.3 | 52.9 | 81.1 | 75.4 | 58.1 | 66.9 | 72.0 | 75.9 | | | |
| M 014 | M1-6 DO YOU EXTEND THE RANGE OF AMMETERS? | 22.8 | 31.1 | 31.0 | 15.4 | 28.7 | 32.4 | 11.6 | 25.4 | 22.0 | 27.6 | | | |
| M 015 | M1-7 DO YOU EXTEND THE RANGE OF VOLTMETERS? | 35.8 | 39.3 | 40.5 | 19.1 | 41.3 | 44.4 | 18.6 | 35.9 | 33.5 | 31.0 | | | |
| M 016 | M1-8 DO YOU ZERO OHMMETERS? | 65.0 | 67.2 | 62.7 | 52.2 | 80.4 | 76.1 | 55.8 | 66.2 | 73.8 | 73.6 | | | |
| M 017 | M1-9 DO YOU ZERO AMMETERS? | 32.5 | 41.0 | 38.1 | 25.0 | 42.0 | 52.1 | 14.0 | 38.0 | 24.4 | 40.2 | | | |
| M 018 | M1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)? | 40.7 | 50.8 | 50.8 | 22.8 | 48.3 | 52.1 | 23.3 | 42.3 | 46.3 | 47.1 | | | |
| M 019 | M1-11 DO YOU CONSIDER BALLASTIC RESPONSE OF METER MOVEMENTS? | 8.9 | 7.4 | 11.9 | 5.1 | 5.6 | 9.2 | 2.3 | 3.5 | 6.7 | 8.0 | | | |
| M 020 | M1-12 DO YOU CONSIDER OTHER METER MOVEMENTS? | 25.2 | 27.0 | 26.2 | 13.2 | 16.8 | 22.5 | 11.6 | 19.0 | 19.5 | 23.0 | | | |
| M 021 | M2-1 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 10.6 | 33.6 | 11.1 | 8.1 | 7.7 | 14.8 | 4.7 | 12.7 | 6.1 | 4.6 | | | |

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| D TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|---|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| M 022 | M2-2 DO YOU INSPECT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 6.5 | 32.0 | 7.9 | 6.6 | 5.6 | 9.2 | 2.3 | 10.6 | 4.9 | 1.1 | | | | | | | |
| M 023 | M2-3 DO YOU CLEAN SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 4.9 | 27.9 | 6.3 | 4.4 | 4.9 | 7.0 | .0 | 6.3 | 3.7 | 1.1 | | | | | | | |
| M 024 | M2-4 DO YOU ADJUST SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 4.1 | 23.8 | 6.3 | 2.2 | 4.2 | 5.6 | 2.3 | 4.9 | 3.7 | .0 | | | | | | | |
| M 025 | M2-5 DO YOU TROUBLESHOOT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | 5.7 | 29.5 | 7.9 | 5.9 | 7.0 | 9.9 | 4.7 | 8.5 | 4.3 | 1.1 | | | | | | | |
| M 026 | M2-6 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS? | 6.5 | 27.9 | 7.1 | 6.6 | 5.6 | 9.9 | 2.3 | 8.5 | 4.9 | 1.1 | | | | | | | |
| M 027 | M2-7 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS? | 2.4 | 16.4 | 4.0 | 3.7 | 4.2 | 7.0 | .0 | 3.5 | 1.2 | .0 | | | | | | | |
| M 028 | M2-8 DO YOU USE OR REFER TO Hysteresis CURVES OR LOOPS? | 1.6 | 9.8 | 4.0 | 2.2 | 1.4 | 2.8 | 2.3 | 6.3 | 3.0 | 2.3 | | | | | | | |
| M 029 | M2-9 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | 2.4 | 16.4 | 7.1 | 2.2 | 3.5 | 8.5 | 2.3 | 7.7 | 1.8 | 1.1 | | | | | | | |
| M 030 | M2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | 3.3 | 15.6 | 5.6 | 5.9 | 2.8 | 7.7 | .0 | 9.2 | 1.8 | 1.1 | | | | | | | |
| M 031 | M2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS? | 4.1 | 13.9 | 5.6 | 2.2 | 2.1 | 7.0 | .0 | 6.3 | 1.8 | 1.1 | | | | | | | |
| M 032 | M2-12 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS? | 8.1 | 24.6 | 10.3 | 5.9 | 4.9 | 10.6 | 4.7 | 11.3 | 4.9 | 1.1 | | | | | | | |
| M 033 | M3-1 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 01-1; IF YES, CONTINUE. | 30.9 | 62.3 | 28.6 | 38.2 | 11.9 | 54.9 | 58.1 | 47.2 | 26.8 | 26.4 | | | | | | | |
| M 034 | M3-2 DO YOU USE OR REFER TO TRANSIENT INTERVALS (RISE TIME AND FALL TIME)? | 21.1 | 59.0 | 23.8 | 30.9 | 9.1 | 43.0 | 34.9 | 35.9 | 17.7 | 20.7 | | | | | | | |
| M 035 | M3-3 DO YOU USE OR REFER TO PULSE WIDTH (PW)? | 26.0 | 61.5 | 23.8 | 36.8 | 10.5 | 54.9 | 55.8 | 46.5 | 23.2 | 24.1 | | | | | | | |
| M 036 | M3-4 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)? | 19.5 | 53.3 | 20.6 | 36.0 | 9.1 | 51.4 | 58.1 | 46.5 | 21.3 | 19.5 | | | | | | | |
| M 037 | M3-5 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)? | 20.3 | 54.1 | 23.0 | 33.8 | 9.1 | 54.9 | 58.1 | 46.5 | 23.2 | 18.4 | | | | | | | |
| M 038 | M3-6 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS? | 27.6 | 50.8 | 25.4 | 29.4 | 9.8 | 45.1 | 16.3 | 32.4 | 16.5 | 21.8 | | | | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| N 839 | M3-7 DO YOU USE OR REFER TO INTEGRATING CIRCUITS? | 26.8 | 52.5 | 23.0 | 29.4 | 9.8 | 43.0 | 25.6 | 35.2 | 20.1 | 20.7 | | | | | | | |
| N 840 | M3-8 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT? | 17.9 | 39.3 | 22.2 | 18.4 | 5.6 | 40.8 | 9.3 | 23.9 | 9.1 | 14.9 | | | | | | | |
| N 841 | M3-9 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION? | 11.4 | 31.1 | 16.7 | 9.6 | 3.5 | 27.5 | 9.3 | 14.1 | 7.3 | 9.2 | | | | | | | |
| N 842 | M3-10 DO YOU WORK WITH SQUARE WAVE GENERATOR. SOLID STATE CIRCUITS? | 22.0 | 48.4 | 22.2 | 26.5 | 10.5 | 50.0 | 18.4 | 38.7 | 10.3 | 26.4 | | | | | | | |
| N 843 | M3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATOR SOLID STATE CIRCUITS? | 17.1 | 34.4 | 11.9 | 13.2 | 6.3 | 38.7 | 9.3 | 28.9 | 9.1 | 16.1 | | | | | | | |
| N 844 | M3-12 DO YOU WORK WITH TRIANGULAR (SAWTOOTH) WAVE GENERATOR SOLID STATE CIRCUITS? | 18.7 | 35.2 | 16.7 | 12.5 | 6.3 | 44.4 | 11.6 | 34.5 | 10.4 | 21.8 | | | | | | | |
| N 845 | M3-13 DO YOU WORK WITH RAMP (TRAPEZOIDAL) GENERATOR. SOLID STATE CIRCUITS? | 8.1 | 28.7 | 9.5 | 8.8 | 5.6 | 43.0 | 4.7 | 29.6 | 7.3 | 8.0 | | | | | | | |
| N 846 | M3-14 DO YOU WORK WITH FUNCTION GENERATOR SOLID STATE CIRCUITS? | 15.4 | 26.2 | 17.5 | 12.5 | 5.6 | 20.4 | 7.0 | 30.3 | 10.4 | 20.7 | | | | | | | |
| N 847 | M3-15 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS? | 17.9 | 52.5 | 18.3 | 21.3 | 7.7 | 43.7 | 16.3 | 27.5 | 15.2 | 19.5 | | | | | | | |
| N 848 | M3-16 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS? | 17.9 | 50.8 | 19.8 | 21.3 | 5.6 | 45.1 | 14.0 | 30.3 | 12.2 | 20.7 | | | | | | | |
| N 849 | M3-17 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS? | 12.2 | 38.5 | 15.1 | 14.0 | 2.8 | 34.5 | 11.6 | 23.2 | 9.8 | 13.8 | | | | | | | |
| N 850 | M3-18 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS? | 15.4 | 50.0 | 19.0 | 20.6 | 7.0 | 43.0 | 25.6 | 26.1 | 15.2 | 14.9 | | | | | | | |
| N 851 | M3-19 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS? | 15.4 | 48.4 | 19.0 | 22.8 | 5.6 | 39.4 | 7.0 | 19.0 | 8.5 | 14.9 | | | | | | | |
| N 852 | M3-20 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS? | 16.3 | 43.4 | 16.7 | 22.1 | 7.0 | 42.3 | 16.3 | 25.4 | 13.4 | 16.1 | | | | | | | |
| N 853 | M3-21 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS? | 13.8 | 45.1 | 16.7 | 21.3 | 4.9 | 37.3 | 7.0 | 17.6 | 9.1 | 16.1 | | | | | | | |

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 320 (M) | 320 (M) | 320 (M) | 320 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 375 (M) | 375 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0 877 | 01-24 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 14.6 | 12.3 | 38.9 | .7 | 52.4 | 6.3 | 2.3 | 8.5 | 1.8 | 14.9 | | | | | |
| 0 878 | 01-25 DO YOU USE OR REFER TO FREQUENCY STABILITY WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 15.4 | 12.3 | 43.7 | .7 | 60.8 | 6.3 | 2.3 | 7.0 | 1.8 | 23.0 | | | | | |
| 0 879 | 01-26 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 12.2 | 10.7 | 29.4 | .7 | 21.0 | 2.8 | .0 | 4.2 | 1.8 | 10.3 | | | | | |
| 0 880 | 01-27 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB OR ISB TRANSMITTERS? | 6.5 | 9.8 | 21.4 | .7 | 27.3 | 4.9 | .0 | 4.2 | 2.4 | 4.6 | | | | | |
| 0 881 | 01-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB TRANSMITTER SCHEMATIC DIAGRAMS? | 17.1 | 13.9 | 41.3 | .7 | 53.8 | 3.5 | .0 | 6.3 | 3.0 | 13.8 | | | | | |
| 0 882 | 01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB RECEIVER SCHEMATIC DIAGRAMS? | 17.1 | 11.5 | 43.7 | .7 | 54.5 | 3.5 | 2.3 | 10.6 | 3.0 | 13.8 | | | | | |
| 0 883 | 01-30 DO YOU PERFORM AERONAUTIC STATION ASSESSMENT PROGRAMS (ASAP)? | 1.6 | 4.1 | 11.1 | .0 | 4.2 | .0 | .0 | .0 | .0 | .0 | | | | | |
| 0 884 | 02-1 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 03-1; IF YES, CONTINUE. | 15.4 | 45.9 | 7.9 | 2.9 | 4.2 | 51.4 | 55.8 | 35.2 | 12.8 | 8.0 | | | | | |
| 0 885 | 02-2 DO YOU INSPECT PULSE MODULATION SYSTEMS? | 12.2 | 46.7 | 3.2 | 1.5 | 3.5 | 45.8 | 25.6 | 11.7 | 12.2 | 6.9 | | | | | |
| 0 886 | 02-3 DO YOU CLEAN PULSE MODULATION SYSTEMS? | 10.6 | 38.5 | 2.4 | 1.5 | 2.1 | 38.0 | 9.3 | 27.5 | 9.1 | 3.4 | | | | | |
| 0 887 | 02-4 DO YOU ALIGN PULSE MODULATION SYSTEMS? | 12.2 | 46.7 | 2.4 | 1.5 | 4.0 | 18.8 | 27.5 | 9.8 | 4.6 | | | | | | |
| 0 888 | 02-5 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS? | 11.4 | 44.3 | 1.6 | 2.2 | 2.8 | 45.1 | 44.2 | 2.5 | 12.2 | 5.7 | | | | | |
| 0 889 | 02-6 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS? | 9.8 | 42.6 | 2.4 | 2.2 | 1.4 | 35.2 | 23.3 | 21.1 | 9.8 | 5.7 | | | | | |
| 0 890 | 02-7 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS? | 9.8 | 38.5 | 1.6 | 1.5 | 2.8 | 44.4 | 18.6 | 28.9 | 12.2 | 5.7 | | | | | |
| 0 891 | 02-8 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS? | 9.8 | 38.5 | 2.4 | 1.5 | 1.4 | 37.3 | 16.3 | 21.8 | 10.4 | 5.7 | | | | | |
| 0 892 | 02-9 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) PULSE MODULATION SYSTEMS? | 7.3 | 39.3 | 3.2 | .7 | .7 | 39.4 | 16.3 | 28.9 | 7.9 | 2.3 | | | | | |
| 0 893 | 02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) PULSE MODULATION SYSTEMS? | 4.1 | 23.0 | 2.4 | .7 | .0 | 25.4 | 25.6 | 18.3 | 6.7 | 4.6 | | | | | |
| 0 894 | 02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) PULSE MODULATION SYSTEMS? | 4.9 | 14.8 | 1.6 | .0 | .0 | 22.5 | 4.7 | 21.8 | 4.3 | 1.1 | | | | | |
| 0 895 | 02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) PULSE MODULATION SYSTEMS? | 10.6 | 23.0 | 2.4 | .0 | .7 | 23.9 | 11.6 | 18.3 | 3.0 | 3.4 | | | | | |
| 0 896 | 02-13 DO YOU WORK ON LINE PULSING MODULATION PULSE MODULATION SYSTEMS? | 3.3 | 9.8 | .0 | .7 | .0 | 8.5 | 2.3 | 9.2 | 2.4 | 1.1 | | | | | |
| 0 897 | 02-14 DO YOU WORK ON TIME DIVISION MULTIPLEXING (TDM) PULSE MODULATION SYSTEMS? | 9.8 | 8.2 | 3.2 | .7 | 1.4 | 5.6 | 4.7 | 19.7 | 2.4 | 3.4 | | | | | |
| 0 898 | 02-15 DO YOU WORK ON - DON'T KNOW WHICH TYPE OF MODULATION SYSTEM? | 2.4 | 4.9 | 1.6 | 1.5 | 2.1 | 9.9 | 16.3 | 2.8 | 1.8 | .0 | | | | | |
| 0 899 | 02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLY STAGE? | 11.4 | 40.2 | 2.4 | 1.5 | 1.4 | 43.7 | 37.2 | 24.6 | 9.1 | 5.7 | | | | | |
| 0 900 | 02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODE STAGE? | 6.5 | 22.1 | .8 | .7 | .0 | 37.3 | 4.7 | 9.2 | 7.9 | 3.4 | | | | | |
| 0 901 | 02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORK STAGE? | 8.9 | 40.2 | 1.6 | 1.5 | .0 | 43.7 | 18.6 | 15.5 | 7.3 | 4.6 | | | | | |
| 0 902 | 02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMER STAGE? | 8.9 | 29.5 | 1.6 | .7 | .0 | 38.7 | 20.9 | 18.3 | 7.9 | 5.7 | | | | | |
| 0 903 | 02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRON STAGE? | 3.3 | 21.3 | .0 | .0 | .0 | 37.3 | 7.0 | 7.7 | 3.0 | 1.1 | | | | | |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0 904 | 02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMER STAGE? | 7.3 | 36.9 | .8 | .7 | .0 | 40.1 | 18.6 | 11.3 | 6.7 | 4.6 | | | | |
| 0 905 | 02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBE STAGE? | 8.1 | 37.7 | .8 | .0 | .7 | 43.0 | 32.6 | 14.8 | 8.5 | 3.4 | | | | |
| 0 906 | 02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIER STAGE? | 9.8 | 41.8 | 1.6 | .7 | 1.4 | 44.4 | 37.2 | 22.5 | 9.8 | 4.6 | | | | |
| 0 907 | 02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTER STAGE? | 8.9 | 24.6 | 2.4 | .7 | 1.4 | 35.9 | 27.9 | 20.4 | 7.9 | 4.6 | | | | |
| 0 908 | 02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIER STAGE? | 8.9 | 38.5 | 1.6 | .7 | 1.4 | 44.4 | 39.5 | 22.5 | 10.4 | 4.6 | | | | |
| 0 909 | 02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTOR STAGE? | 11.4 | 36.9 | 1.6 | 1.5 | 1.4 | 44.4 | 32.6 | 21.8 | 8.5 | 4.6 | | | | |
| 0 910 | 02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIER STAGE? | 7.3 | 35.2 | .8 | 1.5 | .0 | 42.3 | 20.9 | 21.8 | 2.4 | 1.1 | | | | |
| 0 911 | 02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIER STAGE? | 6.5 | 27.0 | .0 | 1.5 | .0 | 33.0 | 14.0 | 14.0 | 2.4 | 1.1 | | | | |
| 0 912 | 02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 5.7 | 38.5 | 4.0 | 2.2 | .0 | 50.0 | 58.1 | 29.6 | 10.4 | 6.9 | | | | |
| 0 913 | 02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 5.7 | 35.2 | 4.0 | 2.2 | .7 | 49.3 | 58.1 | 28.2 | 8.5 | 6.9 | | | | |
| 0 914 | 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 11.4 | 45.1 | 4.0 | 2.2 | .7 | 50.0 | 58.1 | 29.6 | 10.4 | 6.9 | | | | |
| 0 915 | 02-32 DO YOU USE OR REFER TO PULSE SHAPE WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 10.6 | 44.3 | 4.0 | 2.2 | 1.4 | 47.9 | 44.2 | 26.8 | 10.4 | 5.7 | | | | |
| 0 916 | 02-33 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 6.5 | 45.1 | 2.4 | 2.2 | 1.4 | 47.9 | 53.5 | 23.9 | 9.8 | 3.4 | | | | |
| 0 917 | 02-34 DO YOU USE OR REFER TO AVERAGE POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 6.5 | 43.4 | 2.4 | 2.2 | .0 | 47.2 | 53.5 | 24.6 | 9.1 | 4.6 | | | | |
| 0 918 | 02-35 DO YOU USE OR REFER TO DUTY CYCLE (DC) WHEN WORKING WITH PULSE MODULATION SYSTEMS? | 7.3 | 42.6 | 2.4 | 2.2 | 1.4 | 46.5 | 51.2 | 25.4 | 8.5 | 4.6 | | | | |
| 0 919 | 02-36 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? | 5.7 | 32.0 | 2.4 | 1.5 | .0 | 40.1 | 37.2 | 21.8 | 8.5 | 4.6 | | | | |
| 0 920 | 02-37 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? | 5.7 | 39.3 | 2.4 | 2.2 | .0 | 45.8 | 30.2 | 25.4 | 10.4 | 5.7 | | | | |
| 0 921 | 02-38 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS? | 4.9 | 39.3 | 2.4 | 1.5 | .0 | 40.1 | 39.5 | 9.9 | 6.1 | 2.3 | | | | |
| 0 922 | 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS? | 12.2 | 43.4 | 1.6 | 2.2 | 1.4 | 45.8 | 48.8 | 21.1 | 9.1 | 4.6 | | | | |
| 0 923 | 02-40 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS? | 12.2 | 40.2 | 2.4 | 2.2 | 1.4 | 45.1 | 41.9 | 27.5 | 9.1 | 4.6 | | | | |
| 0 924 | 03-1 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB? IF NO, GO TO ITEM P1-1; IF YES, CONTINUE. | 41.5 | 68.0 | 46.0 | 2.9 | 84.6 | 82.4 | 74.4 | 70.4 | 48.8 | 73.6 | | | | |
| 0 925 | 03-2 DO YOU INSPECT ANTENNAS? | 30.1 | 67.2 | 34.9 | 1.5 | 86.0 | 80.3 | 44.2 | 66.9 | 48.2 | 71.3 | | | | |
| 0 926 | 03-3 DO YOU CLEAN ANTENNAS? | 22.8 | 54.1 | 21.4 | .7 | 72.0 | 61.3 | 18.6 | 50.7 | 38.4 | 58.6 | | | | |
| 0 927 | 03-4 DO YOU PHYSICALLY ALIGN ANTENNAS? | 23.6 | 53.3 | 21.4 | .7 | 28.7 | 50.0 | 4.7 | 16.9 | 28.7 | 24.1 | | | | |
| 0 928 | 03-5 DO YOU ELECTRICALLY ALIGN ANTENNAS? | 18.7 | 54.1 | 21.4 | .0 | 27.3 | 43.0 | 14.0 | 7.7 | 27.4 | 24.1 | | | | |
| 0 929 | 03-6 DO YOU TROUBLESHOOT TO ANTENNAS? | 33.3 | 63.9 | 38.1 | .0 | 78.3 | 70.4 | 62.8 | 59.9 | 47.0 | 67.8 | | | | |
| 0 930 | 03-7 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS? | 19.5 | 41.8 | 22.2 | .0 | 52.4 | 53.5 | 58.1 | 14.8 | 36.0 | 33.3 | | | | |
| 0 931 | 03-8 DO YOU REMOVE OR INSTALL ANTENNAS? | 24.4 | 45.9 | 23.8 | .0 | 75.5 | 69.0 | 2.3 | 59.9 | 47.6 | 60.9 | | | | |

| O TSK | TITLES | 304 | 304 | 304 | 305 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 | 328 |
|-------|--|------|------|------|-----|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 0 961 | 03-38 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS? | 7.3 | 12.3 | 25.4 | .7 | 8.4 | 4.2 | 2.3 | 2.1 | .6 | 6.9 | | | | | | | |
| 0 962 | 03-39 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS? | 8.9 | 50.8 | 20.6 | .7 | 4.2 | 22.5 | 11.6 | 9.9 | 3.7 | 3.4 | | | | | | | |
| 0 963 | 03-40 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS? | 11.4 | 54.1 | 19.0 | .7 | 3.5 | 26.1 | 4.7 | 6.3 | 5.5 | 4.6 | | | | | | | |
| 0 964 | 03-41 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN - DON'T KNOW WHAT KIND OF ELEMENT? | 7.3 | 6.6 | 7.1 | .7 | 29.4 | 28.2 | 30.2 | 30.3 | 25.0 | 23.0 | | | | | | | |
| 0 965 | 03-42 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS? | 37.4 | 46.7 | 21.4 | 1.5 | 30.1 | 60.6 | 53.5 | 44.4 | 15.2 | 28.7 | | | | | | | |
| 0 966 | 03-43 DO YOU WORK ON BIDIRECTIONAL ANTENNAS? | 5.7 | 27.0 | 26.2 | .7 | 14.7 | 49.3 | 7.0 | 25.4 | 22.6 | 19.5 | | | | | | | |
| 0 967 | 03-44 DO YOU WORK ON OMNIDIRECTIONAL ANTENNAS? | 12.2 | 67.2 | 41.3 | .7 | 74.1 | 75.4 | 9.3 | 60.6 | 15.2 | 60.9 | | | | | | | |
| 0 968 | 03-45 DO YOU WORK WITH ROTARY ANTENNA ARRAYS? | 2.4 | 50.0 | 15.9 | .7 | 18.2 | 50.7 | 60.5 | 11.3 | 22.0 | 8.0 | | | | | | | |

P TRANSMISSION LINES (P1), WAVEGUIDES AND CAVITY RESONATORS (P2), MICROWAVE AMPLIFIERS AND OSCILLATORS (P3)

| | | | | | | | | | | | | | | | | | | |
|-------|---|------|------|------|-----|------|------|------|------|------|------|--|--|--|--|--|--|--|
| P 969 | P1-1 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES? DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES. IF NO, GO TO ITEM P2-1; IF YES, CONTINUE. | 28.5 | 50.0 | 35.7 | 7.4 | 66.4 | 42.3 | 39.5 | 40.1 | 11.0 | 55.2 | | | | | | | |
| P 970 | P1-2 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE COPPER LOSS OR 'I SUB 2 R' LOSS IN TRANSMISSION LINES? | 7.3 | 14.8 | 9.5 | .0 | 7.7 | 4.9 | 2.3 | 7.7 | 1.2 | 6.9 | | | | | | | |
| P 971 | P1-3 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES? | 10.6 | 18.0 | 9.5 | .0 | 11.9 | 7.0 | 4.7 | 10.6 | 1.2 | 10.3 | | | | | | | |
| P 972 | P1-4 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE RADIATION LOSS? | 17.1 | 29.5 | 16.7 | 2.9 | 19.6 | 16.9 | 9.3 | 18.3 | 4.3 | 19.5 | | | | | | | |
| P 973 | P1-5 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE DIELECTRIC LOSS? | 11.4 | 22.1 | 9.5 | .7 | 13.3 | 9.2 | 4.7 | 14.1 | 3.0 | 11.5 | | | | | | | |
| P 974 | P1-6 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE LEAKAGE LOSSES? | 9.8 | 18.9 | 11.9 | 1.5 | 18.2 | 10.6 | 14.0 | 16.2 | 3.7 | 14.9 | | | | | | | |
| P 975 | P1-7 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE FARADAY SHIELD? | 5.7 | 8.2 | 3.2 | .0 | 1.4 | 2.1 | .0 | 4.2 | .0 | 4.6 | | | | | | | |
| P 976 | P1-8 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES? | 17.1 | 9.0 | 9.5 | 5.9 | 9.1 | 10.6 | 7.0 | 15.5 | 3.0 | 12.6 | | | | | | | |
| P 977 | P1-9 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES? | 14.6 | 9.8 | 9.5 | .7 | 5.6 | 4.9 | .0 | 8.5 | 1.2 | 10.3 | | | | | | | |
| P 978 | P1-10 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES? | 5.7 | 5.7 | 3.2 | 2.2 | 4.9 | 4.2 | .0 | 7.7 | .0 | 6.9 | | | | | | | |
| P 979 | P1-11 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES? | 27.6 | 51.6 | 32.5 | 5.1 | 66.4 | 41.5 | 41.9 | 40.1 | 9.8 | 50.6 | | | | | | | |
| P 980 | P1-12 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES? | 19.5 | 37.7 | 12.7 | 1.5 | 34.3 | 26.1 | 41.9 | 30.3 | 3.7 | 26.4 | | | | | | | |
| P 981 | P1-13 DO YOU TROUBLESHOOT TRANSMISSION LINES? | 22.0 | 47.5 | 28.6 | 2.9 | 57.3 | 35.2 | 18.6 | 35.2 | 7.9 | 51.7 | | | | | | | |
| P 982 | P1-14 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)? | 8.9 | 23.0 | 14.3 | 2.2 | 19.6 | 12.7 | 4.7 | 15.5 | 4.9 | 12.6 | | | | | | | |
| P 983 | P1-15 DO YOU SELECT APPROPRIATE TRANSMISSION LINE TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS? | 9.6 | 19.7 | 10.3 | 1.5 | 7.7 | 5.6 | 4.7 | 8.5 | .0 | 8.0 | | | | | | | |

| D TSM | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| P1012 | P2-13 DO YOU REMOVE OR INSTALL CHOKES JOINTS? | 10.6 | 2.5 | .0 | .0 | .0 | 13.4 | 2.3 | 4.2 | 4.2 | 9.1 | 5.7 | | | | | | |
| P1013 | P2-14 DO YOU REMOVE OR INSTALL ROTATING JOINTS? | 5.7 | 2.5 | .0 | .0 | .0 | 15.5 | 16.3 | 4.2 | 4.2 | 13.4 | 6.9 | | | | | | |
| P1014 | P2-15 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS? | 30.9 | 18.9 | 3.2 | .0 | .0 | 38.7 | 20.9 | 27.5 | 19.5 | 13.8 | | | | | | | |
| P1015 | P2-16 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS? | 17.1 | 18.9 | .8 | .0 | .0 | 24.6 | 16.3 | 16.2 | 8.5 | 8.0 | | | | | | | |
| P1016 | P2-17 DO YOU REMOVE OR INSTALL DUPLEXERS OR MIXERS? | 22.8 | 19.7 | .0 | .0 | .0 | 40.1 | 14.0 | 16.2 | 19.5 | 10.3 | | | | | | | |
| P1017 | P2-18 DO YOU REMOVE OR INSTALL WAVEGUIDE SHUTTERS? | 17.1 | 1.6 | .0 | .0 | .7 | 25.4 | .0 | .7 | 3.7 | 4.6 | | | | | | | |
| P1018 | P2-19 DO YOU REMOVE OR INSTALL TRANSMIT (TR) OR ANTI-TRANSMIT (ATR) TUBES? | 4.1 | 5.7 | .0 | .0 | .0 | 40.1 | 4.7 | 4.2 | 18.3 | 2.3 | | | | | | | |
| P1019 | P2-20 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES? | 7.3 | 2.5 | .0 | .7 | .7 | 5.6 | 11.6 | 2.1 | 2.4 | 3.4 | | | | | | | |
| P1020 | P2-21 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES? | 7.3 | 2.5 | .0 | .7 | .7 | 5.6 | 11.6 | 2.1 | 2.4 | 3.4 | | | | | | | |
| P1021 | P2-22 DO YOU USE OR REFER TO CUT OFF FREQUENCY OF WAVEGUIDES? | 15.4 | 4.9 | .0 | .7 | .7 | 4.2 | 9.3 | 4.2 | 2.4 | 3.4 | | | | | | | |
| P1022 | P2-23 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES? | 8.9 | 2.5 | .0 | .7 | .0 | 3.5 | 11.6 | 3.5 | .6 | 3.4 | | | | | | | |
| P1023 | P2-24 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES? | 7.3 | 2.5 | .0 | .7 | .0 | 2.8 | 11.6 | 3.5 | 1.2 | 3.4 | | | | | | | |
| P1024 | P2-25 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS? | 8.1 | 2.5 | .0 | .7 | .0 | 2.8 | 4.7 | .7 | .6 | 3.4 | | | | | | | |
| P1025 | P2-26 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS? | 8.1 | 2.5 | .0 | .7 | .0 | 2.8 | 4.7 | .7 | .6 | 3.4 | | | | | | | |
| P1026 | P2-27 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS? | 5.7 | 3.3 | .0 | .7 | .0 | 4.2 | 4.7 | .7 | 1.2 | 2.3 | | | | | | | |
| P1027 | P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OR .7 WAVELENGTHS OF THE OPERATING FREQUENCY? | 8.9 | 2.5 | .0 | .7 | .7 | 7.0 | 7.0 | 2.1 | 1.2 | 2.3 | | | | | | | |
| P1028 | P2-29 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 AS AN AVERAGE? | 7.3 | 2.5 | .0 | .7 | .7 | 5.6 | 7.0 | 2.1 | .0 | 2.3 | | | | | | | |
| P1029 | P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION? | 4.9 | 3.3 | .0 | .7 | .7 | 2.8 | .0 | .0 | 1.2 | .0 | | | | | | | |
| P1030 | P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES? | 8.9 | 4.1 | .0 | .7 | .7 | 6.3 | 11.6 | .7 | 1.8 | 2.3 | | | | | | | |
| P1031 | P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES? | 7.3 | 3.3 | .0 | .7 | .0 | 3.5 | 7.0 | 1.4 | 1.2 | 2.3 | | | | | | | |
| P1032 | P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES? | 4.1 | 3.3 | .0 | .7 | .0 | 2.8 | 4.7 | .0 | .0 | 1.1 | | | | | | | |
| P1033 | P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES? | 4.1 | 3.3 | .0 | .7 | .0 | 2.8 | 4.7 | .7 | .6 | 2.3 | | | | | | | |
| P1034 | P2-35 DO YOU WORK WITH HIGH POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 14.6 | 9.0 | .8 | .7 | .0 | 21.1 | 37.2 | 13.4 | 3.7 | 8.0 | | | | | | | |
| P1035 | P2-36 DO YOU WORK WITH LOW POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 22.0 | 12.3 | .8 | .7 | .7 | 22.5 | 14.0 | 12.0 | 6.7 | 3.4 | | | | | | | |
| P1036 | P2-37 DO YOU WORK WITH LOOP ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 24.4 | 17.2 | .8 | .7 | .7 | 24.6 | 18.6 | 4.9 | 1.2 | 4.6 | | | | | | | |
| P1037 | P2-38 DO YOU WORK WITH APERTURES (WINDOWS OR IRISES) ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | 29.3 | 3.3 | 1.6 | .7 | .7 | 38.7 | 55.8 | 14.1 | 7.9 | 3.4 | | | | | | | |
| P1038 | P2-39 DO YOU WORK WITH CHOKES JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | 17.9 | 2.5 | .8 | .7 | .0 | 21.8 | 16.3 | 7.7 | 9.8 | 1.1 | | | | | | | |

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| P1039 | P2-40 DO YOU WORK WITH ROTATING JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | 4.1 | 2.5 | .8 | .7 | .0 | 38.7 | 65.1 | 3.5 | 17.7 | 4.6 | | | | | | | |
| P1040 | P2-41 DO YOU WORK WITH JOINTS IN WAVEGUIDES OR CAVITY RESONATORS BUT DON'T KNOW WHICH KIND? | 14.6 | 11.5 | .8 | .0 | .7 | 20.4 | 7.0 | 12.0 | 7.9 | 9.2 | | | | | | | |
| P1041 | P2-42 DO YOU TUNE CAVITY RESONATORS USING ELECTRICAL METHODS? | 21.1 | 14.8 | 2.4 | .0 | .0 | 26.8 | 9.3 | 9.2 | 8.5 | 11.5 | | | | | | | |
| P1042 | P2-43 DO YOU TUNE CAVITY RESONATORS USING MECHANICAL METHODS? | 29.3 | 23.8 | 4.0 | .0 | .0 | 37.3 | 7.0 | 6.3 | 13.4 | 13.8 | | | | | | | |
| P1043 | P2-44 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS? | 20.3 | 16.4 | 1.6 | .7 | .0 | 31.7 | 4.7 | 7.0 | 15.2 | 6.9 | | | | | | | |
| P1044 | P3-1 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS? IF NO, GO TO ITEM 91-1; IF YES, CONTINUE. | 52.8 | 54.9 | 2.4 | 1.5 | 2.1 | 51.4 | 62.8 | 40.8 | 31.1 | 12.6 | | | | | | | |
| P1045 | P3-2 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 19.5 | 23.0 | .8 | .7 | 1.4 | 15.5 | 11.6 | 12.0 | 1.2 | 2.3 | | | | | | | |
| P1046 | P3-3 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 20.3 | 24.6 | .8 | .7 | 1.4 | 9.9 | 14.0 | 8.5 | 1.2 | 2.3 | | | | | | | |
| P1047 | P3-4 DO YOU USE OR REFER TO LEAD INDUCTANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 19.5 | 18.0 | .8 | .7 | .7 | 6.3 | 7.0 | 7.7 | 1.2 | 2.3 | | | | | | | |
| P1048 | P3-5 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 26.0 | 36.1 | 1.6 | .7 | .7 | 16.9 | 9.3 | 14.8 | 6.1 | 2.3 | | | | | | | |
| P1049 | P3-6 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION? | 40.7 | 37.7 | .8 | .7 | .7 | 4.9 | 37.2 | 14.1 | 1.8 | 3.4 | | | | | | | |
| P1050 | P3-7 DO YOU USE OR REFER TO ELECTRON BUNCHING? | 39.0 | 33.6 | .8 | .7 | .7 | 9.2 | 48.8 | 19.7 | 1.2 | 3.4 | | | | | | | |
| P1051 | P3-8 DO YOU WORK WITH TWO-CAVITY KLYSTRONS? | 9.8 | 4.1 | .0 | .7 | .7 | 5.6 | 14.0 | 4.9 | .0 | 1.1 | | | | | | | |
| P1052 | P3-9 DO YOU WORK WITH THREE-CAVITY KLYSTRONS? | 26.0 | 56.6 | .0 | .7 | .7 | 2.8 | 41.9 | 4.2 | .0 | 1.1 | | | | | | | |
| P1053 | P3-10 DO YOU WORK WITH REFLEX KLYSTRONS? | 29.3 | 6.6 | .0 | .7 | .7 | 43.0 | 16.3 | 9.9 | 25.0 | 2.3 | | | | | | | |
| P1054 | P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)? | 39.0 | 4.9 | .8 | .7 | .7 | 4.9 | 65.1 | 36.6 | .6 | 10.3 | | | | | | | |
| P1055 | P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS? | 6.5 | 3.3 | .0 | .7 | .0 | 2.1 | 27.9 | .7 | .0 | 6.9 | | | | | | | |
| P1056 | P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS? | 11.4 | 3.3 | .0 | .7 | .0 | 1.4 | 4.7 | .7 | .0 | 2.3 | | | | | | | |
| P1057 | P3-14 DO YOU WORK WITH MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .7 | 49.3 | .0 | 21.1 | 22.0 | 2.3 | | | | | | | |
| P1058 | P3-15 DO YOU WORK WITH BACKWARD WAVE OSCILLATORS (BWO)? | 3.3 | 2.5 | .0 | .7 | .0 | 1.4 | .0 | 19.0 | 1.2 | .0 | | | | | | | |
| P1059 | P3-16 DO YOU INSPECT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | 43.9 | 54.1 | .8 | .7 | .0 | 37.3 | 48.8 | 30.3 | 26.8 | 10.3 | | | | | | | |
| P1060 | P3-17 DO YOU CLEAN KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | 36.6 | 43.4 | .8 | .0 | .0 | 24.6 | 20.9 | 23.2 | 14.6 | 10.3 | | | | | | | |
| P1061 | P3-18 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY? | 42.3 | 40.2 | .0 | .0 | .0 | 27.5 | 20.9 | 20.4 | 12.8 | 6.9 | | | | | | | |
| P1062 | P3-19 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY? | 43.1 | 53.3 | .0 | .0 | .0 | 34.5 | 2.3 | 8.5 | 20.7 | 6.9 | | | | | | | |
| P1063 | P3-20 DO YOU PERFORM OPERATIONAL CHECKS ON KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | 45.5 | 52.5 | .8 | .0 | .0 | 38.7 | 55.8 | 30.3 | 28.7 | 11.5 | | | | | | | |
| P1064 | P3-21 DO YOU TROUBLESHOOT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | 39.8 | 50.0 | .0 | .0 | .0 | 33.1 | 55.8 | 23.9 | 22.6 | 11.5 | | | | | | | |
| P1065 | P3-22 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRONS OR TWT'S? | 41.5 | 50.8 | .8 | .0 | .0 | 38.0 | 25.6 | 30.3 | 25.6 | 10.3 | | | | | | | |
| P1066 | P3-23 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS? | 18.7 | 12.3 | .0 | .0 | .0 | 10.6 | 11.6 | 4.9 | 4.9 | 5.7 | | | | | | | |
| P1067 | P3-24 DO YOU INSPECT PARAMETRIC AMPLIFIERS? | 14.6 | 8.2 | .0 | .7 | .0 | 4.9 | 18.6 | 3.5 | .6 | 8.0 | | | | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| Q TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| P1090 | P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF REFLEX KLYSTRONS? | 24.4 | 9.0 | .8 | .7 | .7 | 23.2 | 23.3 | 7.7 | 9.8 | 2.3 | | | | | | | |
| P1099 | P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF OUTPUT LEAD COMPONENTS OF REFLEX KLYSTRONS? | 20.3 | 9.8 | .8 | .7 | .7 | 22.5 | 7.0 | 7.7 | 8.5 | 2.3 | | | | | | | |
| P1100 | P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF TRAVELING-WAVE TUBES? | 36.6 | 5.7 | .8 | .7 | .7 | 2.1 | 30.2 | 28.9 | .6 | 4.6 | | | | | | | |
| P1101 | P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TRAVELING-WAVE TUBES? | 34.1 | 5.7 | .8 | .7 | .7 | 2.1 | 41.9 | 28.9 | .6 | 4.6 | | | | | | | |
| P1102 | P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MODULATOR GRID COMPONENTS OF TRAVELING-WAVE TUBES? | 26.0 | 4.9 | .8 | .7 | .7 | 2.1 | 32.6 | 20.4 | .6 | 3.4 | | | | | | | |
| P1103 | P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ANODE COMPONENTS OF TRAVELING-WAVE TUBES? | 34.1 | 4.9 | .8 | .7 | .7 | 2.1 | 30.2 | 28.2 | .6 | 3.4 | | | | | | | |
| P1104 | P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF HELIX COMPONENTS OF TRAVELING-WAVE TUBES? | 36.6 | 4.1 | .8 | .7 | .7 | 2.1 | 27.9 | 28.9 | .0 | 2.3 | | | | | | | |
| P1105 | P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR COMPONENTS OF TRAVELING-WAVE TUBES? | 35.8 | 4.9 | .8 | .7 | .7 | 2.1 | 41.9 | 26.8 | .6 | 3.4 | | | | | | | |
| P1106 | P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNET COMPONENTS OF TRAVELING-WAVE TUBES? | 27.6 | 4.1 | .8 | .7 | .7 | 2.1 | 20.9 | 19.7 | .6 | 3.4 | | | | | | | |
| P1107 | P3-64 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ATTENUATOR COMPONENTS OF TRAVELING-WAVE TUBES? | 26.8 | 4.9 | .8 | .7 | .7 | 2.1 | 25.6 | 21.8 | .8 | 3.4 | | | | | | | |
| P1108 | P3-65 DO YOU PERFORM TASKS ON FERRITE CIRCULATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | 8.1 | 3.3 | .0 | .7 | .0 | 2.8 | 4.7 | .0 | .0 | 1.1 | | | | | | | |
| P1109 | P3-66 DO YOU PERFORM TASKS ON SIGNAL CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | 8.1 | 4.1 | .0 | .7 | .0 | 2.1 | .0 | .0 | .0 | 3.4 | | | | | | | |
| P1110 | P3-67 DO YOU PERFORM TASKS ON IDLER CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | 6.5 | 2.5 | .0 | .7 | .0 | 1.4 | .0 | .0 | .0 | 3.4 | | | | | | | |
| P1111 | P3-68 DO YOU PERFORM TASKS ON VARACTOR DIODE COMPONENTS OF PARAMETRIC AMPLIFIERS? | 11.4 | 3.3 | .8 | .7 | .0 | 2.1 | 7.0 | .0 | .0 | 3.4 | | | | | | | |
| P1112 | P3-69 DO YOU PERFORM TASKS ON FERRITE ISOLATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | 8.9 | 3.3 | .0 | .7 | .0 | 1.4 | 2.3 | .0 | .0 | 2.3 | | | | | | | |
| P1113 | P3-70 DO YOU PERFORM TASKS ON REVERSE-BIAS BATTERY COMPONENTS OF PARAMETRIC AMPLIFIERS? | 5.7 | 3.3 | .0 | .7 | .0 | 1.4 | .0 | .0 | .0 | .0 | | | | | | | |
| P1114 | P3-71 DO YOU PERFORM TASKS ON ANODE COMPONENTS OF MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .0 | 7.0 | .0 | 4.2 | 1.2 | 2.3 | | | | | | | |
| P1115 | P3-72 DO YOU PERFORM TASKS ON ANODE COOLING PIN COMPONENTS OF MAGNETRONS? | 4.1 | 2.5 | .0 | .7 | .0 | 5.6 | .0 | .7 | .0 | 1.1 | | | | | | | |
| P1116 | P3-73 DO YOU PERFORM TASKS ON COUPLING LOOP COMPONENTS OF MAGNETRONS? | 4.1 | 2.5 | .0 | .7 | .0 | 4.9 | .0 | 1.4 | .0 | 1.1 | | | | | | | |
| P1117 | P3-74 DO YOU PERFORM TASKS ON HEATER LEAD COMPONENTS OF MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .0 | 7.0 | .0 | 4.9 | 2.4 | 2.3 | | | | | | | |
| P1118 | P3-75 DO YOU PERFORM TASKS ON RESONANT CAVITY COMPONENTS OF MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .0 | 7.7 | .0 | 1.4 | 1.8 | 2.3 | | | | | | | |
| P1119 | P3-76 DO YOU PERFORM TASKS ON CATHODE COMPONENTS OF MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .0 | 7.0 | 2.3 | 2.8 | 1.2 | 2.3 | | | | | | | |
| P1120 | P3-77 DO YOU PERFORM TASKS ON MAGNET COMPONENTS OF MAGNETRONS? | 4.9 | 2.5 | .0 | .7 | .0 | 8.5 | .0 | 1.4 | .6 | 1.1 | | | | | | | |

| D TSK | TITLES | 304 (M) | 304 (M) | 305 (M) | 320 (M) | 320 (M) | 328 (M) | 328 (M) | 328 (M) | 328 (M) | 374 (M) | 374 (M) | 375 (M) |
|-------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| T1268 | T2-25 DO YOU WORK WITH HALF SILVERED 1928 REFLECTIVE MIRRORS? | .0 | 1.6 | .7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1269 | T2-26 DO YOU WORK WITH HELICAL FLASHTUBES? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1270 | T2-27 DO YOU WORK WITH RUBY MATERIALS? | .0 | .0 | .7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .6 | .0 |
| T1271 | T2-28 DO YOU WORK WITH HELIUM-NEON MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 1.2 | .0 | .0 |
| T1272 | T2-29 DO YOU WORK WITH HELIUM-XENON MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .6 | .0 |
| T1273 | T2-30 DO YOU WORK WITH XENON MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1274 | T2-31 DO YOU WORK WITH CESIUM-HELIUM MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1275 | T2-32 DO YOU WORK WITH ARGON MATERIALS? | .0 | .0 | 1.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .6 | .0 |
| T1276 | T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1277 | T2-34 DO YOU WORK WITH GALLIUM ARSENIDE MATERIALS? | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1278 | T3-1 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE TUBES (DVST), MULTIPLE MODE STORAGE TUBES (MMST), OR SCAN CONVERTER TUBES (SCT)? IF NO, GO TO ITEM T4-1; IF YES, CONTINUE. | .0 | 2.5 | 4.0 | 2.9 | .7 | 27.5 | .0 | 2.1 | 5.5 | 2.3 | .0 | .0 |
| T1279 | T3-2 DO YOU INSPECT DVST OR MMST? | .0 | 1.6 | 1.5 | .0 | 23.9 | .0 | 1.4 | 3.0 | .0 | .0 | .0 | .0 |
| T1280 | T3-3 DO YOU CLEAN DVST OR MMST? | .0 | 1.6 | 1.5 | .0 | 19.7 | .0 | .7 | 2.4 | .0 | .0 | .0 | .0 |
| T1281 | T3-4 DO YOU ADJUST OR CALIBRATE DVST OR MMST? | .0 | 1.6 | .0 | .0 | 16.2 | .0 | .7 | 4.3 | .0 | .0 | .0 | .0 |
| T1282 | T3-5 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST? | .0 | 1.6 | 1.5 | .7 | 26.8 | .0 | .7 | 5.5 | 2.3 | .0 | .0 | .0 |
| T1283 | T3-6 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS? | .0 | 1.6 | .0 | .0 | 19.7 | .0 | .7 | 1.2 | .0 | .0 | .0 | .0 |
| T1284 | T3-7 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS? | .0 | 1.6 | .0 | 1.5 | .0 | 21.1 | .0 | .7 | 1.2 | .0 | .0 | .0 |
| T1285 | T3-8 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF DVST? | .0 | .0 | .0 | 1.5 | .0 | 16.9 | .0 | .7 | 1.0 | .0 | .0 | .0 |
| T1286 | T3-9 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF MMST? | .0 | .0 | .0 | .0 | 1.4 | .0 | .7 | .6 | .0 | .0 | .0 | .0 |
| T1287 | T3-10 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF SCT? | .0 | .0 | .0 | .0 | 1.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1288 | T3-11 DO YOU PERFORM TASKS ON FLOOD GUNS? | .0 | .0 | .7 | .0 | 10.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1289 | T3-12 DO YOU PERFORM TASKS ON WRITE GUNS? | .0 | .0 | .7 | .0 | 9.2 | .0 | .0 | .6 | .0 | .0 | .0 | .0 |
| T1290 | T3-13 DO YOU PERFORM TASKS ON READ GUNS? | .0 | .0 | .0 | .0 | 5.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1291 | T3-14 DO YOU PERFORM TASKS ON ATTACK GUNS? | .0 | .0 | .0 | .0 | 2.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1292 | T3-15 DO YOU PERFORM TASKS ON ERASE GUNS? | .0 | .0 | .0 | .0 | 8.5 | .0 | .0 | .6 | .0 | .0 | .0 | .0 |
| T1293 | T3-16 DO YOU PERFORM TASKS ON STORAGE GRIDS? | .0 | .0 | .0 | .0 | 9.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1294 | T4-1 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS DEALING WITH TELEVISION SYSTEMS INCLUDING LOW LIGHT TELEVISION? IF NO, GO TO ITEM U1-1; IF YES, CONTINUE. | 4.9 | 2.5 | 9.5 | 3.7 | 2.1 | 4.9 | 2.3 | 1.4 | 1.8 | 1.1 | .0 | .0 |
| T1295 | T4-2 DO YOU INSPECT TELEVISION SYSTEMS? | 4.1 | .8 | 7.1 | 2.2 | 1.4 | 4.2 | 2.3 | .7 | 1.2 | .0 | .0 | .0 |
| T1296 | T4-3 DO YOU CLEAN TELEVISION SYSTEMS? | 4.1 | .8 | 4.0 | 1.5 | 1.4 | 3.5 | .0 | .7 | .6 | .0 | .0 | .0 |
| T1297 | T4-4 DO YOU ADJUST OR CALIBRATE TELEVISION SYSTEMS? | 4.1 | .8 | 2.4 | 1.5 | 1.4 | 2.8 | .0 | 1.4 | .0 | .0 | .0 | .0 |
| T1298 | T4-5 DO YOU OPERATE TELEVISION SYSTEMS? | 4.9 | 1.6 | 4.0 | 1.5 | 2.1 | 4.2 | 2.3 | .7 | 1.0 | .0 | .0 | .0 |
| T1299 | T4-6 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF TV SYSTEMS? | 4.1 | .8 | 4.8 | 1.5 | 1.4 | 4.2 | 2.3 | .7 | 1.2 | .0 | .0 | .0 |
| T1300 | T4-7 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF TV SYSTEMS? | 4.1 | .0 | 2.4 | 1.5 | 1.4 | 3.5 | .0 | .0 | .6 | .0 | .0 | .0 |
| T1301 | T4-8 DO YOU TROUBLESHOOT DOWN TO TV SYSTEM COMPONENT PARTS? | 4.1 | .0 | 2.4 | 1.5 | .7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| T1302 | T4-9 DO YOU REMOVE OR REPLACE TV SYSTEM MAJOR ASSEMBLIES? | 4.1 | .8 | 3.2 | 1.5 | .7 | 3.5 | .0 | .0 | .6 | .0 | .0 | .0 |
| T1303 | T4-10 DO YOU REMOVE OR REPLACE TV SYSTEM COMPONENT PARTS? | 4.1 | .0 | 2.4 | 1.5 | .7 | .7 | .0 | .0 | .0 | .0 | .0 | .0 |

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 304 | 304 | 304 | 305 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
| 70 | 71 | 74 | 74 | 70 | 71 | 72 | 73 | 74 | 75 | (M) | (M) | (M) | (M) |

D TSM TITLES

U COMPUTERS, MICROPROCESSORS, AND PROGRAMMING (U1), DB AND POWER RATIOS (U2)

| | | | | | | | | | | | | |
|-------|-------|--|-----|-----|------|------|-----|-----|------|------|------|------|
| U1304 | U1-1 | IN YOUR PRESENT JOB, DO YOU PERFORM MAINTENANCE ROUTINES OR PROGRAMMING TASKS? IF NO, GO TO ITEM U2-1; IF YES, CONTINUE. | 6.5 | 9.8 | 12.7 | 54.4 | 6.3 | 3.5 | 55.0 | 36.6 | 39.6 | 32.2 |
| U1305 | U1-2 | DO YOU USE OR REFER TO DECIMAL SYSTEMS? | 3.3 | 7.4 | 9.5 | 39.0 | 4.9 | 4.2 | 41.9 | 28.2 | 25.6 | 20.7 |
| U1306 | U1-3 | DO YOU USE OR REFER TO OCTAL SYSTEMS? | 2.4 | 5.7 | 4.8 | 43.4 | 2.8 | 3.5 | 55.0 | 31.7 | 26.8 | 18.4 |
| U1307 | U1-4 | DO YOU USE OR REFER TO PARITY DETECTORS/GENERATORS? | 3.3 | 4.9 | 6.3 | 47.8 | 2.8 | 2.1 | 44.2 | 18.3 | 19.5 | 20.7 |
| U1308 | U1-5 | DO YOU USE OR REFER TO HEXADECIMAL SYSTEMS? | 3.3 | 2.5 | 4.8 | 38.2 | 2.8 | 1.4 | 16.3 | 19.0 | 11.6 | 18.4 |
| U1309 | U1-6 | DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS? | 1.6 | .0 | 2.4 | 23.5 | 1.4 | .7 | 9.3 | 7.7 | 5.5 | 4.6 |
| U1310 | U1-7 | DO YOU USE OR REFER TO FOUR SYSTEMS? | .0 | .0 | 1.6 | 7.4 | .0 | .7 | .0 | 4.2 | 3.0 | .0 |
| U1311 | U1-8 | DO YOU USE OR REFER TO BINARY SYSTEMS? | 4.9 | 7.4 | 8.7 | 47.8 | 4.9 | 4.2 | 55.0 | 27.5 | 28.0 | 23.0 |
| U1312 | U1-9 | DO YOU USE OR REFER TO TIME-SHARING (MULTI-SEQUENCING)? | 3.3 | 4.1 | 6.3 | 26.5 | 3.5 | 3.5 | 34.9 | 19.0 | 11.6 | 17.2 |
| U1313 | U1-10 | DO YOU USE OR REFER TO DATA WORDS? | 4.9 | 8.2 | 8.7 | 50.0 | 4.9 | 3.5 | 53.5 | 30.3 | 31.1 | 24.1 |
| U1314 | U1-11 | DO YOU USE OR REFER TO ADDRESS WORDS? | 4.9 | 8.2 | 9.5 | 50.7 | 5.6 | 3.5 | 55.0 | 32.4 | 30.5 | 27.6 |
| U1315 | U1-12 | DO YOU USE OR REFER TO ADDRESS/SUBADDRESS? | 3.3 | 8.2 | 7.1 | 48.5 | 6.3 | 3.5 | 41.9 | 26.8 | 25.6 | 26.4 |
| U1316 | U1-13 | DO YOU USE OR REFER TO STEERING/INFORMATION? | .8 | 3.3 | 4.0 | 17.6 | 1.4 | 2.8 | 32.6 | 12.0 | 20.7 | 16.1 |
| U1317 | U1-14 | DO YOU USE OR REFER TO INSTRUCTION WORDS? | 4.1 | 7.4 | 4.8 | 49.3 | 2.1 | 3.5 | 48.0 | 28.2 | 25.0 | 17.2 |
| U1318 | U1-15 | DO YOU USE OR REFER TO DAP-16? | .0 | .0 | .8 | 2.2 | .0 | .0 | .0 | 2.1 | 1.8 | 1.1 |
| U1319 | U1-16 | DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 3.3 | 6.6 | 11.1 | 30.9 | 4.9 | 2.8 | 37.2 | 28.2 | 18.3 | 16.1 |
| U1320 | U1-17 | DO YOU USE OR REFER TO CONTROL WORDS? | 4.1 | 8.2 | 7.1 | 36.0 | 4.2 | 2.8 | 53.5 | 19.7 | 12.2 | 23.0 |
| U1321 | U1-18 | DO YOU USE OR REFER TO RESPONSE WORDS? | 1.6 | .8 | 5.6 | 25.0 | 4.2 | 2.8 | 53.5 | 16.9 | 9.1 | 21.8 |
| U1322 | U1-19 | DO YOU USE OR REFER TO WRAPAROUND WORDS? | 1.6 | .8 | .8 | 11.8 | .7 | .0 | 55.0 | 5.6 | 5.5 | 5.7 |
| U1323 | U1-20 | DO YOU USE OR REFER TO TEST OR DIAGNOSTIC PROGRAMS? | 3.3 | 4.9 | 9.5 | 51.5 | 4.9 | 3.5 | 53.5 | 32.4 | 29.9 | 27.6 |
| U1324 | U1-21 | DO YOU USE OR REFER TO RELIABILITY PROGRAMS? | 1.6 | .0 | 7.1 | 44.1 | .7 | 1.4 | 18.6 | 16.2 | 16.5 | 11.5 |
| U1325 | U1-22 | DO YOU USE OR REFER TO COMPILERS? | 1.6 | 2.5 | 4.0 | 14.0 | .0 | .7 | 2.3 | 9.2 | 4.3 | 4.6 |
| U1326 | U1-23 | DO YOU USE OR REFER TO ASSEMBLERS? | .8 | 1.6 | 4.0 | 16.9 | .0 | .7 | 9.3 | 9.2 | 4.3 | 4.6 |
| U1327 | U1-24 | DO YOU USE OR REFER TO MACHINE LANGUAGE? | 1.6 | 3.3 | 4.0 | 41.9 | .7 | 1.4 | 16.3 | 14.1 | 5.5 | 8.0 |
| U1328 | U1-25 | DO YOU USE OR REFER TO MNEMONICS? | 2.4 | 4.1 | 5.6 | 39.7 | 2.1 | 1.4 | 46.5 | 21.1 | 9.8 | 20.7 |
| U1329 | U1-26 | DO YOU USE OR REFER TO ROUTINES OR SUBROUTINES? | 2.4 | 4.9 | 6.3 | 45.6 | 2.8 | 1.4 | 48.0 | 23.2 | 15.2 | 14.9 |
| U1330 | U1-27 | DO YOU USE OR REFER TO FLOW CHARTS OR DIAGRAMS? | 2.4 | 6.6 | 9.5 | 49.3 | 4.9 | 2.1 | 48.0 | 26.1 | 22.0 | 23.0 |
| U1331 | U1-28 | DO YOU USE OR REFER TO 'ATLAS'? | .8 | .0 | .8 | .7 | .0 | .0 | 2.3 | 1.4 | .6 | 1.1 |
| U1332 | U1-29 | DO YOU USE OR REFER TO 'ELAN'? | .0 | .0 | .8 | .7 | .0 | .0 | .0 | .7 | .6 | 1.1 |
| U1333 | U1-30 | DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING SYSTEMS? | .8 | 1.6 | 4.0 | 18.4 | 2.8 | 1.4 | 16.3 | 14.1 | 14.6 | 9.2 |
| U1334 | U1-31 | DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING SYSTEMS? | .8 | 1.6 | 1.6 | 9.6 | .7 | 2.8 | 14.0 | 6.3 | 7.3 | 6.9 |
| U1335 | U1-32 | DO YOU WRITE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | .0 | .8 | 2.4 | 26.5 | .0 | .0 | 16.3 | 4.2 | .6 | 1.1 |
| U1336 | U1-33 | DO YOU USE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | 1.6 | 6.6 | 6.3 | 41.9 | 2.8 | 1.4 | 51.2 | 27.5 | 18.9 | 12.6 |
| U1337 | U1-34 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER CONTROL SECTIONS? | 2.4 | 5.7 | 1.6 | 46.3 | 2.8 | 1.4 | 34.9 | 16.9 | 15.9 | 17.2 |
| U1338 | U1-35 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER INPUT SECTIONS? | 3.3 | 7.4 | 3.2 | 50.0 | 2.8 | 1.4 | 44.2 | 19.0 | 16.5 | 17.2 |
| U1339 | U1-36 | DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER OUTPUT SECTIONS? | 2.4 | 7.4 | 2.4 | 49.3 | 2.8 | 1.4 | 44.2 | 19.0 | 15.9 | 17.2 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 304 | 304 | 304 | 305 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
| 70 | 71 | 74 | 74 | 70 | 71 | 72 | 73 | 74 | 74 | 75 | 75 |
| (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) | (M) |

D TSM TITLES

U1366 U2-6 DO YOU USE A MP3550 OR 30NA TEST SET TO ALIGN AUDIO EQUIPMENT?

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

KEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PERIOD DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATRC 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/OMYO, AUTOVON 487-5811.

VECTOR TYPE CODES:

- (T) = X TIME SPENT BY ALL MEMBERS
- (M) = X MEMBERS PERFORMING
- (F) = TASK FACTOR
- (D) = DICHOTOMOUS SET
- (B) = X TIME SPENT BY MEMBERS PERFORMING
- (-) = PROGRAM GENERATED VECTOR

| NO | TYPE | VECTOR | MEAN | SD | DESCRIPTION | FACTOR # |
|----|------|--------|------|----|--------------------|----------|
| 1 | M | 205 70 | 89 | | DAFSC 20570 AIRMEN | 30 |
| 2 | M | 307 70 | 143 | | DAFSC 30770 AIRMEN | 40 |

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USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATCR 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/DMDY, AUTOVON 987-5811.

| D TSK | TITLES | 205 | 307 |
|-------|--------|-----|-----|
| | | 70 | 70 |
| | | (M) | (M) |

A MATHEMATICS (A1), DIRECT CURRENT (A2), RESISTANCE AND RESISTIVE CIRCUITS (A3)

| | | | |
|------|---|------|------|
| A 1 | A1-1 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10? | 20.2 | 64.3 |
| A 2 | A1-2 DO YOU USE PUBLICATIONS, SUCH AS TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY OR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB? | 27.0 | 44.1 |
| A 3 | A1-3 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS? | 40.4 | 46.9 |
| A 4 | A1-4 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY? | 27.0 | 20.3 |
| A 5 | A1-5 DO YOU SOLVE FOR UNKNOWN QUANTITIES SUCH AS SOLVING FOR X IN THE EQUATION $x + 6 = 8$? | 44.9 | 39.2 |
| A 6 | A1-6 DO YOU USE LOGARITHM TABLES? | 22.5 | 43.4 |
| A 7 | A1-7 DO YOU SOLVE QUADRATIC EQUATIONS SUCH AS SOLVING FOR X IN THE EQUATION $x^2 + 4x + 4 = 0$? | 19.1 | 12.6 |
| A 8 | A1-8 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES? | 23.6 | 11.2 |
| A 9 | A1-9 DO YOU USE TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT? | 30.3 | 12.6 |
| A 10 | A1-10 DO YOU SOLVE OR USE PROPORTIONS? AN EXAMPLE OF A PROPORTION IS 2 : 5 :: 4 : 10. ANOTHER WAY TO EXPRESS THE SAME RELATIONSHIP IS $2/5 = 4/10$. SOMETIMES, ONE OF THE QUANTITIES IS UNKNOWN AND HAS TO BE SOLVED FOR, SUCH AS 2 : X :: 4 : 10 OR IN THIS CASE IS UNKNOWN). | 38.2 | 28.7 |
| A 11 | A1-11 DO YOU USE MATHEMATICAL EXPONENTS OR SUBSCRIPTS IN OTHER THAN POWERS OF 10? | 36.0 | 23.8 |
| A 12 | A2-1 DO YOU USE (PERHAPS IN TECHNICAL ORDERS) THE TERM VOLTAGE OR VOLT (V)? | 42.3 | 48.8 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

KEESLER EPI CAREER LADDERS, ELECTRONIC PRINCIPLES INVENTORY (EPI) DATA ARE PRESENTED BELOW EACH DUTY TITLE. DATA FOR THIS PRINTOUT WERE COLLECTED FROM CAREER LADDER INCUMBENTS DURING THE PERIOD DECEMBER 1982 THROUGH JULY 1983.

USE OF EPI PRINTOUT: THE PERCENT OF VARIOUS CAREER LADDER GROUPS RESPONDING TO EPI QUESTIONS IS LISTED TO THE RIGHT OF EACH EPI ITEM. THUS, THE APPROPRIATE SAMPLE CRITERION GROUPS CAN BE IDENTIFIED WITH THE COLUMN HEADINGS AT THE TOP RIGHT OF EACH PRINTOUT PAGE. THEN THE PERCENT OF THAT GROUP USING THE CONCEPT OR PIECE OF EQUIPMENT CAN BE IDENTIFIED.

USE OF EPI DATA: THESE DATA MAY BE USED IN HELPING TO IDENTIFY, DELINEATE, AND VALIDATE ELECTRONIC PRINCIPLES ITEMS IN THE STS. CRITERIA LISTED IN ATRC 52-22 FOR ABR TRAINING MAY BE USEFUL IN HELPING DEVELOP ENTRY-LEVEL ELECTRONIC PRINCIPLE COURSES. ALSO, CDC WRITERS MAY USE EPI DATA TO HELP DETERMINE AREAS TO EMPHASIZE IN 5- AND 7-SKILL LEVEL CDS, CONSISTENT WITH STS CODES.

FOR ASSISTANCE IN USING PRINTOUTS PHONE USAFOMC/DHYO, AUTOVON 987-5811.

| D TSK | TITLES | 205 | 307 |
|-------|--------|-----|-----|
| | | 70 | 70 |
| | | (M) | (M) |

A MATHEMATICS (A1), DIRECT CURRENT (A2), RESISTANCE AND RESISTIVE CIRCUITS (A3)

| | | | |
|------|--|------|------|
| A 1 | A1-1 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10? | 29.2 | 64.3 |
| A 2 | A1-2 DO YOU USE PUBLICATIONS, SUCH AS TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB? | 27.0 | 44.1 |
| A 3 | A1-3 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS? | 40.4 | 46.9 |
| A 4 | A1-4 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY? | 27.0 | 20.3 |
| A 5 | A1-5 DO YOU SOLVE FOR UNKNOWN QUANTITIES SUCH AS SOLVING FOR X IN THE EQUATION $X + 6 = 8?$ | 44.9 | 39.2 |
| A 6 | A1-6 DO YOU USE LOGARITHM TABLES? | 22.5 | 43.4 |
| A 7 | A1-7 DO YOU SOLVE QUADRATIC EQUATIONS SUCH AS SOLVING FOR X IN THE EQUATION $X^2 + 4X + 4 = 0?$ | 19.1 | 12.6 |
| A 8 | A1-8 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES? | 23.6 | 11.2 |
| A 9 | A1-9 DO YOU USE TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT? | 30.3 | 12.6 |
| A 10 | A1-10 DO YOU SOLVE OR USE PROPORTIONS? AN EXAMPLE OF A PROPORTION IS $2 : 5 :: 4 : 10$. ANOTHER WAY TO EXPRESS THE SAME RELATIONSHIP IS $2/5 = 4/10$. SOMETIMES, ONE OF THE QUANTITIES IS UNKNOWN AND HAS TO BE SOLVED FOR, SUCH AS $2 : X :: 4 : 10$ (X IN THIS CASE IS UNKNOWN). | 38.2 | 28.7 |
| A 11 | A1-11 DO YOU USE MATHEMATICAL EXPONENTS OR SUBSCRIPTS IN OTHER THAN POWERS OF 10? | 36.0 | 23.8 |
| A 12 | A2-1 DO YOU USE (PERHAPS IN TECHNICAL ORDERS) THE TERM VOLTAGE OR VOLT (V)? | 42.3 | 48.8 |

| Q TSK | TITLES | 205 | 307 |
|-------|---|------|------|
| | | 70 | 70 |
| | | (M) | (M) |
| A 13 | A2-2 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTROMOTIVE FORCE (EMF)? | 11.2 | 15.4 |
| A 14 | A2-3 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM OHM? | 25.8 | 80.4 |
| A 15 | A2-4 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ION? | 7.9 | 5.6 |
| A 16 | A2-5 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM DYNE? | 1.1 | 1.4 |
| A 17 | A2-6 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM AMPERE? | 25.8 | 77.6 |
| A 18 | A2-7 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM NEUTRON? | 5.6 | 5.6 |
| A 19 | A2-8 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM COULOMB? | 5.6 | 6.3 |
| A 20 | A2-9 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM PROTON? | 4.5 | 5.6 |
| A 21 | A2-10 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM ELECTRON? | 22.5 | 28.7 |
| A 22 | A2-11 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM CURRENT? | 31.5 | 82.5 |
| A 23 | A2-12 DO YOU USE (PERHAPS IN TECHNICAL ORDERS OR ELSEWHERE) THE TERM WATTAGE? | 39.3 | 72.0 |
| A 24 | A2-13 DO YOU DETERMINE IF TWO OR MORE BATTERIES MUST BE CONNECTED IN SERIES OR PARALLEL TO ACHIEVE A SPECIFIC VOLTAGE AND/OR CURRENT? | 1.1 | 21.0 |
| A 25 | A3-1 DO YOU WORK WITH RESISTORS OR RESISTIVE CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM BI-1; IF YES, CONTINUE. | 2.2 | 40.6 |
| A 26 | A3-2 DO YOU INSPECT RESISTORS? | .0 | 15.4 |
| A 27 | A3-3 DO YOU CLEAN RESISTORS? | .0 | 5.6 |
| A 28 | A3-4 DO YOU ADJUST RESISTORS? | .0 | 18.9 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| 0 TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| A 29 | A3-5 DO YOU MEASURE RESISTORS? | .0 | 31.5 |
| A 30 | A3-6 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASK YOU PERFORM? | .0 | 2.8 |
| A 31 | A3-7 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY CARBON? | .0 | 9.8 |
| A 32 | A3-8 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED WIRE? | .0 | 17.5 |
| A 33 | A3-9 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY SLIDE TAP? | .0 | 11.2 |
| A 34 | A3-10 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY RHEOSTAT? | .0 | 17.5 |
| A 35 | A3-11 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY POTENTIOMETER? | .0 | 23.1 |
| A 36 | A3-12 DO YOU USE OR REFER TO SYMBOLS THAT IDENTIFY OR CLASSIFY FIXED FILM? | .0 | 7.0 |
| A 37 | A3-13 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE? | .0 | 16.9 |
| A 38 | A3-14 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE? | .0 | 16.1 |
| A 39 | A3-15 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE? | .0 | 2.8 |
| A 40 | A3-16 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES? | 1.1 | 35.7 |
| A 41 | A3-17 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 2.2 | 27.3 |
| A 42 | A3-18 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 2.2 | 23.1 |
| A 43 | A3-19 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE CIRCUITS? | 2.2 | 21.0 |

205 307
70 70
(M) (M)

D TSK TITLES

- A 44 A3-20 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE CIRCUITS? 2.2 23.1
- A 45 A3-21 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? 1.1 20.7
- A 46 A3-22 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? 1.1 23.1
- A 47 A3-23 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? 1.1 10.2
- A 48 A3-24 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? 1.1 17.5
- A 49 A3-25 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR SERIES PARALLEL RESISTIVE CIRCUITS? 1.1 21.0
- A 50 A3-26 DO YOU USE OR REFER TO TOTAL RESISTANCE PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? 1.1 25.2
- A 51 A3-27 DO YOU USE OR REFER TO TOTAL CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? 1.1 21.7
- A 52 A3-28 DO YOU USE OR REFER TO INDIVIDUAL VOLTAGE DROP PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? 1.1 17.5
- A 53 A3-29 DO YOU USE OR REFER TO INDIVIDUAL BRANCH CURRENT PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? 1.1 16.8
- A 54 A3-30 DO YOU USE OR REFER TO POWER DISSIPATION PARAMETERS FOR PARALLEL RESISTIVE CIRCUITS? 1.1 19.6
- A 55 A3-31 DO YOU CALCULATE TOTAL RESISTANCE PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? 1.1 23.1
- A 56 A3-32 DO YOU CALCULATE TOTAL CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? 1.1 19.6
- A 57 A3-33 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROP PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS? 1.1 17.5

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
70 70
(M) (M)

D TSM TITLES

A 58 A3-34 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENT PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

1.1 16.8

A 59 A3-35 DO YOU CALCULATE POWER DISSIPATION PARAMETERS FOR SERIES RESISTIVE, SERIES PARALLEL RESISTIVE, OR PARALLEL RESISTIVE CIRCUITS?

1.1 18.2

B METERS/MULTIMETERS (B1), ALTERNATING CURRENT (AC) (B2), INDUCTORS AND INDUCTIVE REACTANCE (B3)

B 60 B1-1 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE RESISTANCE?

4.5 57.3

B 61 B1-2 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE VOLTAGE?

16.9 72.0

B 62 B1-3 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE CURRENT?

4.5 62.9

B 63 B1-4 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE POWER?

9.0 51.0

B 64 B1-5 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE FREQUENCY?

21.3 74.8

B 65 B1-6 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE TEMPERATURE?

6.7 9.1

B 66 B1-7 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE PRESSURE?

2.2 2.8

B 67 B1-8 DO YOU USE METERS OR MULTIMETERS IN YOUR PRESENT JOB TO MEASURE LIGHT LEVELS?

2.2 .7

B 68 B2-1 DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM EFFECTIVE VOLTAGE (RMS) IN YOUR PRESENT JOB?

29.2 58.0

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
70 70
(M) (M)

D TSM TITLES

| | | | | |
|------|-------|--|------|------|
| B 69 | B2-2 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PEAK TO PEAK VOLTAGE IN YOUR PRESENT JOB? | 34.0 | 63.6 |
| B 70 | B2-3 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM AVERAGE VOLTAGE (DC) IN YOUR PRESENT JOB? | 30.3 | 55.9 |
| B 71 | B2-4 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM WAVE LENGTH IN YOUR PRESENT JOB? | 49.4 | 46.9 |
| B 72 | B2-5 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM FREQUENCY IN YOUR PRESENT JOB? | 70.8 | 82.5 |
| B 73 | B2-6 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM INSTANTANEOUS VALUE IN YOUR PRESENT JOB? | 27.0 | 23.0 |
| B 74 | B2-7 | DO YOU USE OR REFER TO THE ALTERNATING CURRENT (AC) TERM PHASE RELATIONSHIPS IN YOUR PRESENT JOB? | 48.3 | 60.1 |
| B 75 | B3-1 | DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C1-1; IF YES, CONTINUE. | 4.5 | 14.0 |
| B 76 | B3-2 | DO YOU INSPECT INDUCTORS? | .0 | 4.2 |
| B 77 | B3-3 | DO YOU CLEAN INDUCTORS? | .0 | .7 |
| B 78 | B3-4 | DO YOU ADJUST INDUCTORS? | .0 | 4.2 |
| B 79 | B3-5 | DO YOU MEASURE INDUCTORS? | .0 | 5.6 |
| B 80 | B3-6 | DO YOU USE OR REFER TO INDUCTANCE? | 2.2 | 11.9 |
| B 81 | B3-7 | DO YOU USE OR REFER TO HENRIES? | .0 | 7.0 |
| B 82 | B3-8 | DO YOU USE OR REFER TO INDUCTIVE REACTANCE? | 2.2 | 11.2 |
| B 83 | B3-9 | DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS? | .0 | 1.4 |
| B 84 | B3-10 | DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS? | .0 | 2.8 |
| B 85 | B3-11 | DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS? | 1.1 | 2.8 |
| B 86 | B3-12 | DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL? | .0 | 2.1 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTON PAGE 8

205 3C7
70 70
(M) (M)

D TSK TITLES

B 87 B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE?

.0 2.1

B 88 B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH?

.0 2.8

B 89 B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL?

.0 2.1

B 90 B3-16 DO YOU CALCULATE INDUCTANCE IN ELECTRICAL/ELECTRONIC CIRCUITS?

.0 4.2

B 91 B3-17 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS?

.0 7.0

B 92 B3-18 DO YOU CALCULATE INDUCTIVE REACTANCE?

.0 5.6

B 93 B3-19 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY?

.0 8.4

B 94 B3-20 DO YOU WORK WITH POWER INDUCTORS?

.0 .7

B 95 B3-21 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS?

.0 9.8

B 96 B3-22 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS?

.0 6.3

C CAPACITORS AND CAPACITIVE REACTANCE (C1), TRANSFORMERS (C2), MAGNETISM (C3)

C 97 C1-1 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C2-1: IF YES, CONTINUE.

4.5 20.3

C 98 C1-2 DO YOU INSPECT CAPACITORS?

.0 4.9

C 99 C1-3 DO YOU CLEAN CAPACITORS?

.0 1.4

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTON PAGE 9

| O TSM | TITLES | 205 | 307 |
|-------|--|-----|------|
| | | (M) | (M) |
| C 100 | C1-4 DO YOU ADJUST CAPACITORS? | .0 | 3.5 |
| C 101 | C1-5 DO YOU TEST CAPACITORS? | .0 | 4.9 |
| C 102 | C1-6 DO YOU DISCHARGE CAPACITORS? | .0 | 2.8 |
| C 103 | C1-7 DO YOU MEASURE CAPACITORS? | .0 | 2.8 |
| C 104 | C1-8 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE? | .0 | 5.6 |
| C 105 | C1-9 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC? | .0 | .0 |
| C 106 | C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS? | 1.1 | 12.6 |
| C 107 | C1-11 DO YOU USE OR REFER TO CAPACITANCE? | 1.1 | 16.1 |
| C 108 | C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT? | 1.1 | 7.0 |
| C 109 | C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS? | .0 | 6.3 |
| C 110 | C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE? | 1.1 | 9.1 |
| C 111 | C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES? | .0 | 2.8 |
| C 112 | C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS? | .0 | 15.4 |
| C 113 | C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS? | 1.1 | 16.1 |
| C 114 | C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC? | .0 | 11.2 |
| C 115 | C1-19 DO YOU CALCULATE CAPACITANCE IN ELECTRICAL/ELECTRONIC CIRCUITS? | .0 | 3.5 |
| C 116 | C1-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT? | 1.1 | 3.5 |
| C 117 | C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS? | .0 | 1.4 |
| C 118 | C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO? | 1.1 | 2.8 |

| D TSM | TITLES | 205 (M) | 307 70 (M) |
|-------|---|------------|------------------|
| C 119 | C1-23 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS? | 1.1 | 5.6 |
| C 120 | C1-24 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY? | 1.1 | 6.3 |
| C 121 | C1-25 DO YOU CALCULATE CAPACITIVE REACTANCE? | .0 | 3.5 |
| C 122 | C1-26 DO YOU WORK WITH VARIABLE CAPACITORS? | .0 | 9.1 |
| C 123 | C1-27 DO YOU WORK WITH TRIMMER CAPACITORS? | .0 | 3.5 |
| C 124 | C1-28 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS? | .0 | 8.4 |
| C 125 | C1-29 DO YOU WORK WITH OTHER FIXED CAPACITORS? | 1.1 | 8.4 |
| C 126 | C2-1 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM C3-1; IF YES, CONTINUE. | 3.4 | 24.5 |
| C 127 | C2-2 DO YOU INSPECT TRANSFORMERS? | .0 | 8.4 |
| C 128 | C2-3 DO YOU CLEAN TRANSFORMERS? | .0 | 2.8 |
| C 129 | C2-4 DO YOU ADJUST TRANSFORMERS? | .0 | 8.9 |
| C 130 | C2-5 DO YOU TROUBLESHOOT TRANSFORMERS? | .0 | 6.3 |
| C 131 | C2-6 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)? | .0 | .0 |
| C 132 | C2-7 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M? | .0 | .7 |
| C 133 | C2-8 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS? | .0 | 3.5 |
| C 134 | C2-9 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS? | .0 | 3.5 |
| C 135 | C2-10 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS? | .0 | 9.1 |
| C 136 | C2-11 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS? | .0 | 5.6 |
| C 137 | C2-12 DO YOU WORK WITH AUTOTRANSFORMERS? | .0 | 2.1 |
| C 138 | C2-13 DO YOU WORK WITH POWER TRANSFORMERS? | 1.1 | 5.6 |
| C 139 | C2-14 DO YOU WORK WITH AUDIO TRANSFORMERS? | .0 | 20.3 |
| C 140 | C2-15 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS? | .0 | 7.7 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT04 PAGE 11

| D TSK | TITLES | 205 | 307 | 70 | 70 |
|-------|--|-----|------|-----|-----|
| | | (M) | (M) | (M) | (M) |
| C 141 | C2-16 DO YOU WORK WITH SATURABLE CORE TRANSFORMERS? | .0 | 1.4 | .0 | |
| C 142 | C2-17 DO YOU WORK WITH SENSING TRANSFORMERS? | .0 | .0 | .0 | |
| C 143 | C2-18 DO YOU WORK WITH CONTROL TRANSFORMERS? | .0 | 1.4 | .0 | |
| C 144 | C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE? | .0 | 7.0 | .0 | |
| C 145 | C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE? | .0 | 6.3 | .0 | |
| C 146 | C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES? | .0 | 3.5 | .0 | |
| C 147 | C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | .0 | 3.5 | .0 | |
| C 148 | C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO? | .0 | 2.8 | .0 | |
| C 149 | C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS? | .0 | 13.3 | .0 | |
| C 150 | C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 7.7 | .0 | |
| C 151 | C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 9.8 | .0 | |
| C 152 | C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 11.2 | .0 | |
| C 153 | C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 4.2 | .0 | |
| C 154 | C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 4.9 | .0 | |
| C 155 | C2-30 DO YOU REFER TO VARIABLE TRANSFORMER SCHEMATIC SYMBOLS? | .0 | 7.7 | .0 | |
| C 156 | C2-31 DO YOU REFER TO COMBINATIONS OF SCHEMATIC SYMBOLS FOR TRANSFORMERS? | .0 | 9.8 | .0 | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTON PAGE 12

| O TSM | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| C 157 | C2-32 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS? | .0 | 1.4 |
| C 158 | C2-33 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH? | .0 | 1.4 |
| C 159 | C2-34 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO? | .0 | 4.2 |
| C 160 | C2-35 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS? | 1.1 | 8.4 |
| C 161 | C2-36 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | .0 | 4.2 |
| C 162 | C2-37 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS? | .0 | 2.1 |
| C 163 | C2-38 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS? | .0 | 2.1 |
| C 164 | C2-39 DO YOU INSPECT THREE PHASE TRANSFORMERS? | .0 | .0 |
| C 165 | C2-40 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS? | .0 | .0 |
| C 166 | C2-41 DO YOU ADJUST THREE PHASE TRANSFORMERS? | .0 | .0 |
| C 167 | C2-42 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS? | .0 | .0 |
| C 168 | C3-1 DO YOU USE OR REFER TO PERMANENT MAGNETS? | 5.6 | 4.2 |
| C 169 | C3-2 DO YOU USE OR REFER TO TEMPORARY MAGNETS? | 7.9 | 2.1 |
| C 170 | C3-3 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS? | 9.0 | .7 |
| C 171 | C3-4 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS? | 6.7 | .7 |
| C 172 | C3-5 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS? | 7.9 | .7 |
| C 173 | C3-6 DO YOU USE OR REFER TO RESIDUAL MAGNETISM? | 7.9 | 2.1 |
| C 174 | C3-7 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX? | 13.5 | 5.6 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| | |
|-----|-----|
| 205 | 307 |
| 70 | 70 |
| (M) | (P) |

D TSM TITLES

- C 175 C3-8 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM?
- C 176 C3-9 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM?
- C 177 C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION?
- C 178 C3-11 DO YOU USE OR REFER TO FLUX DENSITY?
- C 179 C3-12 DO YOU USE OR REFER TO SATURABLE REACTANCE?

 D RCL CIRCUITS (01), TIME CONSTANTS (02), FILTERS (03)

- D 180 D1-1 DO YOU WORK WITH RC, LR, OR RCL CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM D2-1; IF YES, CONTINUE.
- D 181 D1-2 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS?
- D 182 D1-3 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS?
- D 183 D1-4 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS?
- D 184 D1-5 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS?
- D 185 D1-6 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS?
- D 186 D1-7 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS?
- D 187 D1-8 DO YOU USE OR REFER TO TRUE POWER (P SUB T) WHEN WORKING WITH RCL CIRCUITS?
- D 188 D1-9 DO YOU USE OR REFER TO MAXIMUM POWER (P SUB M) WHEN WORKING WITH RCL CIRCUITS?
- D 189 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (P SUB AVE) WHEN WORKING WITH RCL CIRCUITS?

| | |
|-----|------|
| 6.7 | 11.9 |
| 2.2 | 2.8 |
| 1.1 | 3.5 |
| 3.4 | 4.2 |
| 2.2 | 3.5 |
| 3.4 | 3.5 |
| 5.6 | 9.1 |
| 4.5 | 7.0 |
| 5.6 | 7.0 |
| 5.6 | 7.7 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 | 307 |
|-------|--|--------|--------|
| 0 190 | 01-11 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) WHEN WORKING WITH RCL CIRCUITS? | 70 (P) | 70 (P) |
| 0 191 | 01-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS? | 3.4 | 4.2 |
| 0 192 | 01-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 2.2 | 4.9 |
| 0 193 | 01-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS? | 2.2 | 7.7 |
| 0 194 | 01-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS? | 5.6 | 14.0 |
| 0 195 | 01-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS? | 4.5 | 10.5 |
| 0 196 | 01-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS? | 3.4 | 10.5 |
| 0 197 | 01-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS? | 4.5 | 4.9 |
| 0 198 | 01-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS? | 4.5 | 12.6 |
| 0 199 | 01-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS? | 1.1 | 4.9 |
| 0 200 | 01-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS SUCH AS: SINE OF AND ANGLE = OPPOSITE SIDE / HYPOTENUSE? | 2.2 | 4.9 |
| 0 201 | 01-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS? | 2.2 | 2.1 |
| 0 202 | 01-23 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS? | .0 | 3.5 |
| 0 203 | 01-24 DO YOU USE OR REFER TO PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS? | .0 | 7.0 |
| 0 204 | 01-25 DO YOU USE OR REFER TO TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS? | 1.1 | 2.1 |
| | | .0 | 9.1 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 | 307 |
|-------|---|-----|-----|
| | | (M) | (P) |
| D 205 | 01-26 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS? | .0 | 2.1 |
| D 206 | 01-27 DO YOU USE OR REFER TO APPARENT POWER (P SUB A) FOR SERIES RCL CIRCUITS? | 1.1 | 3.5 |
| D 207 | 01-28 DO YOU USE OR REFER TO TRUE POWER (P SUB T) FOR SERIES RCL CIRCUITS? | 1.1 | 4.9 |
| D 208 | 01-29 DO YOU USE OR REFER TO POWER FACTORS (PF) FOR SERIES RCL CIRCUITS? | .0 | 4.2 |
| D 209 | 01-30 DO YOU USE OR REFER TO TOTAL CURRENT FOR PARALLEL RCL CIRCUITS? | .0 | 4.9 |
| D 210 | 01-31 DO YOU USE OR REFER TO IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS? | .0 | 3.5 |
| D 211 | 01-32 DO YOU USE THE ASSUMED VOLTAGE METHOD FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | .0 | 1.4 |
| D 212 | 01-33 DO YOU USE OHM'S LAW FOR DETERMINING TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS? | .0 | 4.9 |
| D 213 | 01-34 DO YOU CHECK CAPACITORS USING OHMMETERS? | .0 | 3.5 |
| D 214 | 01-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION? | .0 | 2.1 |
| D 215 | 01-36 DO YOU CHECK INDUCTORS USING OHMMETERS? | .0 | 4.2 |
| D 216 | 01-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION? | .0 | 2.1 |
| D 217 | 01-38 DO YOU CHECK RESISTORS USING OHMMETERS? | .0 | 7.7 |
| D 218 | 01-39 DO YOU CHECK RESISTORS USING SUBSTITUTION? | .0 | 2.1 |
| D 219 | 01-40 DO YOU USE OR REFER TO THE RULE THAT PHASE ANGLE (THETA) = 0, POWER FACTOR (PF) = 1, AND APPARENT POWER (P SUB A) = TRUE POWER (P SUB T) FOR RESONANT CIRCUITS? | 1.1 | 1.4 |
| D 220 | 01-41 DO YOU USE OR REFER TO RESONANT FREQUENCIES FOR RCL CIRCUITS? | 1.1 | 5.6 |
| D 221 | 01-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS? | 1.1 | 6.3 |

| D TSM | TITLES | 205 70 (M) | 307 70 (M) |
|-------|---|------------------|------------------|
| D 222 | D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS? | 1.1 | 6.3 |
| D 223 | D1-44 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 OF THE PEAK CURRENT VALUE? | 2.2 | 6.3 |
| D 224 | D1-45 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO THE QUALITY OF THE COIL (Q)? | 1.1 | 2.8 |
| D 225 | D1-46 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS? | 1.1 | 4.9 |
| D 226 | D2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS? IF NO, GO TO ITEM D3-1; IF YES, CONTINUE. | 5.6 | 1.4 |
| D 227 | D2-2 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)? | .0 | .7 |
| D 228 | D2-3 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS? | 3.4 | .7 |
| D 229 | D2-4 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS? | .0 | .7 |
| D 230 | D2-5 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS? | .0 | .7 |
| D 231 | D2-6 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES? | .0 | .7 |
| D 232 | D2-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS? | .0 | .7 |

205 307
70 70
(M) (M)

D TSK TITLES

D 233 03-1 00 YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM E1-1; IF YES, CONTINUE.
21.3 28.7
D 234 03-2 00 YOU INSPECT FILTER CIRCUITS? .0 7.7
D 235 03-3 00 YOU CLEAN FILTER CIRCUITS? .0 2.1
D 236 03-4 00 YOU ALIGN OR ADJUST FILTER CIRCUITS? 2.2 9.8
D 237 03-5 00 YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL? .0 14.7
D 238 03-6 00 YOU TROUBLESHOOT TO COMPONENT PARTS OF FILTER CIRCUITS? .0 5.6
D 239 03-7 00 YOU WORK WITH LOW PASS FILTERS? 22.5 22.4
D 240 03-8 00 YOU WORK WITH HIGH PASS FILTERS? 21.3 21.7
D 241 03-9 00 YOU WORK WITH BANDPASS FILTERS? 20.2 27.3
D 242 03-10 00 YOU WORK WITH BAND-REJECT FILTERS? 19.1 21.0
D 243 03-11 00 YOU WORK WITH FILTERS BUT DON'T REMEMBER WHICH TYPE? 3.4 .7
D 244 03-12 00 YOU WORK WITH L-SECTION FILTER CONFIGURATIONS? .0 7.0
D 245 03-13 00 YOU WORK WITH T-SECTION FILTER CONFIGURATIONS? .0 7.7
D 246 03-14 00 YOU WORK WITH PI-SECTION FILTER CONFIGURATIONS? .0 5.6
D 247 03-15 00 YOU WORK WITH YTTRIUM IRON GARNET (YIG) FILTERS? 3.4 .7
D 248 03-16 00 YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS? .0 1.4

E COUPLING (E1), SOLDERING OR SOLDERLESS CONNECTIONS(E2), RELAYS (E3)

E 249 E1-1 DO YOU WORK WITH COUPLING DEVICES OR CIRCUITRY IN YOUR PRESENT JOB? IF NO, GO TO ITEM E2-1; IF YES, CONTINUE.
6.7 18.2

| O TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| E 250 | E1-2 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING? | 1.1 | 4.2 |
| E 251 | E1-3 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING (MATCHING)? | 2.2 | 14.7 |
| E 252 | E1-4 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH OPTICAL COUPLING? | .0 | .7 |
| E 253 | E1-5 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING? | .0 | 12.6 |
| E 254 | E1-6 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING? | 1.1 | 4.9 |
| E 255 | E1-7 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING? | .0 | 14.0 |
| E 256 | E1-8 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING? | .0 | 12.6 |
| E 257 | E1-9 DO YOU WORK WITH DIRECT COUPLED CIRCUITS? | 3.4 | 7.7 |
| E 258 | E1-10 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS? | 1.1 | 5.6 |
| E 259 | E1-11 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS? | 1.1 | 4.9 |
| E 260 | E1-12 DO YOU WORK WITH OPTICAL COUPLING? | .0 | .7 |
| E 261 | E1-13 DO YOU WORK WITH OPTICAL COUPLING CIRCUITS? | .0 | .7 |
| E 262 | E1-14 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS? | 1.1 | 13.3 |
| E 263 | E2-1 IN YOUR PRESENT JOB, DO YOU CONNECT ELECTRONIC CIRCUITS USING SOLDERLESS CONNECTIONS OR SOLDERING TECHNIQUES? IF NO, GO TO ITEM E3-1; IF YES, CONTINUE. | 1.1 | 27.3 |
| E 264 | E2-2 DO YOU SOLDER CONNECTIONS? | 1.1 | 20.3 |
| E 265 | E2-3 DO YOU DESOLDER CONNECTIONS? | 1.1 | 19.6 |

| D TSK | TITLES | 205 | 307 | 70 | 70 | (M) | (M) |
|-------|---|-----|------|----|----|-----|-----|
| E 266 | E2-4 DO YOU PERFORM HIGH RELIABILITY SOLDERING? | .0 | 7.0 | | | | |
| E 267 | E2-5 DO YOU INSPECT SOLDERED CONNECTIONS? | .0 | 20.3 | | | | |
| E 268 | E2-6 DO YOU CLEAN OR TIN CONNECTIONS? | 1.1 | 18.2 | | | | |
| E 269 | E2-7 DO YOU MAKE HARDWIRE CONNECTIONS? | 1.1 | 22.4 | | | | |
| E 270 | E2-8 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS? | .0 | 8.4 | | | | |
| E 271 | E2-9 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS? | .0 | 8.4 | | | | |
| E 272 | E2-10 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS? | .0 | 6.3 | | | | |
| E 273 | E2-11 DO YOU SOLDER ACTIVE COMPONENTS, SUCH AS INTEGRATED CIRCUITS? | .0 | 4.9 | | | | |
| E 274 | E2-12 DO YOU PERFORM WIRE WRAPPING IN LIEU OF SOLDERING? | .0 | 18.9 | | | | |
| E 275 | E2-13 DO YOU PERFORM CHIMING IN LIEU OF SOLDERING? | .0 | 11.9 | | | | |
| E 276 | E2-14 DO YOU PERFORM WIRE CONNECTIONS USING A 714 PUNCH-ON TOOL IN LIEU OF SOLDERING? | .0 | 6.3 | | | | |
| E 277 | E3-1 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB? IF NO, GO TO ITEM F1-1; IF YES, CONTINUE. | 1.1 | 28.0 | | | | |
| E 278 | E3-2 DO YOU ADJUST RELAYS? | .0 | 9.1 | | | | |
| E 279 | E3-3 DO YOU CLEAN RELAYS? | .0 | 2.8 | | | | |
| E 280 | E3-4 DO YOU INSPECT RELAYS? | .0 | 6.3 | | | | |
| E 281 | E3-5 DO YOU TROUBLESHOOT RELAYS? | .0 | 21.7 | | | | |
| E 282 | E3-6 DO YOU MONITOR BIAS OUTPUT ON RELAYS? | .0 | 18.9 | | | | |
| E 283 | E3-7 DO YOU REMOVE OR REPLACE RELAYS? | .0 | 9.8 | | | | |
| E 284 | E3-8 DO YOU PERFORM TASKS ON CONTACTS OF RELAYS? | .0 | 2.8 | | | | |
| E 285 | E3-9 DO YOU PERFORM TASKS ON COILS OF RELAYS? | .0 | .0 | | | | |
| E 286 | E3-10 DO YOU PERFORM TASKS ON CORES OF RELAYS? | .0 | .7 | | | | |
| E 287 | E3-11 DO YOU PERFORM TASKS ON ARMATURES OF RELAYS? | .0 | 2.8 | | | | |
| E 288 | E3-12 DO YOU PERFORM TASKS ON SPRINGS OF RELAYS? | .0 | 2.1 | | | | |
| E 289 | E3-13 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 6.3 | | | | |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 205 | 307 |
|-------|---|-----------|-----------|
| | | 70 (M) | 70 (M) |
| E 290 | E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 6.3 |
| E 291 | E3-15 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 6.3 |
| E 292 | E3-16 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS? | .0 | 5.6 |
| E 293 | E3-17 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS? | .0 | 7.0 |
| E 294 | E3-18 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE? | .0 | 4.9 |

F MICROPHONES AND SENSING DEVICES (F1), SPEAKERS (F2), OSCILLOSCOPES (F3)

| | | | |
|-------|---|------|------|
| F 295 | F1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES OR OTHER SENSING DEVICES SUCH AS TRANSDUCERS? IF NO, GO TO ITEM F2-1; IF YES, CONTINUE. | 20.2 | 19.6 |
| F 296 | F1-2 DO YOU INSPECT MICROPHONES? | 2.2 | 9.1 |
| F 297 | F1-3 DO YOU CLEAN MICROPHONES? | 1.1 | 7.0 |
| F 298 | F1-4 DO YOU OPERATE MICROPHONES? | 19.1 | 19.6 |
| F 299 | F1-5 DO YOU TROUBLESHOOT MICROPHONE WIRE CONNECTIONS? | 1.1 | 9.8 |
| F 300 | F1-6 DO YOU TROUBLESHOOT MICROPHONE COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | .0 | 4.2 |
| F 301 | F1-7 DO YOU REMOVE AND REPLACE COMPLETE MICROPHONES? | 5.6 | 11.2 |
| F 302 | F1-8 DO YOU REMOVE OR REPLACE MICROPHONE COMPONENT PARTS? | .0 | 2.8 |
| F 303 | F1-9 DO YOU PERFORM TASKS ON CARBON MICROPHONES? | 2.2 | 7.7 |
| F 304 | F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES? | .0 | .7 |
| F 305 | F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES? | 1.1 | 1.4 |
| F 306 | F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES? | 3.4 | 7.0 |
| F 307 | F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES? | .0 | .7 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSK | TITLES | 205 | 307 |
|-------|---|------|------|
| | | (M) | (M) |
| F 308 | F1-14 DO YOU PERFORM TASKS ON TRANSDUCERS? | 1.1 | 1.4 |
| F 309 | F2-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS? IF NO, GO TO ITEM F3-1; IF YES, CONTINUE. | 22.5 | 42.0 |
| F 310 | F2-2 DO YOU INSPECT SPEAKERS? | 2.2 | 15.4 |
| F 311 | F2-3 DO YOU CLEAN SPEAKERS? | 2.2 | 9.1 |
| F 312 | F2-4 DO YOU OPERATE SPEAKERS? | 21.3 | 44.1 |
| F 313 | F2-5 DO YOU TROUBLESHOOT SPEAKER WIRE CONNECTIONS? | 3.4 | 17.5 |
| F 314 | F2-6 DO YOU TROUBLESHOOT SPEAKER COMPONENT PARTS OTHER THAN WIRE CONNECTIONS? | .0 | 2.0 |
| F 315 | F2-7 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS? | 4.5 | 9.1 |
| F 316 | F2-8 DO YOU REMOVE OR REPLACE SPEAKER PARTS? | .0 | 2.1 |
| F 317 | F2-9 DO YOU PERFORM ANY TASKS ON CONE SPEAKER PARTS? | .0 | 2.1 |
| F 318 | F2-10 DO YOU PERFORM ANY TASKS ON SPIDER SPEAKER PARTS? | .0 | .7 |
| F 319 | F2-11 DO YOU PERFORM ANY TASKS ON FIELD COIL SPEAKER PARTS? | .0 | 1.4 |
| F 320 | F2-12 DO YOU PERFORM ANY TASKS ON VOICE COIL SPEAKER PARTS? | .0 | 2.8 |
| F 321 | F2-13 DO YOU PERFORM ANY TASKS ON PERMANENT MAGNET SPEAKER PARTS? | .0 | .7 |
| F 322 | F2-14 DO YOU PERFORM ANY TASKS ON ELECTROMAGNET SPEAKER PARTS? | .0 | .7 |
| F 323 | F2-15 DO YOU PERFORM ANY TASKS ON SOFT IRON CORE SPEAKER PARTS? | .0 | .7 |
| F 324 | F3-1 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB? IF NO, GO TO ITEM G1-1; IF YES, CONTINUE. | 38.2 | 68.5 |
| F 325 | F3-2 DO YOU PERFORM OPERATIONAL CHECKS USING OSCILLOSCOPES? | 30.3 | 60.8 |
| F 326 | F3-3 DO YOU PERFORM ALIGNMENTS OR ADJUSTMENTS USING OSCILLOSCOPES? | 15.7 | 38.5 |
| F 327 | F3-4 DO YOU TROUBLESHOOT ELECTRONIC CIRCUITS USING OSCILLOSCOPES? | 2.2 | 49.0 |
| F 328 | F3-5 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCIES? | 37.1 | 54.5 |
| F 329 | F3-6 DO YOU USE OSCILLOSCOPES TO MEASURE TIME? | 36.0 | 43.4 |

NEESLER ELECTRONIC PPINCIPLES INVENTORY DATA

| D TSM | TITLES | 205 TO (M) | 307 TO (M) |
|-------|--|------------|------------|
| F 330 | F3-7 DO YOU USE OSCILLOSCOPES TO OBSERVE LISSAJOUS PATTERNS? | 28.1 | 14.7 |
| F 331 | F3-8 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES. | 10.1 | 25.9 |
| F 332 | F3-9 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS? | 24.7 | 15.4 |
| F 333 | F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGES? | 30.3 | 49.0 |
| F 334 | F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGES? | 25.8 | 58.0 |
| F 335 | F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS? | 23.6 | 36.4 |
| F 336 | F3-13 DO YOU USE OSCILLOSCOPES TO OBSERVE DATA PATTERNS? | 31.5 | 63.6 |
| F 337 | F3-14 DO YOU USE OSCILLOSCOPES TO MEASURE RIPPLE VOLTAGES? | 9.0 | 25.2 |
| F 338 | F3-15 DO YOU USE OSCILLOSCOPES TO MEASURE PHASE JITTERS? | 16.9 | 41.3 |
| F 339 | F3-16 DO YOU USE OSCILLOSCOPES TO DISPLAY SWEEP GENERATOR PATTERNS? | 24.7 | 33.6 |
| F 340 | F3-17 DO YOU USE OSCILLOSCOPES TO OBSERVE PHASE RELATIONSHIPS? | 33.7 | 50.3 |
| F 341 | F3-18 DO YOU USE OSCILLOSCOPES TO OBSERVE SAMPLING DISPLAYS? | 21.3 | 24.5 |

6 SEMICONDUCTOR DIODES (G1), TRANSISTORS (G2), TRANSISTOR AMPLIFIERS (G3)

| | | | |
|-------|---|-----|-----|
| G 342 | G1-1 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB? IF NO, GO TO ITEM G2-1; IF YES, CONTINUE. | 2.2 | 2.1 |
| G 343 | G1-2 DO YOU INSPECT DIODES? | .0 | 1.4 |
| G 344 | G1-3 DO YOU CHECK DIODES? | .0 | 1.4 |

| D TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|---|------------------|------------------|
| 6 345 | 61-4 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES? | .0 | .0 |
| 6 346 | 61-5 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE? | .0 | .0 |
| 6 347 | 61-6 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR JIODES? | .0 | .0 |
| 6 348 | 61-7 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES? | .0 | 1.4 |
| 6 349 | 61-8 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE? | .0 | 2.1 |
| 6 350 | 61-9 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW? | .0 | .0 |
| 6 351 | 61-10 DO YOU MEASURE FORWARD BIAS RESISTANCE? | .0 | 1.4 |
| 6 352 | 61-11 DO YOU MEASURE REVERSE BIAS RESISTANCE? | .0 | 1.4 |
| 6 353 | 61-12 DO YOU READ DIODE COLOR CODING? | .0 | .7 |
| 6 354 | 61-13 DO YOU READ DIODE NUMBERING SYSTEM, SUCH AS IN 5387 | .0 | .0 |
| 6 355 | 61-14 DO YOU USE THE SYMBOL ON DIODE WHICH INDICATES THE CATHODE END? | .0 | 1.4 |
| 6 356 | 61-15 DO YOU DETERMINE DIRECTION OF CURRENT THROUGH A DIODE? | .0 | 1.4 |
| 6 357 | 61-16 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON? | .0 | .7 |
| 6 358 | 61-17 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OR RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)? | .0 | .7 |
| 6 359 | 61-18 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)? | .0 | .0 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| O TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|---|------------------|------------------|
| G 360 | GI-19 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS? | .0 | .0 |
| G 361 | GI-20 DO YOU NEED AN UNDERSTANDING OF VALENCE BAND IN SEMICONDUCTOR MATERIALS? | .0 | .0 |
| G 362 | GI-21 DO YOU NEED AN UNDERSTANDING OF FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS? | .0 | .0 |
| G 363 | GI-22 DO YOU NEED AN UNDERSTANDING OF CONDUCTION BAND IN SEMICONDUCTOR MATERIALS? | .0 | .0 |
| G 364 | GI-23 DO YOU NEED AN UNDERSTANDING OF COVALENT BONDING IN SEMICONDUCTOR MATERIALS? | .0 | .0 |
| G 365 | GI-24 DO YOU NEED AN UNDERSTANDING OF ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS? | .0 | .0 |
| G 366 | GI-25 DO YOU NEED AN UNDERSTANDING OF ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS? | .0 | .7 |
| G 367 | GI-26 DO YOU NEED AN UNDERSTANDING OF DONOR IMPURITY IN SEMICONDUCTORS? | .0 | .0 |
| G 368 | GI-27 DO YOU NEED AN UNDERSTANDING OF ACCEPTOR IMPURITY IN SEMICONDUCTORS? | .0 | .0 |
| G 369 | GI-28 DO YOU NEED AN UNDERSTANDING OF P-TYPE SEMICONDUCTOR MATERIAL? | .0 | .0 |
| G 370 | GI-29 DO YOU NEED AN UNDERSTANDING OF N-TYPE SEMICONDUCTOR MATERIAL? | .0 | .0 |
| G 371 | GI-30 DO YOU NEED AN UNDERSTANDING OF MAJORITY CARRIERS IN SEMICONDUCTORS? | .0 | .0 |
| G 372 | GI-31 DO YOU NEED AN UNDERSTANDING OF MINORITY CARRIERS IN SEMICONDUCTORS? | .0 | .0 |
| G 373 | GI-32 DO YOU NEED AN UNDERSTANDING OF JUNCTION RECOMBINATION IN SEMICONDUCTORS? | .0 | .0 |
| G 374 | GI-33 DO YOU NEED AN UNDERSTANDING OF DEPLETION REGION IN SEMICONDUCTORS? | .0 | .0 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTCH PAGE 25

205 307
70
(M) (P)

D TSM TITLES

| | | | |
|-------|--|-----|-----|
| 6 375 | 61-34 DO YOU NEED AN UNDERSTANDING OF RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL? | .0 | .0 |
| 6 376 | 61-35 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES? | .0 | 1.4 |
| 6 377 | 61-36 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS? | .0 | .0 |
| 6 378 | 61-37 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION? | .0 | .0 |
| 6 379 | 61-38 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS? | .0 | .7 |
| 6 380 | 61-39 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS? | .0 | .0 |
| 6 381 | 61-40 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS? | .0 | .7 |
| 6 382 | 61-41 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS? | .0 | .7 |
| 6 383 | 62-1 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM G3-1; IF YES, CONTINUE. | 1.1 | 3.5 |
| 6 384 | 62-2 DO YOU INSPECT TRANSISTORS? | .0 | 2.1 |
| 6 385 | 62-3 DO YOU CHECK TRANSISTORS? | .0 | 1.4 |
| 6 386 | 62-4 DO YOU NEED AN UNDERSTANDING OF EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS? | .0 | .7 |
| 6 387 | 62-5 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS? | .0 | .7 |
| 6 388 | 62-6 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS? | .0 | .7 |
| 6 389 | 62-7 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION? | .0 | .7 |
| 6 390 | 62-8 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION? | .0 | .7 |

| D TSM | TITLES | 205 70 (M) | 307 70 (M) |
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| 6 391 62-9 | DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE, AND EMITTER)? | .0 | .7 |
| 6 392 62-10 | DO YOU USE OR REFER TO LEAKAGE CURRENT (I SUB CBO) IN A TRANSISTOR? | .0 | .7 |
| 6 393 62-11 | DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS? | .0 | 1.4 |
| 6 394 62-12 | DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, A2, A3, ETC.? | .0 | .7 |
| 6 395 62-13 | DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION? | .0 | .7 |
| 6 396 62-14 | DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT (I SUB B) IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT (I SUB E) USUALLY (I SUB B) BEING 2 TO 8 PERCENT OF (I SUB E)? | .0 | .7 |
| 6 397 62-15 | DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS? | .0 | .7 |
| 6 398 62-16 | DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (I SUB CBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES? | .0 | .0 |
| 6 399 62-17 | DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES? | .0 | .0 |
| 6 400 62-18 | DO YOU USE OR REFER TO BETA TRANSISTOR GAINS? | .0 | .0 |
| 6 401 62-19 | DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS? | .0 | .0 |
| 6 402 62-20 | DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS? | .0 | .0 |
| 6 403 62-21 | DO YOU USE OR REFER TO THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE BASE - EMITTER VOLTAGE INTO THE BASE COLLECTOR VOLTAGE (AV = VCB/VBE)? | .0 | .0 |
| 6 404 62-22 | DO YOU USE OR REFER TO THE CURRENT GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT (AI = IC/IB)? | .0 | .0 |

205 307
70 70
(M) (P)

D TSM TITLES

- 6 405 62-23 DO YOU USE OR REFER TO THE POWER GAIN FOR SPECIFIC TRANSISTORS BY MULTIPLYING THE CURRENT GAIN TIMES THE VOLTAGE GAIN (AP = AI X AV)?
- 6 406 62-24 DO YOU PERFORM TRANSISTOR MATCHING THROUGH THE USE OF CURVE TRACING?
- 6 407 63-1 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM H1-1; IF YES, CONTINUE.
- 6 408 63-2 DO YOU INSPECT TRANSISTOR AMPLIFIERS?
- 6 409 63-3 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS?
- 6 410 63-4 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL?
- 6 411 63-5 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS?
- 6 412 63-6 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER?
- 6 413 63-7 DO YOU REMOVE OR REPLACE AMPLIFIER CIRCUIT COMPONENTS?
- 6 414 63-8 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR CURRENT RESULTS FROM A CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS?
- 6 415 63-9 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT CONCERNING TRANSISTOR AMPLIFIERS?
- 6 416 63-10 DO YOU USE OR REFER TO THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT?
- 6 417 63-11 DO YOU USE OR REFER TO THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS?
- 6 418 63-12 DO YOU USE OR REFER TO THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL CONCERNING TRANSISTOR AMPLIFIERS?

.0 .0
.0 .0
5.6 21.0
.0 7.0
.0 18.9
.0 14.0
.0 1.4
2.2 18.9
.0 1.4
.0 .0

.0 .0
.0 .0
.0 .0
.0 .0
.0 .0

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPID4 PAGE 28

| D TSK | TITLES | 205 70 (M) | 307 70 (P) |
|-------|--|------------------|------------------|
| G 419 | G3-13 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)? | .0 | .7 |
| G 420 | G3-14 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR? | .0 | .0 |
| G 421 | G3-15 DO YOU MEASURE VOLTAGE GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 1.1 | 9.1 |
| G 422 | G3-16 DO YOU MEASURE CURRENT GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 1.1 | 4.9 |
| G 423 | G3-17 DO YOU MEASURE POWER GAIN CONCERNING TRANSISTOR AMPLIFIERS? | 1.1 | 15.4 |
| G 424 | G3-18 DO YOU USE OR REFER TO THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS BY DIVIDING THE CHANGE IN BASE - EMITTER VOLTAGE INTO THE CHANGE OF THE BASE COLLECTOR VOLTAGE? | .0 | .0 |
| G 425 | G3-19 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION? | .0 | .0 |
| G 426 | G3-20 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION? | .0 | .0 |
| G 427 | G3-21 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION? | .0 | .0 |
| G 428 | G3-22 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION? | .0 | .0 |
| G 429 | G3-23 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION? | .0 | .0 |

| D TSM | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| 6 430 | G3-24 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS, WHILE TROUBLESHOOTING THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION? | .0 | .0 |
| 6 431 | G3-25 DO YOU IDENTIFY OR TROUBLESHOOT AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS? | .0 | 12.6 |
| 6 432 | G3-26 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS? | .0 | 12.6 |
| 6 433 | G3-27 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS? | .0 | 9.8 |
| 6 434 | G3-28 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS? | .0 | 1.4 |
| 6 435 | G3-29 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? | .0 | .0 |
| 6 436 | G3-30 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | .0 | .0 |
| 6 437 | G3-31 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? | .0 | .7 |
| 6 438 | G3-32 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS? | .0 | .0 |
| 6 439 | G3-33 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? | .0 | .7 |
| 6 440 | G3-34 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? | .0 | 2.1 |
| 6 441 | G3-35 DO YOU TROUBLESHOOT OR REPAIR VOLTAGE MULTIPLIERS (DOUBLERS/TRIPLERS)? | .0 | 1.4 |
| 6 442 | G3-36 DO YOU TROUBLESHOOT OR REPAIR RF AMPLIFIERS? | 1.1 | 4.2 |
| 6 443 | G3-37 DO YOU TROUBLESHOOT OR REPAIR WIDEBAND AMPLIFIERS (VIDEO AMPS)? | 1.1 | 2.1 |
| 6 444 | G3-38 DO YOU TROUBLESHOOT OR REPAIR AUDIO AMPLIFIERS? | 1.1 | 15.4 |
| 6 445 | G3-39 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL OR POWER AMPLIFIERS? | 1.1 | 2.1 |
| 6 446 | G3-40 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | .0 | .0 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 (P) | 307 70 (P) |
|-------|---|------------|------------------|
| G 447 | G3-41 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY AMPLIFIERS? | .0 | .0 |
| G 448 | G3-42 DO YOU TROUBLESHOOT OR REPAIR IF AMPLIFIERS? | .0 | 2.1 |
| G 449 | G3-43 DO YOU TROUBLESHOOT OR REPAIR DIFFERENTIATING AMPLIFIERS (DIFF AMPS)? | .0 | .0 |
| G 450 | G3-44 DO YOU TROUBLESHOOT OR REPAIR OPERATIONAL AMPLIFIERS (OP AMPS)? | .0 | 1.4 |
| G 451 | G3-45 DO YOU TROUBLESHOOT OR REPAIR INTEGRATING AMPLIFIERS? | .0 | 1.4 |
| G 452 | G3-46 DO YOU TROUBLESHOOT OR REPAIR SUMMING AMPLIFIERS? | .0 | .7 |
| ----- | | | |
| H | SOLID-STATE SPECIAL PURPOSE DEVICES (H1), POWER SUPPLIES (H2), OSCILLATORS (H3) | ----- | |
| H 453 | H1-1 DO YOU USE OR REFER TO VARACTORS/VARICAP COMPONENTS? | 1.1 | 4.9 |
| H 454 | H1-2 DO YOU USE OR REFER TO TUNNEL DIODE COMPONENTS? | 1.1 | 6.3 |
| H 455 | H1-3 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTOR (FET) COMPONENTS? | 2.2 | 5.6 |
| H 456 | H1-4 DO YOU USE OR REFER TO UNIUNCTION TRANSISTOR COMPONENTS? | 1.1 | 3.5 |
| H 457 | H1-5 DO YOU USE OR REFER TO ZENEP DIODE COMPONENTS? | 1.1 | 8.4 |
| H 458 | H1-6 DO YOU USE OR REFER TO INTEGRATED CIRCUIT COMPONENTS? | 10.1 | 16.8 |
| H 459 | H1-7 DO YOU USE OR REFER TO PIN DIODE COMPONENTS? | 3.4 | 2.8 |
| H 460 | H1-8 DO YOU USE OR REFER TO LED'S/LCD'S COMPONENTS? | 23.6 | 32.9 |
| H 461 | H1-9 DO YOU USE OR REFER TO FANTAIL TRANSISTOR COMPONENTS? | 1.1 | .0 |
| H 462 | H1-10 DO YOU USE OR REFER TO SILICON CONTROL RECTIFIER (SCR) COMPONENTS? | 1.1 | 4.2 |
| H 463 | H1-11 DO YOU USE OR REFER TO TRIAC COMPONENTS? | 1.1 | 2.8 |
| H 464 | H1-12 DO YOU USE OR REFER TO PROGRAMMABLE UNIUNCTION TRANSISTOR (PUT) COMPONENTS? | 1.1 | .0 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTON PAGE 31

| D TSK | TITLES | 205 | 307 | 70 | 70 | (M) | (P) |
|-------|--|-----|------|----|----|-----|-----|
| H 465 | H1-13 DO YOU USE OR REFER TO SILICON CONTROLLED SWITCH (SCS) COMPONENTS? | 1.1 | 2.1 | | | | |
| H 466 | H1-14 DO YOU USE OR REFER TO SILICON UNILATERAL SWITCH (SUS) COMPONENTS? | 1.1 | 2.1 | | | | |
| H 467 | H2-1 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES? IF NO, GO TO ITEM H3-1; IF YES, CONTINUE. | 1.1 | 28.0 | | | | |
| H 468 | H2-2 DO YOU INSPECT POWER SUPPLIES? | .0 | 12.6 | | | | |
| H 469 | H2-3 DO YOU CLEAN POWER SUPPLIES? | .0 | 7.0 | | | | |
| H 470 | H2-4 DO YOU ALIGN OR ADJUST POWER SUPPLIES? | .0 | 11.2 | | | | |
| H 471 | H2-5 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL? | .0 | 14.7 | | | | |
| H 472 | H2-6 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS? | .0 | 1.4 | | | | |
| H 473 | H2-7 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES? | .0 | 14.0 | | | | |
| H 474 | H2-8 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS? | .0 | .0 | | | | |
| H 475 | H2-9 DO YOU INSPECT OR SERVICE COOLANT LEVELS? | .0 | .7 | | | | |
| H 476 | H2-10 DO YOU WORK WITH HALF-WAVE RECTIFIERS? | .0 | 2.1 | | | | |
| H 477 | H2-11 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS? | .0 | 3.5 | | | | |
| H 478 | H2-12 DO YOU WORK WITH BRIDGE RECTIFIERS? | .0 | 4.2 | | | | |
| H 479 | H2-13 DO YOU WORK WITH THREE-PHASE RECTIFIERS? | .0 | .0 | | | | |
| H 480 | H2-14 DO YOU USE OR REFER TO INPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .0 | 9.8 | | | | |
| H 481 | H2-15 DO YOU USE OR REFER TO INPUT FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | .0 | 11.2 | | | | |
| H 482 | H2-16 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .0 | 10.5 | | | | |
| H 483 | H2-17 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .0 | 9.8 | | | | |
| H 484 | H2-18 DO YOU USE OR REFER TO RIPPLE AMPLITUDE IN YOUR WORK WITH RECTIFIERS? | .0 | 7.0 | | | | |
| H 485 | H2-19 DO YOU USE OR REFER TO RIPPLE FREQUENCIES IN YOUR WORK WITH RECTIFIERS? | .0 | 7.0 | | | | |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D | TSK | TITLES | 205 | 307 |
|---|-----|--|------|------|
| | | | (M) | (M) |
| H | 486 | H2-20 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .0 | 1.4 |
| H | 487 | H2-21 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS IN YOUR WORK WITH RECTIFIERS? | .0 | 9.8 |
| H | 488 | H2-22 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGES IN YOUR WORK WITH RECTIFIERS? | .0 | 7.0 |
| H | 489 | H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS? | .0 | 4.9 |
| H | 490 | H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS? | .0 | 4.9 |
| H | 491 | H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS? | .0 | 3.5 |
| H | 492 | H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS? | .0 | 3.5 |
| H | 493 | H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS? | .0 | 3.5 |
| H | 494 | H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS? | .0 | 3.5 |
| H | 495 | H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER? | .0 | 1.4 |
| H | 496 | H2-30 DO YOU WORK WITH POWER SUPPLY REGULATOR CIRCUITS OTHER THAN SOLID-STATE? | .0 | 4.2 |
| H | 497 | H2-31 DO YOU WORK WITH SOLID-STATE POWER SUPPLY REGULATOR CIRCUITS? | .0 | 5.6 |
| H | 498 | H3-1 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 11-1; IF YES, CONTINUE. | 21.3 | 48.3 |
| H | 499 | H3-2 DO YOU INSPECT OSCILLATORS? | 3.4 | 16.1 |
| H | 500 | H3-3 DO YOU ALIGN OR ADJUST OSCILLATORS? | 5.6 | 28.7 |
| H | 501 | H3-4 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS? | 4.5 | 16.8 |
| H | 502 | H3-5 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS? | .0 | .7 |
| H | 503 | H3-6 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL? | .0 | 13.3 |

| D TSM | TITLES | 205 | 307 | 70 | (M) | (M) |
|-------|--|------|------|----|-----|-----|
| M 504 | H3-7 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS? | .0 | 1.4 | | | |
| M 505 | H3-8 DO YOU USE OR REFER TO FEEDBACK (DEGENERATIVE OR REGENERATIVE)? | 5.6 | 16.1 | | | |
| M 506 | H3-9 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)? | 5.6 | 9.8 | | | |
| M 507 | H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY? | 10.1 | 26.6 | | | |
| M 508 | H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY? | 15.7 | 30.1 | | | |
| M 509 | H3-12 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT (CRYSTAL OSCILLATIONS)? | 5.6 | 3.5 | | | |
| M 510 | H3-13 DO YOU USE OR REFER TO HARMONIC DISTORTION? | 12.4 | 39.2 | | | |
| M 511 | H3-14 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN DC TANK CIRCUITS? | 1.1 | 4.2 | | | |
| M 512 | H3-15 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN RC NETWORKS? | 1.1 | 4.9 | | | |
| M 513 | H3-16 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN CRYSTALS? | 7.9 | 8.4 | | | |
| M 514 | H3-17 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN PHASE LOCK LOOPS (PLL)? | 11.2 | 6.3 | | | |
| M 515 | H3-18 DO YOU WORK WITH OSCILLATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | 4.5 | 21.7 | | | |
| M 516 | H3-19 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS? | .0 | 1.4 | | | |
| M 517 | H3-20 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS? | .0 | 1.4 | | | |
| M 518 | H3-21 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS? | .0 | 2.1 | | | |
| M 519 | H3-22 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS? | .0 | .0 | | | |
| M 520 | H3-23 DO YOU WORK WITH VOLTAGE CONTROL SINUSOIDAL OSCILLATORS? | 4.5 | 5.6 | | | |
| M 521 | H3-24 DO YOU WORK WITH CRYSTAL SINUSOIDAL OSCILLATORS? | 9.0 | 9.8 | | | |
| M 522 | H3-25 DO YOU WORK WITH VOLTAGE CONTROL OSCILLATORS (VCO) SINUSOIDAL OSCILLATORS? | 11.2 | 8.4 | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| M 523 | H3-26 DO YOU WORK WITH WIEN BRIDGE OSCILLATORS SINUSOIDAL OSCILLATORS? | .0 | 2.8 |
| M 524 | H3-27 DO YOU WORK WITH - DON'T KNOW WHICH TYPE OF SINUSOIDAL OSCILLATOR? | 7.9 | 25.9 |
| M 525 | H3-28 DO YOU WORK WITH PULSE GENERATING CIRCUITS? | 14.6 | 9.8 |
| M 526 | H3-29 DO YOU WORK WITH BLOCKING OSCILLATORS? | 2.2 | 2.8 |
| M 527 | H3-30 DO YOU WORK WITH BURST GENERATORS? | 1.1 | 2.1 |
| M 528 | H3-31 DO YOU WORK WITH BLOCKED OSCILLATORS? | .0 | 2.8 |

 I MULTIVIBRATORS (I1), LIMITERS AND CLAMPERS (I2), ELECTRON TUBES (I3)

| | | | |
|-------|---|-----|----|
| I 529 | I1-1 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM I2-1; IF YES, CONTINUE. | 1.1 | .7 |
| I 530 | I1-2 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUIT FREQUENCY DETERMINING DEVICES (FDD)? | .0 | .0 |
| I 531 | I1-3 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORK FREQUENCY DETERMINING DEVICES (FDD)? | .0 | .0 |
| I 532 | I1-4 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTAL FREQUENCY DETERMINING DEVICES (FDD)? | .0 | .0 |
| I 533 | I1-5 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN - DON'T KNOW WHICH TYPE OF FDD? | .0 | .0 |
| I 534 | I1-6 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS? | .0 | .0 |
| I 535 | I1-7 DO YOU WORK WITH MONOSTABLE (ONE SHOT) MULTIVIBRATORS? | .0 | .0 |
| I 536 | I1-8 DO YOU WORK WITH BISTABLE (FLIP FLOP) MULTIVIBRATORS? | .0 | .0 |
| I 537 | I1-9 DO YOU WORK WITH R-S FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .0 | .0 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT04 PAGE 35

| D TSK | TITLES | 205 70 (M) | 307 70 (P) |
|-------|--|------------------|------------------|
| I 538 | 11-10 DO YOU WORK WITH J-K FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .0 | .0 |
| I 539 | 11-11 DO YOU WORK WITH "0" FLIP-FLOP INTEGRATED CIRCUIT REGULATORS? | .0 | .0 |
| I 540 | 12-1 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 13-1; IF YES, CONTINUE. | 3.4 | 4.2 |
| I 541 | 12-2 DO YOU WORK WITH SERIES DIODE LIMITERS? | .0 | 2.1 |
| I 542 | 12-3 DO YOU WORK WITH SHUNT DIODE LIMITERS? | .0 | 3.5 |
| I 543 | 12-4 DO YOU WORK WITH LIMITERS WITH BIAS? | .0 | .7 |
| I 544 | 12-5 DO YOU WORK WITH ZENER DIODE LIMITERS? | .0 | 2.8 |
| I 545 | 12-6 DO YOU WORK WITH TRANSISTOR LIMITERS? | .0 | 1.4 |
| I 546 | 12-7 DO YOU WORK WITH TRIODE LIMITERS? | .0 | .0 |
| I 547 | 12-8 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS? | .0 | 1.4 |
| I 548 | 12-9 DO YOU WORK WITH BIAS DIODE CLAMPING CIRCUITS? | .0 | .0 |
| I 549 | 12-10 DO YOU WORK WITH DC RESTORERS (DCR)? | 1.1 | .0 |
| I 550 | 13-1 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS BASIC ELECTRON TUBES (FOR PURPOSES OF THIS QUESTION DO NOT CONSIDER HIGH-FREQUENCY DEVICES SUCH AS KLYSTRONS, TRAVELING WAVE TUBES, BACKWARD WAVE OSCILLATORS, OR MAGNETRONS AS ELECTRON TUBES)? IF NO, GO TO ITEM J1-1; IF YES, CONTINUE. | 2.2 | 2.1 |
| I 551 | 13-2 DO YOU CHECK THE CONDITION OF ELECTRON TUBES? | .0 | .7 |
| I 552 | 13-3 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES? | .0 | .7 |
| I 553 | 13-4 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES? | .0 | .0 |
| I 554 | 13-5 DO YOU USE SCOPES TO CHECK ELECTRON TUBES? | 1.1 | .0 |
| I 555 | 13-6 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES? | .0 | .7 |
| I 556 | 13-7 DO YOU USE OR REFER TO CUTOFF? | .0 | .0 |
| I 557 | 13-8 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING? | .0 | .0 |
| I 558 | 13-9 DO YOU USE OR REFER TO PEAK CURRENT RATING? | .0 | .0 |
| I 559 | 13-10 DO YOU USE OR REFER TO TRANSIT TIME? | .0 | .0 |
| I 560 | 13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING? | .0 | .0 |

| D TSM | TITLES | 205 70 (M) | 307 70 (M) |
|-------|---|------------------|------------------|
| I 561 | I3-12 DO YOU USE OR REFER TO SATURATION? | .0 | .0 |
| I 562 | I3-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE? | .0 | .0 |
| I 563 | I3-14 DO YOU USE OR REFER TO PLATE VOLTAGE? | .0 | .0 |
| I 564 | I3-15 DO YOU USE OR REFER TO PLATE CURRENT? | .0 | .0 |
| I 565 | I3-16 DO YOU USE OR REFER TO GRID VOLTAGE? | .0 | .0 |
| I 566 | I3-17 DO YOU USE OR REFER TO GRID CURRENT? | .0 | .0 |
| I 567 | I3-18 DO YOU USE OR REFER TO CATHODE VOLTAGE? | .0 | .0 |
| I 568 | I3-19 DO YOU USE OR REFER TO CATHODE CURRENT? | .0 | .0 |
| I 569 | I3-20 DO YOU USE OR REFER TO FILAMENT VOLTAGE? | .0 | .0 |
| I 570 | I3-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)? | .0 | .0 |
| I 571 | I3-22 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC.) AMPLIFICATION FACTORS? | .0 | .0 |
| I 572 | I3-23 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)? | .0 | .0 |
| I 573 | I3-24 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE? | .0 | .0 |
| I 574 | I3-25 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE? | .0 | .0 |
| I 575 | I3-26 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES? | .0 | .0 |
| I 576 | I3-27 DO YOU USE OR REFER TO PLATE VOLTAGE FOR A SPECIFIED BIAS? | .0 | .0 |
| I 577 | I3-28 DO YOU USE OR REFER TO PLATE CURRENT FOR A SPECIFIED BIAS? | .0 | .0 |
| I 578 | I3-29 DO YOU USE OR REFER TO BIAS REQUIRED FOR CUTOFF? | .0 | .0 |
| I 579 | I3-30 DO YOU USE OR REFER TO BIAS REQUIRED FOR SATURATION? | .0 | .0 |
| I 580 | I3-31 DO YOU USE OR REFER TO GAIN? | .0 | .0 |
| I 581 | I3-32 DO YOU USE OR REFER TO EFFICIENCY? | .0 | .0 |

| D TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| I 582 | 13-33 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | .0 | .0 |
| I 583 | 13-34 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | .0 | .0 |
| I 584 | 13-35 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN? | .0 | .0 |
| I 585 | 13-36 DO YOU USE OR REFER TO TUBE SOCKET NOTATION? | .0 | .0 |
| I 586 | 13-37 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS? | .0 | .0 |
| I 587 | 13-38 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS? | .0 | .0 |
| I 588 | 13-39 DO YOU USE OR REFER TO ELECTRON TUBE DIODES? | .0 | .0 |

J ELECTRON TUBE AMPLIFIERS AND CIRCUITS (J1), SPECIAL PURPOSE ELECTRON TUBES (J2), HETERODYNING AND MODULATION - DEMODULATION (MODEMS) (J3)

| | | | |
|-------|---|-----|-----|
| J 589 | J1-1 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM J2-1; IF YES, CONTINUE. | 6.7 | 1.4 |
| J 590 | J1-2 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS? | .0 | .0 |
| J 591 | J1-3 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS? | .0 | .0 |
| J 592 | J1-4 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS? | 1.1 | .7 |
| J 593 | J1-5 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS? | .0 | .0 |
| J 594 | J1-6 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS? | .0 | .7 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| O TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|---|------------------|------------------|
| J 595 | J1-7 DO YOU TROUBLESHOOT OR REPAIR - DON'T KNOW WHICH TYPE OF AMPLIFIER? | 3.4 | 0.0 |
| J 596 | J2-1 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)? | 2.2 | 2.1 |
| J 597 | J2-2 DO YOU WORK WITH CATHODE-RAY TUBES (CRT)? | 68.5 | 35.7 |
| J 598 | J2-3 DO YOU WORK WITH BEAM POWER TUBES? | 1.1 | 3.5 |
| J 599 | J2-4 DO YOU WORK WITH THYRATRON? | 2.2 | 1.4 |
| J 600 | J2-5 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)? | 22.5 | 7.7 |
| J 601 | J2-6 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 19.1 | 6.3 |
| J 602 | J2-7 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)? | 15.7 | 4.2 |
| J 603 | J2-8 DO YOU USE OR REFER TO PHOSPHOR SCREENS CONCERNING CRT'S? | 37.1 | 11.9 |
| J 604 | J2-9 DO YOU USE OR REFER TO AQUADAG COATINGS CONCERNING CRT'S? | 15.7 | 2.8 |
| J 605 | J2-10 DO YOU USE OR REFER TO ELECTRON OPTICS CONCERNING CRT'S? | 14.6 | 2.8 |
| J 606 | J2-11 DO YOU USE OR REFER TO PERSISTENCE CONCERNING CRT'S? | 31.5 | 8.4 |
| J 607 | J2-12 DO YOU USE OR REFER TO DECAY TIMES CONCERNING CRT'S? | 28.1 | 7.7 |
| J 608 | J2-13 DO YOU USE OR REFER TO FLOURESCENCE CONCERNING CRT'S? | 24.7 | 4.9 |
| J 609 | J2-14 DO YOU USE OR REFER TO PHOSPHORESCENCE CONCERNING CRT'S? | 25.8 | 5.6 |
| J 610 | J2-15 DO YOU USE OR REFER TO SHADOW MASK CONCERNING CRT'S? | 3.4 | 1.4 |
| J 611 | J3-1 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K1-1; IF YES, CONTINUE. | 13.5 | 56.6 |
| J 612 | J3-2 DO YOU PERFORM TASKS ON FREQUENCY CONVERTER SYSTEMS STAGES? | 7.9 | 23.8 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| D TSM | TITLES | 205 | 307 |
|------------|---|-----|------|
| | | (M) | (M) |
| J 613 JJ-3 | DO YOU PERFORM TASKS ON FREQUENCY MIXER SYSTEMS STAGES? | 7.9 | 14.7 |
| J 614 JJ-4 | DO YOU PERFORM TASKS ON MODEM SYSTEMS STAGES? | 3.4 | 49.7 |
| J 615 JJ-5 | DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS? | 7.9 | 25.9 |
| J 616 JJ-6 | DO YOU PERFORM TASKS ON REACTANCE MODULATOR SYSTEM STAGES? | .0 | 2.8 |
| J 617 JJ-7 | DO YOU PERFORM TASKS ON MODULATED OSCILLATOR SYSTEM STAGES? | 1.1 | 7.0 |

 K AM SYSTEMS (K1), FM SYSTEMS (K2), NUMBERING SYSTEMS (K3)

| | | | |
|-------------|--|------|------|
| K 618 K1-1 | DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K2-1; IF YES, CONTINUE. | 12.4 | 18.9 |
| K 619 K1-2 | DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS? | 3.4 | 7.7 |
| K 620 K1-3 | DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS? | .0 | 2.8 |
| K 621 K1-4 | DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS? | 2.2 | 6.3 |
| K 622 K1-5 | DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS? | .0 | 16.8 |
| K 623 K1-6 | DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 6.3 |
| K 624 K1-7 | DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS? | 1.1 | 4.9 |
| K 625 K1-8 | DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 2.1 |
| K 626 K1-9 | DO YOU PERFORM TASKS ON RF OSCILLATORS/SYNTHESIZERST | 5.6 | 2.8 |
| K 627 K1-10 | DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 5.6 | 3.5 |
| K 628 K1-11 | DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 7.9 | 7.0 |
| K 629 K1-12 | DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 4.5 | 4.9 |
| K 630 K1-13 | DO YOU PERFORM TASKS ON LOCAL OSCILLATORS? | 6.7 | 5.6 |

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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205 307
70 70
(M) (M)

D TSK TITLES

| | | | |
|-------|---|------|------|
| K 631 | K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 5.6 | 2.1 |
| K 632 | K1-15 DO YOU PERFORM TASKS ON DETECTORS? | 6.7 | 1.4 |
| K 633 | K1-16 DO YOU PERFORM TASKS ON MIXER AMPLIFIERS? | 5.6 | 2.1 |
| K 634 | K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS? | 3.4 | 4.2 |
| K 635 | K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS? | 5.6 | 6.3 |
| K 636 | K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS? | 11.2 | 11.9 |
| K 637 | K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS? | 10.1 | 9.1 |
| K 638 | K2-1 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM K3-1; IF YES, CONTINUE. | 10.1 | 37.1 |
| K 639 | K2-2 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS? | 3.4 | 15.4 |
| K 640 | K2-3 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS? | .0 | 7.0 |
| K 641 | K2-4 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS? | 1.1 | 12.6 |
| K 642 | K2-5 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS? | .0 | 32.9 |
| K 643 | K2-6 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 14.7 |
| K 644 | K2-7 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS? | 1.1 | 6.3 |
| K 645 | K2-8 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS? | .0 | 4.9 |
| K 646 | K2-9 DO YOU PERFORM LINK PERFORMANCE ASSESSMENTS? | .0 | 30.8 |
| K 647 | K2-10 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS? | 5.6 | 13.3 |
| K 648 | K2-11 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS? | 1.1 | 7.0 |
| K 649 | K2-12 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)? | 3.4 | 6.3 |
| K 650 | K2-13 DO YOU PERFORM TASKS ON POWER AMPLIFIERS? | 2.2 | 9.8 |
| K 651 | K2-14 DO YOU PERFORM TASKS ON RF AMPLIFIERS? | 3.4 | 8.4 |
| K 652 | K2-15 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS? | 5.6 | 7.0 |
| K 653 | K2-16 DO YOU PERFORM TASKS ON IF AMPLIFIERS? | 5.6 | 6.3 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| O TSK | TITLES | 205 | 307 |
|-------|--|------|------|
| | | (M) | (P) |
| M 654 | K2-17 DO YOU PERFORM TASKS ON LIMITERS? | 2.2 | 7.0 |
| M 655 | K2-18 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS? | 4.5 | 7.0 |
| M 656 | K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS? | .0 | 11.2 |
| M 657 | K2-20 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS? | .0 | 11.9 |
| M 658 | K2-21 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSCIEVERS? | .0 | 7.7 |
| M 659 | K2-22 DO YOU PLOT RECEIVE SIGNAL LEVEL CURVES (RSL)? | .0 | 18.2 |
| M 660 | K3-1 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS? | 21.3 | 7.7 |
| M 661 | K3-2 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS? | 37.1 | 19.6 |
| M 662 | K3-3 DO YOU CONVERT DECIMAL NUMBERS TO HEXADECIMAL (BASE 16) NUMBERS? | 13.5 | 7.0 |
| M 663 | K3-4 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS? | 20.2 | 9.1 |
| M 664 | K3-5 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS? | 20.2 | 7.7 |
| M 665 | K3-6 DO YOU CONVERT OCTAL NUMBERS TO HEXADECIMAL NUMBERS? | 11.2 | 4.9 |
| M 666 | K3-7 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS? | 37.1 | 19.6 |
| M 667 | K3-8 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS? | 18.0 | 7.7 |
| M 668 | K3-9 DO YOU CONVERT BINARY NUMBERS TO HEXADECIMAL NUMBERS? | 13.5 | 6.3 |
| M 669 | K3-10 DO YOU CONVERT HEXADECIMAL NUMBERS TO DECIMAL NUMBERS? | 13.5 | 7.0 |
| M 670 | K3-11 DO YOU CONVERT HEXADECIMAL NUMBERS TO OCTAL NUMBERS? | 11.2 | 4.9 |
| M 671 | K3-12 DO YOU CONVERT HEXADECIMAL NUMBERS TO BINARY NUMBERS? | 13.5 | 7.0 |
| M 672 | K3-13 DO YOU ADD BINARY NUMBERS? | 22.5 | 15.4 |
| M 673 | K3-14 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD? | 9.0 | 6.3 |
| M 674 | K3-15 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD? | 13.5 | 12.6 |
| M 675 | K3-16 DO YOU ADD OCTAL NUMBERS? | 14.6 | 5.6 |

| O TSK | TITLES | 205 70 (M) | 307 70 (M) |
|-------|--|------------------|------------------|
| K 676 | K3-17 DO YOU SUBTRACT OCTAL NUMBERS? | 12.4 | 5.6 |
| K 677 | K3-18 DO YOU ADD HEXADECIMAL NUMBERS? | 9.0 | 2.1 |
| K 678 | K3-19 DO YOU SUBTRACT HEXADECIMAL NUMBERS? | 9.0 | 2.1 |
| K 679 | K3-20 DO YOU DIVIDE BINARY NUMBERS? | 9.0 | 7.7 |
| K 680 | K3-21 DO YOU MULTIPLY BINARY NUMBERS? | 9.0 | 7.7 |
| K 681 | K3-22 DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 29.2 | 18.2 |
| K 682 | K3-23 DO YOU USE OR REFER TO GRAY CODE? | 2.2 | 4.2 |
| K 683 | K3-24 DO YOU USE OR REFER TO ICAO CODE? | 3.4 | 2.1 |
| K 684 | K3-25 DO YOU USE OR REFER TO EXCESS-3 CODE? | 2.2 | .7 |

 L LOGIC FUNCTIONS (L1), BOOLEAN EQUATIONS (L2), COUNTERS (L3)

| | | | |
|-------|---|-----|-----|
| L 685 | L1-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS? IF NO, GO TO ITEM L2-1; IF YES, CONTINUE. | 2.2 | 1.4 |
| L 686 | L1-2 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | .0 | .7 |
| L 687 | L1-3 DO YOU CONSTRUCT TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | .0 | .7 |
| L 688 | L1-4 DO YOU CONSTRUCT TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | .0 | .7 |
| L 689 | L1-5 DO YOU CONSTRUCT TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS OR GATES? | 1.1 | .7 |
| L 690 | L1-6 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' LOGIC SYMBOLS OR GATES? | .0 | .7 |
| L 691 | L1-7 DO YOU USE OR REFER TO TRUTH TABLES FOR 'OR' LOGIC SYMBOLS OR GATES? | .0 | .7 |
| L 692 | L1-8 DO YOU USE OR REFER TO TRUTH TABLES FOR 'AND' OR 'OR' LOGIC SYMBOLS WITH STATE INDICATORS? | .0 | .0 |

| D TSM | TITLES | 205 70 (M) | 307 70 (M) |
|-------------|---|------------------|------------------|
| L 693 LI-9 | DO YOU USE UP REFER TO TRUTH TABLES FOR 'EXCLUSIVE OR' LOGIC SYMBOLS? | .0 | .7 |
| L 694 LI-10 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'AND' GATES? | .0 | .7 |
| L 695 LI-11 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'OR' GATES? | .0 | .7 |
| L 696 LI-12 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'NAND' OR 'NOR' GATES? | .0 | .7 |
| L 697 LI-13 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR 'EXCLUSIVE OR' GATES? | 1.1 | .7 |
| L 698 LI-14 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR INHIBITED 'AND' GATES? | .0 | .7 |
| L 699 LI-15 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR "B" BARS? | .0 | .0 |
| L 700 LI-16 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR "M" BARS? | .0 | .0 |
| L 701 LI-17 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR COMBINERS? | .0 | .0 |
| L 702 LI-18 | DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS? | .0 | .7 |
| L 703 LI-19 | DO YOU USE OR REFER TO ONE-SHOT MULTIVIBRATOR SYMBOLS? | .0 | .0 |
| L 704 LI-20 | DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT OR SCHEMATIC DIAGRAMS? | .0 | .7 |
| L 705 LI-21 | DO YOU USE OR REFER TO ONE-SHOT CIRCUIT OR SCHEMATIC DIAGRAMS? | .0 | .0 |
| L 706 LI-22 | DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES? | .0 | .0 |
| L 707 LI-23 | DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | .0 | .0 |
| L 708 LI-24 | DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS? | .0 | .0 |
| L 709 LI-25 | DO YOU USE OR REFER TO NONCOMPLEMENTED FLIP-FLOP LOGIC SYMBOLS? | .0 | .0 |
| L 710 LI-26 | DO YOU CONSTRUCT TRUTH TABLES FOR "B" BARS? | .0 | .0 |
| L 711 LI-27 | DO YOU CONSTRUCT TRUTH TABLES FOR "M" BARS? | .0 | .0 |
| L 712 LI-28 | DO YOU CONSTRUCT TRUTH TABLES FOR COMBINERS? | .0 | .0 |

MEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTON PAGE 44

| D | TSK | TITLES | 205 | 307 |
|-------|-------|---|-----|-----|
| | | | 70 | 70 |
| | | | (M) | (M) |
| L 713 | L1-29 | DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS? | .0 | .0 |
| L 714 | L1-30 | DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS? | .0 | .7 |
| L 715 | L1-31 | DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | .0 | .7 |
| L 716 | L1-32 | DO YOU TRACE DATA FLOW THROUGH NONCOMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS? | .0 | .7 |
| L 717 | L1-33 | DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS? | .0 | .0 |
| L 718 | L2-1 | IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS? IF NO, GO TO ITEM L3-1; IF YES, CONTINUE. | 1.1 | 1.4 |
| L 719 | L2-2 | DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS? | .0 | .0 |
| L 720 | L2-3 | DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | .0 | .0 |
| L 721 | L2-4 | DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS? | .0 | 1.4 |
| L 722 | L2-5 | DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES? | .0 | .0 |
| L 723 | L2-6 | DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS? | .0 | .7 |
| L 724 | L2-7 | DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA? | .0 | .7 |
| L 725 | L2-8 | DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES? | .0 | .0 |
| L 726 | L2-9 | DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS? | .0 | .0 |
| L 727 | L2-10 | DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE? | .0 | .0 |
| L 728 | L2-11 | DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS? | .0 | .7 |

205 307
70 70
(M) (M)

O YSK TITLES

| | | | |
|-------|---|------|-----|
| L 729 | L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS? | .0 | .7 |
| L 730 | L3-1 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM MI-1; IF YES, CONTINUE. | 12.4 | 9.8 |
| L 731 | L3-2 DO YOU USE OR REFER TO UP-COUNTERS? | 4.5 | 4.9 |
| L 732 | L3-3 DO YOU USE OR REFER TO DOWN-COUNTERS? | 4.5 | .7 |
| L 733 | L3-4 DO YOU USE OR REFER TO SERIAL COUNTERS? | 3.4 | 2.1 |
| L 734 | L3-5 DO YOU USE OR REFER TO PARALLEL COUNTERS? | 2.2 | 2.8 |
| L 735 | L3-6 DO YOU USE OR REFER TO RING COUNTERS? | 1.1 | .7 |
| L 736 | L3-7 DO YOU USE OR REFER TO DECADE (MOD 10) COUNTERS? | 4.5 | 1.4 |
| L 737 | L3-8 DO YOU USE OR REFER TO DOWN CLOCKS? | .0 | 2.8 |
| L 738 | L3-9 DO YOU USE OR REFER TO UP CLOCKS? | 1.1 | 1.4 |
| L 739 | L3-10 DO YOU USE OR REFER TO OTHER MODULOUS COUNTERS? | 1.1 | 2.1 |
| L 740 | L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS? | 3.4 | 3.5 |
| L 741 | L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DOWN-COUNTERS? | 1.1 | .7 |
| L 742 | L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS? | 1.1 | .7 |
| L 743 | L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS? | 1.1 | .7 |
| L 744 | L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS? | .0 | .7 |
| L 745 | L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF FEEDING STORAGE REGISTERS? | .0 | .7 |
| L 746 | L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS? | .0 | .7 |
| L 747 | L3-18 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS? | 1.1 | .7 |
| L 748 | L3-19 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS? | 1.1 | 2.8 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

20E 307
70 70
(M) (M)

0 TSK TITLES
L 749 L3-20 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF
DECADE COUNTERS? .0 .7
L 750 L3-21 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING
COUNTERS FOR SPECIFIC INPUT PULSES? .0 .0
L 751 L3-22 DO YOU DETERMINE THE APPROPRIATE 'AND' GATE NECESSARY
IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT? 1.1 1.4

M TIMING CIRCUITS (M1), USE OF SIGNAL GENERATORS (M2), MOTORS
AND GENERATORS (M3)

M 752 M1-1 DO YOU WORK WITH SAWTOOTH WAVE GENERATOR TIMING
CIRCUITS? 21.3 7.0
M 753 M1-2 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATOR TIMING
CIRCUITS? 1.1 2.8
M 754 M1-3 DO YOU WORK WITH PULSED OSCILLATOR TIMING CIRCUITS? 14.6 6.3
M 755 M1-4 DO YOU WORK WITH BLOCKING OSCILLATOR TIMING CIRCUITS? 3.4 2.8
M 756 M1-5 DO YOU WORK WITH MASTER STATION TIMING CIRCUITS? 4.5 30.1
M 757 M1-6 DO YOU USE OR REFER TO RISE TIME? 42.7 14.7
M 758 M1-7 DO YOU USE OR REFER TO FALL OR FLYBACK TIME? 39.3 9.8
M 759 M1-8 DO YOU USE OR REFER TO SWEEP TIME? 46.1 19.6
M 760 M1-9 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH
WAVEFORMS? 22.5 3.5
M 761 M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH
WAVEFORMS? 22.5 3.5
M 762 M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH
WAVEFORMS? 16.9 4.9
M 763 M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH
WAVEFORMS? 14.6 3.5

KEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D | TSK | TITLES | 205 | 307 | 70 | (M) | (M) |
|---|-----|---|------|------|----|-----|-----|
| M | 764 | M2-1 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. | 21.3 | 67.8 | | | |
| M | 765 | M2-2 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS? | 15.7 | 60.8 | | | |
| M | 766 | M2-3 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS? | 4.5 | 26.6 | | | |
| M | 767 | M2-4 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS? | 1.1 | 15.4 | | | |
| M | 768 | M2-5 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS? | .0 | 3.5 | | | |
| M | 769 | M2-6 DO YOU USE AUDIO SINE-WAVE GENERATORS? | 15.7 | 58.7 | | | |
| M | 770 | M2-7 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE? | 18.0 | 18.9 | | | |
| M | 771 | M2-8 DO YOU USE RF GENERATORS LESS THAN 1,000 MHZ? | 10.1 | 16.1 | | | |
| M | 772 | M2-9 DO YOU USE RF GENERATORS GREATER THAN 1,000 MHZ? | 5.6 | 7.7 | | | |
| M | 773 | M2-10 DO YOU USE WHITE NOISE GENERATORS? | .0 | 13.3 | | | |
| M | 774 | M2-11 DO YOU USE PATTERN GENERATORS? | 3.4 | 53.8 | | | |
| M | 775 | M2-12 DO YOU USE PSEUDO-RANDOM GENERATORS? | 2.2 | 18.2 | | | |
| M | 776 | M2-13 DO YOU USE TIME MARK GENERATORS? | 16.9 | 6.3 | | | |
| M | 777 | M2-14 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS? | 3.4 | 16.1 | | | |
| M | 778 | M3-1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS, GENERATORS (SERVO), OR ALTERNATORS? IF NO, GO TO ITEM M1-1; IF YES, CONTINUE. | 2.2 | 4.9 | | | |
| M | 779 | M3-2 DO YOU INSPECT MOTORS? | .0 | 3.5 | | | |
| M | 780 | M3-3 DO YOU CLEAN OR LUBRICATE MOTORS? | .0 | 2.1 | | | |
| M | 781 | M3-4 DO YOU OPERATE MOTORS? | .0 | 3.5 | | | |
| M | 782 | M3-5 DO YOU REMOVE OR REPLACE COMPLETE MOTORS? | .0 | 1.4 | | | |
| M | 783 | M3-6 DO YOU REMOVE OR REPLACE MOTOR PARTS? | .0 | 1.4 | | | |

KESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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| D TSK | TITLES | 205 | 307 | 70 | (M) | (M) |
|-------|---|-----|-----|----|-----|-----|
| M 784 | M3-7 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS? | .0 | 2.1 | | | |
| M 785 | M3-8 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS? | .0 | 1.4 | | | |
| M 786 | M3-9 DO YOU PERFORM TASKS ON MOTOR FIELD COILS? | .0 | .7 | | | |
| M 787 | M3-10 DO YOU PERFORM ANY TASKS ON MOTOR ARMATURES? | .0 | .7 | | | |
| M 788 | M3-11 DO YOU PERFORM ANY TASKS ON MOTOR ROTORS? | .0 | .7 | | | |
| M 789 | M3-12 DO YOU PERFORM ANY TASKS ON MOTOR BRUSHES? | .0 | 1.4 | | | |
| M 790 | M3-13 DO YOU PERFORM ANY TASKS ON MOTOR SLIP RINGS? | .0 | 1.4 | | | |
| M 791 | M3-14 DO YOU PERFORM ANY TASKS ON MOTOR COMMUTATORS? | .0 | .7 | | | |
| M 792 | M3-15 DO YOU PERFORM ANY TASKS ON MOTOR POLE PIECES? | .0 | 1.4 | | | |
| M 793 | M3-16 DO YOU DETERMINE OR MEASURE FORCE OR TORQUE CREATED BY A MOTOR? | .0 | .7 | | | |
| M 794 | M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR? | .0 | .0 | | | |
| M 795 | M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS? | .0 | .0 | | | |
| M 796 | M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS? | .0 | .7 | | | |
| M 797 | M3-20 DO YOU WORK WITH INDUCTION MOTORS? | .0 | .0 | | | |
| M 798 | M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS? | .0 | .0 | | | |
| M 799 | M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS? | .0 | .7 | | | |
| M 800 | M3-23 DO YOU WORK WITH SERVOS OR SYNCHROS MOTORS? | .0 | .7 | | | |
| M 801 | M3-24 DO YOU WORK WITH SHADED-POLE MOTORS? | .0 | .0 | | | |
| M 802 | M3-25 DO YOU INSPECT GENERATORS OR ALTERNATORS? | .0 | 4.2 | | | |
| M 803 | M3-26 DO YOU CLEAN OR LUBRICATE GENERATORS OR ALTERNATORS? | .0 | 1.4 | | | |
| M 804 | M3-27 DO YOU OPERATE GENERATORS OR ALTERNATORS? | .0 | 4.2 | | | |
| M 805 | M3-28 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS OR ALTERNATORS? | .0 | 1.4 | | | |
| M 806 | M3-29 DO YOU REMOVE OR REPLACE GENERATOR, ALTERNATOR, OR PARTS? | .0 | .7 | | | |

205 307
70 70
(M) (M)

D TSK TITLES

M 807 M3-30 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS OR ALTERNATORS? .0 2.1

M 808 M3-31 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS OR ALTERNATORS? .0 .7

N METER MOVEMENTS (M1), SATURABLE REACTORS AND MAGNETIC AMPLIFIERS (M2), WAVESHAPING CIRCUITS (M3)

M 809 M1-1 DO YOU WORK WITH METERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM N2-1; IF YES, CONTINUE. 7.9 68.5

M 810 M1-2 DO YOU CONSIDER THE FUNCTIONS OF PERMANENT MAGNET INTERNAL METER PARTS? .0 10.5

M 811 M1-3 DO YOU CONSIDER THE FUNCTIONS OF MOVING COIL INTERNAL METER PARTS? .0 14.0

M 812 M1-4 DO YOU CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS INTERNAL METER PARTS? .0 9.8

M 813 M1-5 DO YOU READ METER SCALES? 7.9 69.2

M 814 M1-6 DO YOU EXTEND THE RANGE OF AMMETERS? .0 16.1

M 815 M1-7 DO YOU EXTEND THE RANGE OF VOLTMETERS? 1.1 24.5

M 816 M1-8 DO YOU ZERO OHMMETERS? .0 45.5

M 817 M1-9 DO YOU ZERO AMMETERS? .0 23.1

M 818 M1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)? .0 22.4

M 819 M1-11 DO YOU CONSIDER BALLASTIC RESPONSE OF METER MOVEMENTS? .0 7.0

M 820 M1-12 DO YOU CONSIDER OTHER METER MOVEMENTS? .0 18.9

M 821 M2-1 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB? IF NO, GO TO ITEM M3-1; IF YES, CONTINUE. 1.1 .0

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT04 PAGE 50

| D TSK | TITLES | 205 70 (M) | 307 70 (P) |
|-------|---|------------------|------------------|
| N 022 | N2-2 DO YOU INSPECT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 023 | N2-3 DO YOU CLEAN SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 024 | N2-4 DO YOU ADJUST SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 025 | N2-5 DO YOU TROUBLESHOOT SATURABLE REACTORS OR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 026 | N2-6 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS? | .0 | .0 |
| N 027 | N2-7 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS? | .0 | .0 |
| N 028 | N2-8 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS? | .0 | .0 |
| N 029 | N2-9 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | .0 | .0 |
| N 030 | N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SATURABLE REACTORS? | .0 | .0 |
| N 031 | N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS? | .0 | .0 |
| N 032 | N2-12 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS? | .0 | .0 |
| N 033 | N3-1 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 01-1; IF YES, CONTINUE. | 22.5 | 6.3 |
| N 034 | N3-2 DO YOU USE OR REFER TO TRANSIENT INTERVALS (RISE TIME AND FALL TIME)? | 21.3 | 3.5 |
| N 035 | N3-3 DO YOU USE OR REFER TO PULSE WIDTH (PW)? | 23.6 | 4.9 |
| N 036 | N3-4 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)? | 23.6 | 3.5 |
| N 037 | N3-5 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)? | 23.6 | 3.5 |
| N 038 | N3-6 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS? | 5.6 | .7 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPTD4 PAGE 51

| D TSK | TITLES | ZDS (M) | 307 70 (M) |
|-------|--|------------|------------------|
| N 839 | N3-7 DO YOU USE OR REFER TO INTEGRATING CIRCUITS? | 5.6 | 1.4 |
| N 840 | N3-8 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT? | 3.4 | .7 |
| N 841 | N3-9 DO YOU DETERMINE WHETHER AN LP OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION? | 1.1 | .0 |
| N 842 | N3-10 DO YOU WORK WITH SQUARE WAVE GENERATOR SOLID STATE CIRCUITS? | 14.6 | 4.9 |
| N 843 | N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATOR SOLID STATE CIRCUITS? | 6.7 | .7 |
| N 844 | N3-12 DO YOU WORK WITH TRIANGULAR (SAWTOOTH) WAVE GENERATOR SOLID STATE CIRCUITS? | 14.6 | .7 |
| N 845 | N3-13 DO YOU WORK WITH RAMP (TRAPEZOIDAL) GENERATOR SOLID STATE CIRCUITS? | 5.6 | 1.4 |
| N 846 | N3-14 DO YOU WORK WITH FUNCTION GENERATOR SOLID STATE CIRCUITS? | 7.9 | 2.1 |
| N 847 | N3-15 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS? | 2.2 | 2.1 |
| N 848 | N3-16 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS? | 2.2 | 1.4 |
| N 849 | N3-17 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS? | 1.1 | 1.4 |
| N 850 | N3-18 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS? | 1.1 | 1.4 |
| N 851 | N3-19 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS? | 1.1 | 1.4 |
| N 852 | N3-20 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS? | 1.1 | .7 |
| N 853 | N3-21 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS? | 1.1 | .0 |

205 307
70 70
(M) (M)

D TSK TITLES

0 SINGLE OR INDEPENDENT SIDEBAND SYSTEMS (01), PULSE
MODULATION SYSTEMS (02), ANTENNAS (03)

0 854 01-1 DO YOU WORK ON SINGLE OR INDEPENDENT SIDEBAND SYSTEMS
IN YOUR PRESENT JOB? IF NO, GO TO ITEM 02-1; IF YES,
CONTINUE.

0 855 01-2 DO YOU INSPECT SINGLE SIDE BAND (SSB) OR INDEPENDENT
SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS?

0 856 01-3 DO YOU CLEAN SINGLE SIDE BAND (SSB) OR INDEPENDENT
SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS?

0 857 01-4 DO YOU ALIGN SINGLE SIDE BAND (SSB) OR INDEPENDENT
SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS?

0 858 01-5 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR
INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS?

0 859 01-6 DO YOU TROUBLESHOOT TO SINGLE SIDE BAND (SSB) OR
INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS?

0 860 01-7 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR
INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE SYSTEMS?

0 861 01-8 DO YOU REMOVE OR REPLACE SINGLE SIDE BAND (SSB) OR
INDEPENDENT SIDEBAND (ISB) TRANSMIT OR RECEIVE COMPONENTS?

0 862 01-9 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR RECEIVE
SYSTEM AUDIO AMPLIFIER STAGE?

0 863 01-10 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM BALANCED MODULATOR STAGE?

0 864 01-11 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM CARRIER OSCILLATOR STAGE?

0 865 01-12 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM LC FILTER STAGE?

0 866 01-13 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM CRYSTAL FILTER STAGE?

0 867 01-14 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM MECHANICAL FILTER STAGE?

0 868 01-15 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM OSCILLATOR STAGE?

0 869 01-16 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM MIXER STAGE?

0 870 01-17 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM DRIVER STAGE?

0 871 01-18 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM POWER AMPLIFIER STAGES?

0 872 01-19 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM RF AMPLIFIER STAGE?

0 873 01-20 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM FREQUENCY CONVERTER STAGES?

0 874 01-21 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM IF AMPLIFIER STAGE?

0 875 01-22 DO YOU PERFORM TASKS ON SSB OR ISB TRANSMIT OR
RECEIVE SYSTEM DEMODULATOR STAGE?

0 876 01-23 DO YOU USE OR REFER TO SELECTIVE FADING WHEN WORKING
WITH SSB TRANSMIT OR RECEIVE SYSTEMS?

5.6 19.6
.0 4.9
.0 2.1
.0 4.2
.0 18.9
.0 9.1
.0 3.5
.0 2.8
3.4 6.3
.0 1.4
2.2 2.8
.0 .7
1.1 .7
.0 1.4
3.4 2.1
2.2 1.4
.0 .7
1.1 2.1
2.2 1.4
2.2 2.8
3.4 1.4
4.5 2.8
.0 8.4

| 0 TSK | TITLES | 205 (M) | 307 (P) |
|-------|---|------------|------------|
| 0 877 | 01-24 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 1.1 | 11.9 |
| 0 878 | 01-25 DO YOU USE OR REFER TO FREQUENCY STABILITY WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | 2.2 | 11.9 |
| 0 879 | 01-26 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS WHEN WORKING WITH SSB TRANSMIT OR RECEIVE SYSTEMS? | .0 | 2.8 |
| 0 880 | 01-27 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB OR ISB TRANSMITTERS? | 1.1 | 2.0 |
| 0 881 | 01-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB TRANSMITTER SCHEMATIC DIAGRAMS? | .0 | 2.8 |
| 0 882 | 01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB OR ISB RECEIVER SCHEMATIC DIAGRAMS? | .0 | 2.1 |
| 0 883 | 01-30 DO YOU PERFORM AERONAUTIC STATION ASSESSMENT PROGRAMS (ASAP)? | .0 | 2.1 |
| 0 884 | 02-1 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB? IF NO, GO TO ITEM 03-1; IF YES, CONTINUE. | 14.6 | 17.5 |
| 0 885 | 02-2 DO YOU INSPECT PULSE MODULATION SYSTEMS? | 2.2 | 7.0 |
| 0 886 | 02-3 DO YOU CLEAN PULSE MODULATION SYSTEMS? | 1.1 | 2.1 |
| 0 887 | 02-4 DO YOU ALIGN PULSE MODULATION SYSTEMS? | .0 | 3.5 |
| 0 888 | 02-5 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS? | .0 | 14.0 |
| 0 889 | 02-6 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS? | .0 | 6.3 |
| 0 890 | 02-7 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS? | .0 | 3.5 |
| 0 891 | 02-8 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS? | .0 | 1.4 |
| 0 892 | 02-9 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) PULSE MODULATION SYSTEMS? | 5.6 | 11.9 |
| 0 893 | 02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) PULSE MODULATION SYSTEMS? | 6.7 | 1.4 |
| 0 894 | 02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) PULSE MODULATION SYSTEMS? | 7.9 | 2.8 |
| 0 895 | 02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) PULSE MODULATION SYSTEMS? | 4.5 | 14.0 |
| 0 896 | 02-13 DO YOU WORK ON LINE PULSING MODULATION PULSE MODULATION SYSTEMS? | .0 | .7 |
| 0 897 | 02-14 DO YOU WORK ON TIME DIVISION MULTIPLEXING (TDM) PULSE MODULATION SYSTEMS? | 4.5 | 17.5 |
| 0 898 | 02-15 DO YOU WORK ON - DON'T KNOW WHICH TYPE OF MODULATION SYSTEM? | 4.5 | 1.4 |
| 0 899 | 02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLY STAGE? | 1.1 | 3.5 |
| 0 900 | 02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODE STAGE? | 1.1 | .0 |
| 0 901 | 02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORK STAGE? | 1.1 | .7 |
| 0 902 | 02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMER STAGE? | 2.2 | 1.4 |
| 0 903 | 02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRON STAGE? | 1.1 | .0 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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205 307
70 70
(M) (M)

0 TSK TITLES

0 904 02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMER STAGE? 2.2 .0

0 905 02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBE STAGE? 1.1 .7

0 906 02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIER STAGE? 3.4 1.4

0 907 02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTER STAGE? 4.5 2.8

0 908 02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIER STAGE? 4.5 1.4

0 909 02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTOR STAGE? 3.4 .7

0 910 02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIER STAGE? 4.5 .7

0 911 02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIER STAGE? 2.2 .7

0 912 02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF) WHEN WORKING WITH PULSE MODULATION SYSTEMS? 14.6 2.8

0 913 02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT) WHEN WORKING WITH PULSE MODULATION SYSTEMS? 14.6 2.8

0 914 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW) WHEN WORKING WITH PULSE MODULATION SYSTEMS? 14.6 6.3

0 915 02-32 DO YOU USE OR REFER TO PULSE SHAPE WHEN WORKING WITH PULSE MODULATION SYSTEMS? 13.5 4.9

0 916 02-33 DO YOU USE OR REFER TO PEAK POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? 13.5 7.7

0 917 02-34 DO YOU USE OR REFER TO AVERAGE POWER WHEN WORKING WITH PULSE MODULATION SYSTEMS? 12.4 5.6

0 918 02-35 DO YOU USE OR REFER TO DUTY CYCLE (DC) WHEN WORKING WITH PULSE MODULATION SYSTEMS? 13.5 3.5

0 919 02-36 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? 13.5 .7

0 920 02-37 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)? 12.4 1.4

0 921 02-38 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS? 12.4 3.5

0 922 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS? 1.1 3.5

0 923 02-40 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS? .0 4.2

0 924 03-1 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB? IF NO, GO TO ITEM PI-1; IF YES, CONTINUE. 15.7 18.9

0 925 03-2 DO YOU INSPECT ANTENNAS? 2.2 4.9

0 926 03-3 DO YOU CLEAN ANTENNAS? 1.1 2.8

0 927 03-4 DO YOU PHYSICALLY ALIGN ANTENNAS? 1.1 2.1

0 928 03-5 DO YOU ELECTRICALLY ALIGN ANTENNAS? 1.1 2.1

0 929 03-6 DO YOU TROUBLESHOOT TO ANTENNAS? 1.1 13.3

0 930 03-7 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS? 1.1 2.1

0 931 03-8 DO YOU REMOVE OR INSTALL ANTENNAS? 3.4 3.5

| 0 TSM | TITLES | 205 70 (M) | 307 70 (P) |
|-------------|--|------------------|------------------|
| 0 932 03-9 | DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS? | 1.1 | 2.8 |
| 0 933 03-10 | DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES? | 6.7 | 4.9 |
| 0 934 03-11 | DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES? | 6.7 | 4.9 |
| 0 935 03-12 | DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS? | 5.6 | 2.1 |
| 0 936 03-13 | DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS RESISTIVE LOADS TO THE GENERATOR? | 4.5 | 2.1 |
| 0 937 03-14 | DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR? | 3.4 | 1.4 |
| 0 938 03-15 | DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR? | 3.4 | 1.4 |
| 0 939 03-16 | DO YOU WORK WITH HERTZ BASIC ANTENNAS? | 2.2 | 1.4 |
| 0 940 03-17 | DO YOU WORK WITH MARCONI BASIC ANTENNAS? | .0 | .7 |
| 0 941 03-18 | DO YOU WORK WITH RHOMBIC BASIC ANTENNAS? | 1.1 | 7.7 |
| 0 942 03-19 | DO YOU WORK WITH DIPOLE BASIC ANTENNAS? | 6.7 | 7.7 |
| 0 943 03-20 | DO YOU WORK WITH SCIMITAR BASIC ANTENNAS? | 1.1 | .0 |
| 0 944 03-21 | DO YOU WORK WITH PARABOLIC BASIC ANTENNAS? | 7.9 | 12.6 |
| 0 945 03-22 | DO YOU WORK WITH GROUND PLANE BASIC ANTENNAS? | 1.1 | 3.5 |
| 0 946 03-23 | DO YOU WORK WITH FOLDED DIPOLE BASIC ANTENNAS? | 2.2 | .7 |
| 0 947 03-24 | DO YOU WORK WITH BROADSIDE ARRAYS? | 3.4 | 2.1 |
| 0 948 03-25 | DO YOU WORK WITH END-FIRE ARRAYS? | 1.1 | 1.4 |
| 0 949 03-26 | DO YOU WORK WITH CARDIOID ARRAYS? | 1.1 | .7 |
| 0 950 03-27 | DO YOU WORK WITH COLLINER ARRAYS? | 2.2 | 1.4 |
| 0 951 03-28 | DO YOU WORK WITH PHASE ARRAYS? | 5.6 | 3.5 |
| 0 952 03-29 | DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS? | 6.7 | 1.4 |
| 0 953 03-30 | DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS? | 2.2 | .0 |
| 0 954 03-31 | DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS? | 9.0 | 4.2 |
| 0 955 03-32 | DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS? | 4.5 | .0 |
| 0 956 03-33 | DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION? | 4.5 | .0 |
| 0 957 03-34 | DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD? | 3.4 | .0 |
| 0 958 03-35 | ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED? | 9.0 | 2.1 |
| 0 959 03-36 | ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED? | 9.0 | 2.8 |
| 0 960 03-37 | DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON? | 3.4 | .7 |

| D TSK | TITLES | 205 (M) | 307 (M) |
|-------------|--|------------|------------|
| 0 961 03-38 | DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS? | 1.1 | .7 |
| 0 962 03-39 | DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS? | 3.4 | 2.1 |
| 0 963 03-40 | DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS? | 4.5 | 1.4 |
| 0 964 03-41 | DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN - DON'T KNOW WHAT KIND OF ELEMENT? | 4.5 | 5.6 |
| 0 965 03-42 | DO YOU WORK ON UNIDIRECTIONAL ANTENNAS? | 6.7 | 13.3 |
| 0 966 03-43 | DO YOU WORK ON BIDIRECTIONAL ANTENNAS? | 3.4 | 4.9 |
| 0 967 03-44 | DO YOU WORK ON OMNIDIRECTIONAL ANTENNAS? | 12.4 | 9.1 |
| 0 968 03-45 | DO YOU WORK WITH ROTARY ANTENNA ARRAYS? | 5.6 | 6.3 |

P TRANSMISSION LINES (P1), WAVEGUIDES AND CAVITY RESONATORS (P2), MICROWAVE AMPLIFIERS AND OSCILLATORS (P3)

P 969 P1-1 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES? (DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES.) IF NO, GO TO ITEM P2-1; IF YES, CONTINUE.

P 970 P1-2 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE COPPER LOSS OR 'I SUB 2 R' LOSS IN TRANSMISSION LINES?

P 971 P1-3 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES?

P 972 P1-4 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE RADIATION LOSS?

P 973 P1-5 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE DIELECTRIC LOSS?

P 974 P1-6 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE LEAKAGE LOSSES?

P 975 P1-7 WHEN WORKING WITH TRANSMISSION LINES DO YOU REFER TO OR USE FARADAY SHIELD?

P 976 P1-8 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES?

P 977 P1-9 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES?

P 978 P1-10 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES?

P 979 P1-11 DO YOU WORK WITH FLEXIBLE COAXIAL TRANSMISSION LINES?

P 980 P1-12 DO YOU WORK WITH RIGID COAXIAL TRANSMISSION LINES?

P 981 P1-13 DO YOU TROUBLESHOOT TRANSMISSION LINES?

P 982 P1-14 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)?

P 983 P1-15 DO YOU SELECT APPROPRIATE TRANSMISSION LINE TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS?

| | |
|-----|------|
| 3.4 | 49.7 |
| 1.1 | 7.7 |
| 1.1 | 8.4 |
| 1.1 | 12.6 |
| 1.1 | 11.2 |
| 1.1 | 13.3 |
| .0 | 1.4 |
| 1.1 | 42.0 |
| 1.1 | 19.6 |
| 1.1 | 20.3 |
| 2.2 | 32.9 |
| 1.1 | 9.8 |
| .0 | 46.2 |
| .0 | 30.1 |
| .0 | 13.3 |

| Q TSK | TITLES | 205 7C (M) | 307 7D (P) |
|-------|---|------------------|------------------|
| P 984 | PI-16 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS? | .0 | 12.6 |
| P 985 | PI-17 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | .0 | 4.9 |
| P 986 | PI-18 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES? | .0 | 4.9 |
| P 987 | PI-19 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS? | .0 | 3.5 |
| P 988 | PI-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS? | 1.1 | 19.6 |
| P 989 | PI-21 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING? | .0 | .7 |
| P 990 | PI-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | 2.2 | 23.1 |
| P 991 | PI-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES? | .0 | 11.9 |
| P 992 | PI-24 DO YOU USE OR REFER TO THE TERM CUT OFF FREQUENCY OF TRANSMISSION LINES? | 1.1 | 14.0 |
| P 993 | PI-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES? | .0 | 3.5 |
| P 994 | PI-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES? | 1.1 | 6.3 |
| P 995 | PI-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTHS FOR GIVEN FREQUENCIES? | .0 | 2.8 |
| P 996 | PI-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES? | .0 | 4.9 |
| P 997 | PI-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES? | .0 | 18.2 |
| P 998 | PI-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES? | 1.1 | 12.6 |
| P 999 | PI-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING? | .0 | 2.1 |
| P1000 | DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB? IF NO, GO TO ITEM P3-1; IF YES, CONTINUE. | 2.2 | 4.2 |
| P1001 | P2-2 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS? | .0 | 2.8 |
| P1002 | P2-3 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1003 | P2-4 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS? | .0 | 1.4 |
| P1004 | P2-5 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS? | .0 | .7 |
| P1005 | P2-6 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS? | .0 | 3.5 |
| P1006 | P2-7 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES? | .0 | .7 |
| P1007 | P2-8 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS? | .0 | 2.1 |
| P1008 | P2-9 DO YOU REMOVE OR INSTALL DUMMY LOADS? | .0 | 4.2 |
| P1009 | P2-10 DO YOU REMOVE OR INSTALL E BENDS? | .0 | .7 |
| P1010 | P2-11 DO YOU REMOVE OR INSTALL H BENDS? | .0 | .7 |
| P1011 | P2-12 DO YOU REMOVE OR INSTALL OTHER BENDS? | .0 | .7 |

| D TSK | TITLES | 205 70 (M) | 307 70 (P) |
|-------|--|------------------|------------------|
| P1012 | P2-13 DO YOU REMOVE OR INSTALL CHOKE JOINTS? | .0 | .7 |
| P1013 | P2-14 DO YOU REMOVE OR INSTALL ROTATING JOINTS? | .0 | .0 |
| P1014 | P2-15 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS? | .0 | 3.5 |
| P1015 | P2-16 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS? | .0 | 2.8 |
| P1016 | P2-17 DO YOU REMOVE OR INSTALL DUPLEXERS OR MIXERS? | .0 | 2.1 |
| P1017 | P2-18 DO YOU REMOVE OR INSTALL WAVEGUIDE SHUTTERS? | .0 | .7 |
| P1018 | P2-19 DO YOU REMOVE OR INSTALL TRANSMIT (TR) OR ANTI-TRANSMIT (ATR) TUBES? | .0 | .7 |
| P1019 | P2-20 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES? | .0 | .7 |
| P1020 | P2-21 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES? | .0 | .7 |
| P1021 | P2-22 DO YOU USE OR REFER TO CUT OFF FREQUENCY OF WAVEGUIDES? | 1.1 | 4.2 |
| P1022 | P2-23 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES? | .0 | 2.1 |
| P1023 | P2-24 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES? | .0 | 2.1 |
| P1024 | P2-25 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS? | .0 | 1.4 |
| P1025 | P2-26 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS? | .0 | .7 |
| P1026 | P2-27 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS? | .0 | .0 |
| P1027 | P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OR .7 WAVELENGTHS OF THE OPERATING FREQUENCY? | .0 | 1.4 |
| P1028 | P2-29 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 AS AN AVERAGE? | .0 | 1.4 |
| P1029 | P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION? | .0 | .7 |
| P1030 | P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES? | .0 | .7 |
| P1031 | P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES? | .0 | .7 |
| P1032 | P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES? | .0 | .7 |
| P1033 | P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES? | .0 | .7 |
| P1034 | P2-35 DO YOU WORK WITH HIGH POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 |
| P1035 | P2-36 DO YOU WORK WITH LOW POWER PROBE ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | 2.8 |
| P1036 | P2-37 DO YOU WORK WITH LOOP ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | 1.4 |
| P1037 | P2-38 DO YOU WORK WITH APERTURES (WINDOWS OR IRISES) ENERGY COUPLING DEVICES ON WAVEGUIDES OR CAVITY RESONATORS? | .0 | 2.1 |
| P1038 | P2-39 DO YOU WORK WITH CHOKE JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .7 |

AD-A142 030

ELECTRONIC PRINCIPLES INVENTORY KEESLER TECHNICAL
TRAINING CENTER(U) AIR FORCE OCCUPATIONAL MEASUREMENT
CENTER RANDOLPH AFB TX M THOMASSON APR 84

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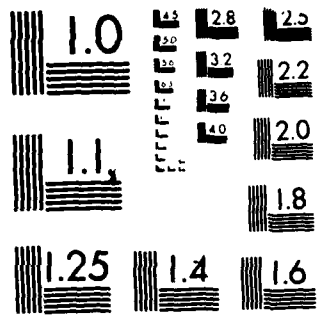
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

| ID TSM | TITLES | 205 | 3C7 | 70 | (M) | (P) |
|--------|--|-----|-----|----|-----|-----|
| P1039 | P2-40 DO YOU WORK WITH ROTATING JOINTS IN WAVEGUIDES OR CAVITY RESONATORS? | .0 | .0 | | | |
| P1040 | P2-41 DO YOU WORK WITH JOINTS IN WAVEGUIDES OR CAVITY RESONATORS BUT DON'T KNOW WHICH KIND? | 1.1 | 2.1 | | | |
| P1041 | P2-42 DO YOU TUNE CAVITY RESONATORS USING ELECTRICAL METHODS? | .0 | 1.4 | | | |
| P1042 | P2-43 DO YOU TUNE CAVITY RESONATORS USING MECHANICAL METHODS? | .0 | 2.1 | | | |
| P1043 | P2-44 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS? | .0 | 2.0 | | | |
| P1044 | P3-1 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS? IF NO, GO TO ITEM DL-1. IF YES, CONTINUE. | 4.5 | 5.6 | | | |
| P1045 | P3-2 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 1.1 | 1.4 | | | |
| P1046 | P3-3 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 1.1 | 1.4 | | | |
| P1047 | P3-4 DO YOU USE OR REFER TO LEAD INDUCTANCE FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 1.1 | 2.1 | | | |
| P1048 | P3-5 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY FACTORS THAT CAUSE POOR OPERATION OF CONVENTIONAL ELECTRON TUBES AT HIGH FREQUENCIES? | 2.2 | 2.1 | | | |
| P1049 | P3-6 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION? | 2.2 | 1.4 | | | |
| P1050 | P3-7 DO YOU USE OR REFER TO ELECTRON BUNCHING? | 2.2 | 2.1 | | | |
| P1051 | P3-8 DO YOU WORK WITH TWO-CAVITY KLYSTRONS? | 1.1 | .7 | | | |
| P1052 | P3-9 DO YOU WORK WITH THREE-CAVITY KLYSTRONS? | 1.1 | .7 | | | |
| P1053 | P3-10 DO YOU WORK WITH REFLEX KLYSTRONS? | 1.1 | 4.2 | | | |
| P1054 | P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)? | 3.4 | 4.9 | | | |
| P1055 | P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS? | 1.1 | 2.0 | | | |
| P1056 | P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS? | 1.1 | 2.0 | | | |
| P1057 | P3-14 DO YOU WORK WITH MAGNETRONS? | 2.2 | .7 | | | |
| P1058 | P3-15 DO YOU WORK WITH BACKWARD WAVE OSCILLATORS (BWO)? | 2.2 | .0 | | | |
| P1059 | P3-16 DO YOU INSPECT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | 2.1 | | | |
| P1060 | P3-17 DO YOU CLEAN KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | .0 | | | |
| P1061 | P3-18 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY? | .0 | .7 | | | |
| P1062 | P3-19 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY? | .0 | 2.1 | | | |
| P1063 | P3-20 DO YOU PERFORM OPERATIONAL CHECKS ON KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | 3.5 | | | |
| P1064 | P3-21 DO YOU TROUBLESHOOT KLYSTRONS OR TRAVELING WAVE TUBES (TWT)? | .0 | 3.5 | | | |
| P1065 | P3-22 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRONS OR TWT'S? | .0 | 1.4 | | | |
| P1066 | P3-23 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS? | .0 | .7 | | | |
| P1067 | P3-24 DO YOU INSPECT PARAMETRIC AMPLIFIERS? | .0 | 1.4 | | | |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

FCPT04 PAGE 60

| D | YSK | TITLES | 205 (M) | 307 (M) | 70 (M) |
|---|-------|---|------------|------------|-----------|
| | P1068 | P3-25 DO YOU CLEAN PARAMETRIC AMPLIFIERS? | .0 | .7 | |
| | P1069 | P3-26 DO YOU ADJUST PARAMETRIC AMPLIFIERS? | .0 | 1.4 | |
| | P1070 | P3-27 DO YOU TUNE PARAMETRIC AMPLIFIERS? | .0 | 1.4 | |
| | P1071 | P3-28 DO YOU PERFORM OPERATIONAL CHECKS ON PARAMETRIC AMPLIFIERS? | .0 | 2.8 | |
| | P1072 | P3-29 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS? | .0 | 2.8 | |
| | P1073 | P3-30 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIERS? | .0 | .7 | |
| | P1074 | P3-31 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS? | .0 | .7 | |
| | P1075 | P3-32 DO YOU INSPECT MAGNETRONS? | .0 | .7 | |
| | P1076 | P3-33 DO YOU CLEAN MAGNETRONS? | .0 | .0 | |
| | P1077 | P3-34 DO YOU ADJUST MAGNETRONS? | .0 | .7 | |
| | P1078 | P3-35 DO YOU TUNE MAGNETRONS? | .0 | .7 | |
| | P1079 | P3-36 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS? | .0 | 1.4 | |
| | P1080 | P3-37 DO YOU TROUBLESHOOT MAGNETRONS? | .0 | .7 | |
| | P1081 | P3-38 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRONS? | .0 | .0 | |
| | P1082 | P3-39 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS? | .0 | .0 | |
| | P1083 | P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR PLATE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 1.1 | .7 | |
| | P1084 | P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .0 | |
| | P1085 | P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .7 | |
| | P1086 | P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FEEDBACK LOOP COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .0 | |
| | P1087 | P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF DRIFT SPACE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 1.1 | .0 | |
| | P1088 | P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUMCHER GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | 1.1 | .0 | |
| | P1089 | P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF BUMCHER CAVITY COMPONENTS OF TWO-CAVITY KLYSTRONS? | .0 | .0 | |
| | P1090 | P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CONTROL GRID COMPONENTS OF TWO-CAVITY KLYSTRONS? | 1.1 | .7 | |
| | P1091 | P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TWO-CAVITY KLYSTRONS? | 2.2 | .7 | |
| | P1092 | P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REPELLER (REFLECTOR) PLATE COMPONENTS OF REFLEX KLYSTRONS? | .0 | 2.8 | |
| | P1093 | P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID COMPONENTS OF REFLEX KLYSTRONS? | .0 | 1.4 | |
| | P1094 | P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF GRID CAVITY GAP COMPONENTS OF REFLEX KLYSTRONS? | .0 | 1.4 | |
| | P1095 | P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF RESONANT CAVITY COMPONENTS OF REFLEX KLYSTRONS? | 2.2 | 3.5 | |
| | P1096 | P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNETIC COUPLING LOOP COMPONENTS OF REFLEX KLYSTRONS? | .0 | 2.1 | |
| | P1097 | P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF REFLEX KLYSTRONS? | 1.1 | 2.1 | |

| Q TSM | TITLES | 205 (M) | 3C7 70 (M) |
|-------|---|------------|------------------|
| P1098 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF REFLEX KLYSTRONS? | 2.2 | 2.1 |
| P1099 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF OUTPUT LEAD COMPONENTS OF REFLEX KLYSTRONS? | 1.1 | .7 |
| P1100 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF FILAMENT COMPONENTS OF TRAVELING-WAVE TUBES? | 3.4 | 1.4 |
| P1101 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF CATHODE COMPONENTS OF TRAVELING-WAVE TUBES? | 3.4 | 1.4 |
| P1102 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MODULATOR GRID COMPONENTS OF TRAVELING-WAVE TUBES? | 3.4 | .7 |
| P1103 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ANODE COMPONENTS OF TRAVELING-WAVE TUBES? | 3.4 | 1.4 |
| P1104 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF HELIX COMPONENTS OF TRAVELING-WAVE TUBES? | 2.2 | 1.4 |
| P1105 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF COLLECTOR COMPONENTS OF TRAVELING-WAVE TUBES? | 3.4 | 1.4 |
| P1106 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF MAGNET COMPONENTS OF TRAVELING-WAVE TUBES? | 2.2 | .7 |
| P1107 | DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF ATTENUATOR COMPONENTS OF TRAVELING-WAVE TUBES? | 1.1 | .7 |
| P1108 | DO YOU PERFORM TASKS ON FERRITE CIRCULATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1109 | DO YOU PERFORM TASKS ON SIGNAL CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .7 |
| P1110 | DO YOU PERFORM TASKS ON IDLER CAVITY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1111 | DO YOU PERFORM TASKS ON VARACTOR DIODE COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1112 | DO YOU PERFORM TASKS ON FERRITE ISOLATOR COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1113 | DO YOU PERFORM TASKS ON REVERSE-BIAS BATTERY COMPONENTS OF PARAMETRIC AMPLIFIERS? | .0 | .0 |
| P1114 | DO YOU PERFORM TASKS ON ANODE COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1115 | DO YOU PERFORM TASKS ON ANODE COOLING PIN COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1116 | DO YOU PERFORM TASKS ON COUPLING LOOP COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1117 | DO YOU PERFORM TASKS ON HEATER LEAD COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1118 | DO YOU PERFORM TASKS ON RESONANT CAVITY COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1119 | DO YOU PERFORM TASKS ON CATHODE COMPONENTS OF MAGNETRONS? | 1.1 | .0 |
| P1120 | DO YOU PERFORM TASKS ON MAGNET COMPONENTS OF MAGNETRONS? | .0 | .0 |

205 307
70 70
(M) (M)

D YSK TITLES

Q REGISTERS (Q1), STORAGE DEVICES (Q2), DIGITAL-TO-ANALOG AND ANALOG-TO-DIGITAL CONVERTERS (Q3)

| | | | |
|-------|---|------|------|
| Q1121 | Q1-1 DO YOU USE OR REFER TO STORAGE REGISTERS? | 10.1 | 7.0 |
| Q1122 | Q1-2 DO YOU USE OR REFER TO SHIFT REGISTERS? | 11.2 | 7.0 |
| Q1123 | Q1-3 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS? | 5.6 | 4.2 |
| Q1124 | Q1-4 DO YOU USE OR REFER TO LOGIC SYMBOLS OR STORAGE REGISTERS? | 3.4 | 4.2 |
| Q1125 | Q1-5 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTER CIRCUITS? | 5.6 | 3.5 |
| Q1126 | Q1-6 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPES OF REGISTER CIRCUITS? | 3.4 | 2.8 |
| Q1127 | Q1-7 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED? | 4.5 | 2.8 |
| Q1128 | Q2-1 DO YOU WORK WITH STORAGE DEVICES IN YOUR PRESENT JOB? IF NO, GO TO ITEM Q3-11 IF YES, CONTINUE. | 59.6 | 12.6 |
| Q1129 | Q2-2 DO YOU USE OR REFER TO DELAY LINES? | 12.4 | .0 |
| Q1130 | Q2-3 DO YOU USE OR REFER TO MAGNETIC CORES OR BIMAGS? | 7.9 | 2.1 |
| Q1131 | Q2-4 DO YOU USE OR REFER TO MAGNETIC DRUMS? | 10.1 | 5.6 |
| Q1132 | Q2-5 DO YOU USE OR REFER TO MAGNETIC TAPES? | 59.6 | 11.9 |
| Q1133 | Q2-6 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OF MEMORY SYSTEMS? | 33.7 | 7.0 |
| Q1134 | Q2-7 DO YOU USE OR REFER TO STORAGE CAPACITY OF MEMORY SYSTEMS? | 41.6 | 10.5 |
| Q1135 | Q2-8 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS? | 14.6 | 7.0 |
| Q1136 | Q2-9 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES? | 2.2 | .0 |
| Q1137 | Q2-10 DO YOU USE OR REFER TO MAGNETIC DISKS? | 55.1 | 11.2 |
| Q1138 | Q2-11 DO YOU USE OR REFER TO THIN FILMS? | 6.7 | .0 |
| Q1139 | Q2-12 DO YOU USE OR REFER TO SEMICONDUCTOR MEMORY (INTEGRATED) CIRCUITS? | 13.5 | 4.9 |
| Q1140 | Q2-13 DO YOU USE OR REFER TO BUBBLE MEMORIES? | 4.5 | 2.1 |
| Q1141 | Q2-14 DO YOU USE OR REFER TO PUNCH CARDS? | 24.7 | 7.7 |
| Q1142 | Q2-15 DO YOU USE OR REFER TO PAPER TAPES? | 29.2 | 7.0 |
| Q1143 | Q2-16 DO YOU USE OR REFER TO RANDOM ACCESS MEMORIES (RAM)? | 34.8 | 9.8 |
| Q1144 | Q2-17 DO YOU USE OR REFER TO READ ONLY MEMORIES (ROM)? | 33.7 | 9.1 |
| Q1145 | Q2-18 DO YOU USE OR REFER TO PROGRAMMABLE READ ONLY MEMORIES (PROM)? | 21.3 | 7.7 |
| Q1146 | Q2-19 DO YOU USE OR REFER TO TRANSFORMER READ ONLY STORAGES (TROS)? | 4.5 | .0 |
| Q1147 | Q2-20 DO YOU USE OR REFER TO CAPACITY READ ONLY STORAGES (CROS)? | 3.4 | .0 |
| Q1148 | Q2-21 DO YOU INSPECT STORAGE DEVICES? | 13.5 | 4.2 |
| Q1149 | Q2-22 DO YOU CLEAN STORAGE DEVICES? | 11.2 | 1.4 |
| Q1150 | Q2-23 DO YOU ALIGN STORAGE DEVICES? | 3.4 | .0 |
| Q1151 | Q2-24 DO YOU ADJUST STORAGE DEVICES? | 4.5 | .0 |
| Q1152 | Q2-25 DO YOU TROUBLESHOOT MEMORY SYSTEM STORAGE DEVICES? | 3.4 | 4.2 |
| Q1153 | Q2-26 DO YOU REMOVE OR REPLACE SUBASSEMBLIES OR COMPONENTS OF STORAGE DEVICES? | 5.6 | .0 |

205 307
70 70
(M) (M)

D TSM TITLES

| Q | TSM | TITLES | 205 | 307 |
|-------|-------|---|------|------|
| 01154 | 02-27 | DO YOU TRACE SIGNAL FLOW IN STORAGE DEVICES USING LOGIC DIAGRAMS OR SCHEMATICS? | 6.7 | .7 |
| 01155 | 03-1 | IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS OR ANALOG-TO-DIGITAL (A/D) CONVERTERS? IF NO, GO TO ITEM R1-11 IF YES, CONTINUE. | 21.3 | 33.6 |
| 01156 | 03-2 | DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES? | 1.1 | 4.2 |
| 01157 | 03-3 | DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE RESISTORS? | .0 | 1.4 |
| 01158 | 03-4 | DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS? | .0 | 1.4 |
| 01159 | 03-5 | DO YOU PERFORM TASKS ON SAMPLE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 4.5 | 5.6 |
| 01160 | 03-6 | DO YOU PERFORM TASKS ON HOLD FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 1.1 | 2.8 |
| 01161 | 03-7 | DO YOU PERFORM TASKS ON COMPARE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 1.1 | 2.1 |
| 01162 | 03-8 | DO YOU PERFORM TASKS ON DIGITIZE FUNCTION PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS? | 7.9 | 3.5 |
| 01163 | 03-9 | DO YOU PERFORM TASKS ON PORTIONS OF ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS BUT DON'T KNOW WHICH FUNCTION? | 1.1 | 4.9 |
| 01164 | 03-10 | DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS? | 5.6 | 7.0 |
| 01165 | 03-11 | DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS? | 4.5 | 3.5 |
| 01166 | 03-12 | DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS? | 3.4 | 2.8 |
| 01167 | 03-13 | DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS? | 9.0 | 7.7 |
| 01168 | 03-14 | DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS? | .0 | 2.1 |
| 01169 | 03-15 | DO YOU PERFORM ANY TASKS ON ELECTRONIC A/D CONVERTERS? | 5.6 | 14.0 |
| 01170 | 03-16 | DO YOU PERFORM ANY TASKS ON DIGITAL-TO-ANALOG (D/A) CONVERTERS? | 2.2 | 11.9 |
| 01171 | 03-17 | DO YOU OPERATE COMPUTER KEYBOARDS? | 19.1 | 14.0 |
| 01172 | 03-18 | DO YOU WORK AT OR WITH COMPUTER TERMINALS? | 19.1 | 18.2 |
| 01173 | 03-19 | HAVE YOU BEEN SENT TO FACTORY TRAINING OR TO ANY OTHER SCHOOL FOR THE SPECIFIC PURPOSE OF RECEIVING COMPUTER OR LOGIC CIRCUIT RELATED TRAINING? | 3.4 | .7 |
| 01174 | 03-20 | DO YOU HAVE MICROPROCESSORS OR COMPUTER EQUIPMENT LOCATED AT YOUR WORK STATION WHICH IS OPERATED OR MAINTAINED BY CONTRACTOR PERSONNEL? | 14.6 | 12.6 |
| 01175 | 03-21 | WAS THE COMPUTER OR LOGIC CIRCUIT TRAINING YOU RECEIVED IN YOUR 3-LEVEL AWARDCOURSE ADEQUATE IN TERMS OF YOUR PRESENT DUTIES? | 1.1 | 5.6 |

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01176 Q3-22 ARE YOU ASSIGNED AGAINST A POSITION WHICH REQUIRES A
"D" PREFIX? .0 .7

R PHANTASTRONS (R1), SCHMITT TRIGGERS (R2), CABLE
FABRICATION (R3)

R1177 R1-1 DO YOU WORK WITH PHANTASTRON CIRCUITRY? IF NO, GO TO
ITEM R2-1. IF YES, CONTINUE. .0 2.1

R1178 R1-2 PHANTASTRON CIRCUITRY HAS VARIABLE-DELAY APPLICATIONS
IN MY JOB. .0 .7

R1179 R1-3 PHANTASTRON CIRCUITRY HAS SEARCH-LOCK AUTOMATIC
FREQUENCY CONTROLS (AFC) APPLICATIONS IN MY JOB. .0 1.4

R1180 R1-4 PHANTASTRON CIRCUITRY HAS MONOSTABLE MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .7

R1181 R1-5 PHANTASTRON CIRCUITRY HAS BISTABLE MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .7

R1182 R1-6 PHANTASTRON CIRCUITRY HAS FREE-RUNNING MULTIVIBRATORS
APPLICATIONS IN MY JOB. .0 .7

R1183 R2-1 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER
CIRCUITS? IF NO, GO TO ITEM R3-1; IF YES, CONTINUE. 6.7 .7

R1184 R2-2 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER
SCHEMATIC DIAGRAMS? 1.1 .0

R1185 R2-3 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS?
R1186 R3-1 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR
CABLES? .0 .0

R1187 R3-2 DO YOU FABRICATE COAXIAL CABLES? 2.2 14.7

S INPUT/OUTPUT (PERIPHERAL) DEVICES (S1), PHOTO SENSITIVE
DEVICES (S2), SYNCHRONOUS VIBRATIONS (CHOPPER
CIRCUITS) (S3)

S1188 S1-1 DO YOU WORK WITH INPUT OR OUTPUT DEVICES ON YOUR
PRESENT JOB? IF NO, GO TO ITEM S2-1; IF YES, CONTINUE. 78.7 76.9

S1189 S1-2 DO YOU USE OR REFER TO KEYBOARDS OR TELETYPEWRITERS?
S1190 S1-3 DO YOU USE OR REFER TO PRINTERS? 79.8 76.2

S1191 S1-4 DO YOU USE OR REFER TO TAPE DRIVES (UNITS)? 66.3 75.5

S1192 S1-5 DO YOU USE OR REFER TO CARD READERS/CARD PUNCHES?
S1193 S1-6 DO YOU USE OR REFER TO VIDEO DISPLAYS (CRT'S)? 57.3 29.4

S1194 S1-7 DO YOU USE OR REFER TO MIXIE LIGHTS (TUBES)? 27.0 21.7

S1195 S1-8 DO YOU USE OR REFER TO LED'S? 77.5 49.0

S1196 S1-9 DO YOU USE OR REFER TO LCD'S? 30.3 18.2

S1197 S1-10 DO YOU USE OR REFER TO INCANDESCENT DISPLAYS?
S1198 S1-11 DO YOU USE OR REFER TO TOGGLE OR PUSH BUTTON SWITCH
INPUTS? 47.2 44.1

S1199 S1-12 DO YOU USE OR REFER TO INTERFACE ADAPTER UNITS? 25.8 23.1

24.7 35.7

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

| O TSK | TITLES | 205 (M) | 307 7C (M) |
|-------|---|------------|------------------|
| S1200 | S1-13 DO YOU USE OR REFER TO TAPE READERS? | 39.3 | 38.5 |
| S1201 | S1-14 DO YOU USE OR REFER TO TAPE PUNCHES? | 37.1 | 35.0 |
| S1202 | S2-1 DO YOU WORK WITH PHOTODIODE PHOTO SENSITIVE DEVICES? | 1.1 | 1.4 |
| S1203 | S2-2 DO YOU WORK WITH PHOTOTRANSISTOR PHOTO SENSITIVE DEVICES? | 1.1 | .7 |
| S1204 | S2-3 DO YOU WORK WITH PHOTOTUBE PHOTO SENSITIVE DEVICES? | 1.1 | .7 |
| S1205 | S2-4 DO YOU WORK WITH PHOTO-SCR PHOTO SENSITIVE DEVICES? | 1.1 | .7 |
| S1206 | S2-5 DO YOU WORK WITH PHOTOCCELL (PHOTOCONDUCTIVE OR PHOTOVOLTAIC) PHOTO SENSITIVE DEVICES? | 1.1 | 3.5 |
| S1207 | S3-1 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS? IF NO, GO TO ITEM T1-11 IF YES, CONTINUE. | 1.1 | .0 |
| S1208 | S3-2 DO YOU USE OR REFER TO EXCITATION FREQUENCY CHOPPER COIL ITEMS? | .0 | .0 |
| S1209 | S3-3 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | .0 | .0 |
| S1210 | S3-4 DO YOU MEASURE EXCITATION FREQUENCY CHOPPER COIL ITEMS? | .0 | .0 |
| S1211 | S3-5 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIP CHOPPER COIL ITEMS? | .0 | .0 |
| S1212 | S3-6 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1213 | S3-7 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1214 | S3-8 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| S1215 | S3-9 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION? | .0 | .0 |
| ----- | | | |
| T | INFRARED (T1), LASERS (T2), DISPLAY TUBES (T3), TELEVISION (T4) | | |
| T1216 | T1-1 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS? IF NO, GO TO ITEM T2-1; IF YES, CONTINUE. | 2.2 | .7 |
| T1217 | T1-2 DO YOU INSPECT INFRARED SYSTEMS? | .0 | .0 |
| T1218 | T1-3 DO YOU CLEAN INFRARED SYSTEMS? | .0 | .0 |
| T1219 | T1-4 DO YOU SERVICE INFRARED SYSTEMS? | .0 | .0 |
| T1220 | T1-5 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS? | .0 | .0 |
| T1221 | T1-6 DO YOU OPERATE INFRARED SYSTEMS? | .0 | .0 |
| T1222 | T1-7 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS? | .0 | .0 |
| T1223 | T1-8 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | .0 | .0 |
| T1224 | T1-9 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS? | .0 | .0 |
| T1225 | T1-10 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS? | .0 | .0 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

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|-------|-------|---|-----|----|
| 11226 | 11-11 | DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS? | .0 | .0 |
| 11227 | 11-12 | DO YOU USE OR REFER TO FAR REGIONS? | 1.1 | .0 |
| 11228 | 11-13 | DO YOU USE OR REFER TO INTERMEDIATE REGIONS? | 1.1 | .0 |
| 11229 | 11-14 | DO YOU USE OR REFER TO NEAR REGIONS? | 1.1 | .0 |
| 11230 | 11-15 | DO YOU USE OR REFER TO MICRONS (M)? | 1.1 | .0 |
| 11231 | 11-16 | DO YOU USE OR REFER TO GRAY BODIES? | 1.1 | .0 |
| 11232 | 11-17 | DO YOU USE OR REFER TO BLACK BODIES? | 1.1 | .0 |
| 11233 | 11-18 | DO YOU USE OR REFER TO ABSORPTION? | 1.1 | .0 |
| 11234 | 11-19 | DO YOU USE OR REFER TO SCATTERING? | 1.1 | .0 |
| 11235 | 11-20 | DO YOU USE OR REFER TO ABSOLUTE ZERO? | 1.1 | .0 |
| 11236 | 11-21 | DO YOU PERFORM TASKS ON BLITZ? | .0 | .0 |
| 11237 | 11-22 | DO YOU PERFORM TASKS ON TARGET BUTTONS? | .0 | .0 |
| 11238 | 11-23 | DO YOU PERFORM TASKS ON ERECTOR LENSES? | .0 | .0 |
| 11239 | 11-24 | DO YOU PERFORM TASKS ON OCULAR LENSES? | .0 | .0 |
| 11240 | 11-25 | DO YOU PERFORM TASKS ON CORRECTION LENSES? | .0 | .0 |
| 11241 | 11-26 | DO YOU PERFORM TASKS ON FILTERS? | .0 | .0 |
| 11242 | 11-27 | DO YOU PERFORM TASKS ON SPHERICAL MIRRORS? | .0 | .0 |
| 11243 | 11-28 | DO YOU PERFORM TASKS ON PLANE MIRRORS? | .0 | .0 |
| 11244 | 12-1 | DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS? IF NO, GO TO ITEM 12-11. IF YES, CONTINUE. | 2.2 | .7 |
| 11245 | 12-2 | DO YOU INSPECT LASER SYSTEMS? | .0 | .0 |
| 11246 | 12-3 | DO YOU CLEAN LASER SYSTEMS? | .0 | .0 |
| 11247 | 12-4 | DO YOU SERVICE LASER SYSTEMS? | .0 | .0 |
| 11248 | 12-5 | DO YOU OPERATE LASER SYSTEMS? | .0 | .0 |
| 11249 | 12-6 | DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS? | .0 | .0 |
| 11250 | 12-7 | DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS? | .0 | .0 |
| 11251 | 12-8 | DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS? | .0 | .0 |
| 11252 | 12-9 | DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS? | .0 | .0 |
| 11253 | 12-10 | DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS? | .0 | .0 |
| 11254 | 12-11 | DO YOU USE OR REFER TO ANGSTROMS (A)? | 1.1 | .0 |
| 11255 | 12-12 | DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS? | .0 | .0 |
| 11256 | 12-13 | DO YOU USE OR REFER TO GROUND STATE? | .0 | .0 |
| 11257 | 12-14 | DO YOU USE OR REFER TO EXCITED STATE? | .0 | .0 |
| 11258 | 12-15 | DO YOU USE OR REFER TO PACKET OF RADIATION? | .0 | .0 |
| 11259 | 12-16 | DO YOU USE OR REFER TO PHOTONS? | .0 | .0 |
| 11260 | 12-17 | DO YOU USE OR REFER TO SPONTANEOUS EMISSIONS? | .0 | .0 |
| 11261 | 12-18 | DO YOU USE OR REFER TO STIMULATED EMISSIONS? | .0 | .0 |
| 11262 | 12-19 | DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE? | 1.1 | .0 |
| 11263 | 12-20 | DO YOU USE OR REFER TO INVERSION LEVELS? | .0 | .0 |
| 11264 | 12-21 | DO YOU USE OR REFER TO MONOCHROMATIC? | .0 | .0 |
| 11265 | 12-22 | DO YOU WORK WITH ACTIVE MATERIALS? | .0 | .0 |
| 11266 | 12-23 | DO YOU WORK WITH PUMPING SOURCES? | .0 | .0 |
| 11267 | 12-24 | DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS? | .0 | .0 |

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| T1260 | 12-25 | DO YOU WORK WITH HALF SILVERED 1923 REFLECTIVE MIRRORS? | .0 | .0 |
| T1269 | 12-26 | DO YOU WORK WITH MEDICAL FLASHTUBES? | .0 | .0 |
| T1270 | 12-27 | DO YOU WORK WITH RUBY MATERIALS? | .0 | .0 |
| T1271 | 12-28 | DO YOU WORK WITH HELIUM-NEON MATERIALS? | .0 | .0 |
| T1272 | 12-29 | DO YOU WORK WITH HELIUM-XENON MATERIALS? | .0 | .0 |
| T1273 | 12-30 | DO YOU WORK WITH XENON MATERIALS? | .0 | .0 |
| T1274 | 12-31 | DO YOU WORK WITH CESIUM-HELIUM MATERIALS? | .0 | .0 |
| T1275 | 12-32 | DO YOU WORK WITH ARGON MATERIALS? | .0 | .0 |
| T1276 | 12-33 | DO YOU WORK WITH NEODYMIUM IN GLASS MATERIALS? | .0 | .0 |
| T1277 | 12-34 | DO YOU WORK WITH GALLIUM ARSENIDE MATERIALS? | .0 | .0 |
| T1278 | 13-1 | IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE TUBES (DVST), MULTIPLE MODE STORAGE TUBES (MMST), OR SCAN CONVERTER TUBES (SCT)? IF YES, GO TO ITEM 14-1; IF YES, CONTINUE. | 3.4 | 1.4 |
| T1279 | 13-2 | DO YOU INSPECT DVST OR MMST? | 1.1 | .0 |
| T1280 | 13-3 | DO YOU CLEAN DVST OR MMST? | 1.1 | .0 |
| T1281 | 13-4 | DO YOU ADJUST OR CALIBRATE DVST OR MMST? | 1.1 | .0 |
| T1282 | 13-5 | DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST? | 2.2 | .7 |
| T1283 | 13-6 | DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS? | .0 | .0 |
| T1284 | 13-7 | DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS? | .0 | .0 |
| T1285 | 13-8 | DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF DVST? | 1.1 | .7 |
| T1286 | 13-9 | DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF MMST? | 1.1 | .7 |
| T1287 | 13-10 | DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME VARIOUS ELEMENTS OF SCT? | .0 | .7 |
| T1288 | 13-11 | DO YOU PERFORM TASKS ON FLOOD GUNS? | .0 | .0 |
| T1289 | 13-12 | DO YOU PERFORM TASKS ON WRITE GUNS? | .0 | .0 |
| T1290 | 13-13 | DO YOU PERFORM TASKS ON READ GUNS? | .0 | .0 |
| T1291 | 13-14 | DO YOU PERFORM TASKS ON ATTACK GUNS? | .0 | .0 |
| T1292 | 13-15 | DO YOU PERFORM TASKS ON ERASE GUNS? | .0 | .0 |
| T1293 | 13-16 | DO YOU PERFORM TASKS ON STORAGE GRIDS? | .0 | .0 |
| T1294 | 14-1 | IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS DEALING WITH TELEVISION SYSTEMS INCLUDING LOW LIGHT TELEVISION? IF NO, GO TO ITEM 14-1; IF YES, CONTINUE. | 4.5 | 1.4 |
| T1295 | 14-2 | DO YOU INSPECT TELEVISION SYSTEMS? | 1.1 | .0 |
| T1296 | 14-3 | DO YOU CLEAN TELEVISION SYSTEMS? | 1.1 | .0 |
| T1297 | 14-4 | DO YOU ADJUST OR CALIBRATE TELEVISION SYSTEMS? | 1.1 | .0 |
| T1298 | 14-5 | DO YOU OPERATE TELEVISION SYSTEMS? | 3.4 | .0 |
| T1299 | 14-6 | DO YOU TROUBLESHOOT WIRE CONNECTIONS OF TV SYSTEMS? | 1.1 | .0 |
| T1300 | 14-7 | DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF TV SYSTEMS? | .0 | .0 |
| T1301 | 14-8 | DO YOU TROUBLESHOOT DOWN TO TV SYSTEM COMPONENT PARTS? | .0 | .0 |
| T1302 | 14-9 | DO YOU REMOVE OR REPLACE TV SYSTEM MAJOR ASSEMBLIES? | .0 | .0 |
| T1303 | 14-10 | DO YOU REMOVE OR REPLACE TV SYSTEM COMPONENT PARTS? | .0 | .0 |

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0 TSK TITLES

U COMPUTERS, MICROPROCESSORS, AND PROGRAMMING (U1), DB AND POWER RATIOS (U2)

| U1304 | U1-1 IN YOUR PRESENT JOB, DO YOU PERFORM MAINTENANCE ROUTINES OR PROGRAMMING TASKS? IF NO, GO TO ITEM U2-1; IF YES, CONTINUE. | 13.5 | 12.6 |
|-------|---|------|------|
| U1305 | U1-2 DO YOU USE OR REFER TO DECIMAL SYSTEMS? | 7.9 | 7.0 |
| U1306 | U1-3 DO YOU USE OR REFER TO OCTAL SYSTEMS? | 6.7 | 4.2 |
| U1307 | U1-4 DO YOU USE OR REFER TO PARITY DETECTORS/GENERATORS? | 2.2 | 4.9 |
| U1308 | U1-5 DO YOU USE OR REFER TO HEXADECIMAL SYSTEMS? | 5.6 | 4.9 |
| U1309 | U1-6 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS? | .0 | 2.1 |
| U1310 | U1-7 DO YOU USE OR REFER TO FOUR SYSTEMS? | .0 | 1.4 |
| U1311 | U1-8 DO YOU USE OR REFER TO BINARY SYSTEMS? | 10.1 | 7.7 |
| U1312 | U1-9 DO YOU USE OR REFER TO TIME-SHARING (MULTI-SEQUENCING)? | 9.0 | 5.6 |
| U1313 | U1-10 DO YOU USE OR REFER TO DATA WORDS? | 9.0 | 9.1 |
| U1314 | U1-11 DO YOU USE OR REFER TO ADDRESS WORDS? | 9.0 | 8.4 |
| U1315 | U1-12 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS? | 5.6 | 7.7 |
| U1316 | U1-13 DO YOU USE OR REFER TO STEERING/INFORMATION? | 1.1 | 2.1 |
| U1317 | U1-14 DO YOU USE OR REFER TO INSTRUCTION WORDS? | 6.7 | 8.4 |
| U1318 | U1-15 DO YOU USE OR REFER TO DAP-16? | .0 | .7 |
| U1319 | U1-16 DO YOU USE OR REFER TO BINARY CODED DECIMAL (BCD)? | 6.7 | 6.3 |
| U1320 | U1-17 DO YOU USE OR REFER TO CONTROL WORDS? | 4.5 | 9.1 |
| U1321 | U1-18 DO YOU USE OR REFER TO RESPONSE WORDS? | 2.2 | 7.7 |
| U1322 | U1-19 DO YOU USE OR REFER TO WRAPAROUND WORDS? | 1.1 | 3.5 |
| U1323 | U1-20 DO YOU USE OR REFER TO TEST OR DIAGNOSTIC PROGRAMS? | 3.4 | 10.5 |
| U1324 | U1-21 DO YOU USE OR REFER TO RELIABILITY PROGRAMS? | 2.2 | 4.2 |
| U1325 | U1-22 DO YOU USE OR REFER TO COMPILERS? | 5.6 | 2.8 |
| U1326 | U1-23 DO YOU USE OR REFER TO ASSEMBLERS? | 4.5 | 3.5 |
| U1327 | U1-24 DO YOU USE OR REFER TO MACHINE LANGUAGE? | 6.7 | 4.2 |
| U1328 | U1-25 DO YOU USE OR REFER TO MNEMONICS? | 1.1 | 5.6 |
| U1329 | U1-26 DO YOU USE OR REFER TO ROUTINES OR SUBROUTINES? | 9.0 | 8.4 |
| U1330 | U1-27 DO YOU USE OR REFER TO FLOW CHARTS OR DIAGRAMS? | 9.0 | 6.3 |
| U1331 | U1-28 DO YOU USE OR REFER TO 'ATLAS'? | .0 | .7 |
| U1332 | U1-29 DO YOU USE OR REFER TO 'ELAN'? | .0 | .7 |
| U1333 | U1-30 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING SYSTEMS? | 2.2 | 3.5 |
| U1334 | U1-31 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING SYSTEMS? | 2.2 | 2.1 |
| U1335 | U1-32 DO YOU WRITE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | .0 | 2.8 |
| U1336 | U1-33 DO YOU USE PROGRAMS FOR TROUBLESHOOTING OF SPECIFIC CIRCUITS? | 2.2 | 5.6 |
| U1337 | U1-34 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER CONTROL SECTIONS? | 5.6 | 3.5 |
| U1338 | U1-35 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER INPUT SECTIONS? | 6.7 | 5.6 |
| U1339 | U1-36 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER OUTPUT SECTIONS? | 6.7 | 4.9 |

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| U1340 | U1-37 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER MONITOR SECTIONS? | 6.7 | 7.0 |
| U1341 | U1-38 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER TRANSMIT SECTIONS? | 5.6 | 6.3 |
| U1342 | U1-39 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER RECEIVE SECTIONS? | 6.7 | 6.3 |
| U1343 | U1-40 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER INPUT DEVICES? | 9.0 | 7.7 |
| U1344 | U1-41 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER STORAGE DEVICES? | 5.6 | 5.6 |
| U1345 | U1-42 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER OUTPUT DEVICES? | 9.0 | 7.7 |
| U1346 | U1-43 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER POWER DEVICES? | 4.5 | 4.9 |
| U1347 | U1-44 DO YOU PERFORM TASKS ON BASIC DIGITAL COMPUTER MONITOR DEVICES? | 7.9 | 7.0 |
| U1348 | U1-45 DO YOU USE FORTRAN PROGRAMMING LANGUAGE? | 11.2 | 2.1 |
| U1349 | U1-46 DO YOU USE COBOL PROGRAMMING LANGUAGE? | 4.5 | 2.1 |
| U1350 | U1-47 DO YOU USE RPG PROGRAMMING LANGUAGE? | .0 | .7 |
| U1351 | U1-48 DO YOU USE OR PERFORM TASKS ON MICROPROCESSOR BASED EQUIPMENT? | 4.5 | 4.2 |
| U1352 | U1-49 DO YOU USE INPUT PORT LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | 2.1 |
| U1353 | U1-50 DO YOU USE OUTPUT PORT LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | 2.1 |
| U1354 | U1-51 DO YOU USE RAM MEMORY CIRCUITS (STATIC OR DYNAMIC) IN CONJUNCTION WITH THE MICROPROCESSOR? | 4.5 | 7.7 |
| U1355 | U1-52 DO YOU USE ROM MEMORY CIRCUITS (INCLUDES PROM, EPROM, ETC.) IN CONJUNCTION WITH THE MICROPROCESSOR? | 4.5 | 7.0 |
| U1356 | U1-53 DO YOU USE TRI-STATE CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | .7 |
| U1357 | U1-54 DO YOU USE CLOCK GENERATOR CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | 4.9 |
| U1358 | U1-55 DO YOU USE STATUS LATCH CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | 1.4 |
| U1359 | U1-56 DO YOU USE BIDIRECTIONAL BUFFER CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | 1.1 | 3.5 |
| U1360 | U1-57 DO YOU USE ENCODER/DECODER CIRCUITS IN CONJUNCTION WITH THE MICROPROCESSOR? | .0 | 2.8 |
| U1361 | U2-1 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION? | 61.8 | 82.5 |
| U1362 | U2-2 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS? | 24.7 | 43.4 |
| U1363 | U2-3 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS? | 20.2 | 42.0 |
| U1364 | U2-4 DO YOU USE VTVM (DB METERS) TO CHECK FOR NOISE OR SIGNAL LEVEL? | 10.1 | 70.6 |
| U1365 | U2-5 DO YOU USE VTVM (DB METERS) TO CHECK OR ADJUST AUDIO AMPLIFIERS? | 7.9 | 64.3 |

NEESLER ELECTRONIC PRINCIPLES INVENTORY DATA

205 307
70 70
(M) (M)

O TSM TITLES

U1366 V2-6 DO YOU USE A HP155D OR J44A TEST SET TO ALIGN AUDIO
EQUIPMENT?

2.2 96.2

DA
FILM

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