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BOMB-NAVIGATION SYSTEMS MECHANIC AFSC 32150K/L.(U)
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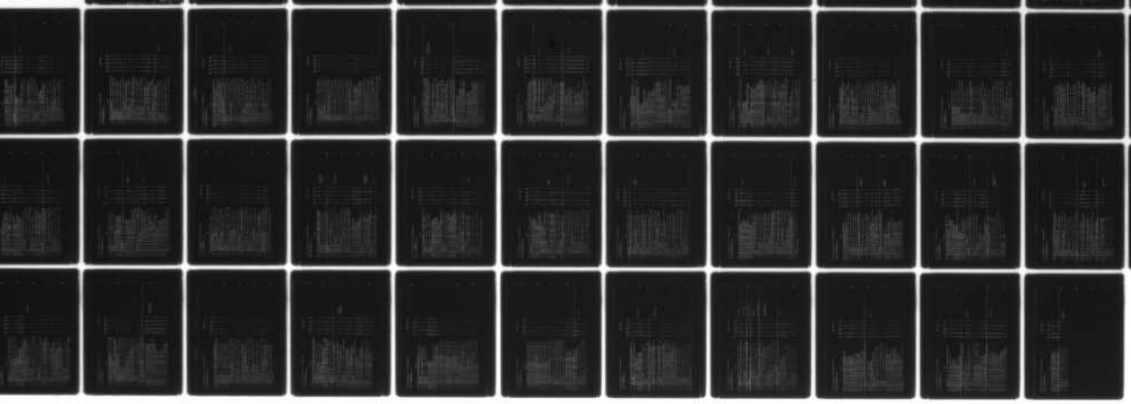

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(1) OCCUPATIONAL SURVEY REPORT. ELECTRONIC PRINCIPLES

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(6) BOMB-NAVIGATION SYSTEMS MECHANIC

AFSC 32150K/L

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USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Bomb-Navigation Systems Mechanic, AFSC 32150K/L.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Captain Leon J. Tauscher. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF
Commander
USAF Occupational Measurement Center

WALTER E. DRISKILL, Ph.D.
Chief, Occupational Survey Branch
USAF Occupational Measurement Center

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
BOMB-NAVIGATION SYSTEMS MECHANIC
32150K/L

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Bomb-Navigation Systems Mechanic (AFSC 32150K/L). The data for this report were collected during the period April through June 1977.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 32150K/L airmen worldwide. Responses from 68 individuals represented 17 percent of the total of all AFSC 32150K/L personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

TABLE 1

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	10
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	11
15	RELAYS	E295	12
16	MICROPHONES	F314	12
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	13
20	TRANSISTORS	G404	15
21	TRANSISTOR AMPLIFIERS	G428	16
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	19
25	MULTIVIBRATORS	I539	20
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	22
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	23
31	AM SYSTEMS	K638	23
32	FM SYSTEMS	K666	24

TABLE 1 (CONTINUED)

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	25
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	27
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	28
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	29
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	0845	30
44	PULSE MODULATION SYSTEMS	0875	31
45	ANTENNAS	0914	32
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	35
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	37
49	REGISTERS	Q1110	39
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	41
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	43
62	DB AND POWER RATIOS	U1255	44

TABLE 2

COMMAND REPRESENTATION OF SURVEY SAMPLE

	32150K		32150L	
COMMAND	PERCENT ASSIGNED	PERCENT OF SAMPLE	PERCENT ASSIGNED	PERCENT OF SAMPLE
SAC	95	98	90	93

PRESENTATON OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the five five selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Alternating Current (p. 4), Soldering (pp. 11-12), and Oscilloscopes (p. 13) to low in areas such as Transistor Amplifiers (pp. 16-18) and AM Systems (pp. 23-24). Additional AFSC 321XOK/L data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 32151K/L CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY =	SPC001	ALL AIRMEN DAFSC 32150K/L TOTAL SAMPLE	CONTAINING	68 MEMBERS.
GROUP IDENTITY =	SPC002	ALL AIRMEN DAFSC 32150K	CONTAINING	55 MEMBERS.
GROUP IDENTITY =	SPC003	ALL AIRMEN DAFSC 32150L	CONTAINING	13 MEMBERS.
GROUP IDENTITY =	SPC004	ALL AIRMEN DAFSC 32150K STATIONED IN CONUS	CONTAINING	55 MEMBERS.
GROUP IDENTITY =	SPC005	ALL AIRMEN DAFSC 32150L STATIONED IN CONUS	CONTAINING	13 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
A	1	A1-01 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.	75	76	69	76	69	MATHEMATICS
A	2	A1-02 DO YOU USE PUBLICATIONS, SUCH AS A 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.	31	33	23	33	23	
A	3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	49	45	62	45	62	
A	4	A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	14	11	38	11	38	
A	5	A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	37	35	46	35	46	
A	6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	1	2	0	2	0	
A	7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	3	4	0	4	0	
A	8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	4	5	0	5	0	
A	9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	1	2	0	2	0	
A	10	A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	37	36	38	36	38	
A	11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	53	51	62	51	62	
A	12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	18	20	8	20	8	
A	13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	9	11	0	11	0	
A	14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	31	30	8	30	8	
A	15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	90	93	77	93	77	
A	16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	32	33	31	33	31	
A	17	A2-03 DO YOU USE THE TERM OHM.	91	95	77	95	77	
A	18	A2-04 DO YOU USE THE TERM ION.	16	20	0	20	0	DIRECT CURRENT AND VOLTAGE
A	19	A2-05 DO YOU USE THE TERM DYNE.	3	4	0	4	0	
A	20	A2-06 DO YOU USE THE TERM AMPERE.	85	87	77	87	77	
A	21	A2-07 DO YOU USE THE TERM NEUTRON.	13	16	0	16	0	
A	22	A2-08 DO YOU USE THE TERM COULOMB.	13	15	8	15	8	
A	23	A2-09 DO YOU USE THE TERM PROTON.	13	16	0	16	0	
A	24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	69	67	77	67	77	
A	25	A3-02 DO YOU INSPECT RESISTORS.	66	64	77	64	77	
A	26	A3-03 DO YOU CLEAN RESISTORS.	49	45	62	45	62	
A	27	A3-04 DO YOU ADJUST RESISTORS.	74	73	77	73	77	
A	28	A3-05 DO YOU CHECK OHMIC VALUE OF RESISTORS.	72	71	77	71	77	RESISTANCE
A	29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	65	62	77	62	77	
A	30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	19	22	8	22	8	
A	31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	69	67	77	67	77	
A	32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	62	64	54	64	54	
A	33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	71	69	77	69	77	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
A	34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	62	60	69	60	69	
A	35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	7	9	0	9	0	
A	36	A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	13	15	8	15	8	
A	37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	76	76	77	76	77	
A	38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	37	36	38	36	38	
A	39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	35	36	31	36	31	
A	40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	32	33	31	33	31	
A	41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	21	22	15	22	15	
A	42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	37	38	31	38	31	
A	43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	34	35	31	35	31	
A	44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	26	29	15	29	15	
A	45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	26	29	15	29	15	
A	46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	22	24	15	24	15	
A	47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	32	33	31	33	31	
A	48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	32	33	31	33	31	
A	49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	29	29	31	29	31	
A	50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	25	29	8	29	8	
A	51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	22	24	15	24	15	
B	52	B1-01 DO YOU MEASURE RESISTANCE.	90	93	77	93	77	
B	53	B1-02 DO YOU REPAIR OHMMETERS.	7	7	8	7	8	
B	54	B1-03 DO YOU MEASURE VOLTAGE.	91	95	77	95	77	
B	55	B1-04 DO YOU REPAIR VOLTMETERS.	6	5	8	5	8	
B	56	B1-05 DO YOU REPAIR AMMETERS.	7	7	8	7	8	MULTIMETER USES
B	57	B1-06 DO YOU MEASURE CURRENT.	79	84	62	84	62	
B	58	B1-07 DO YOU USE MULTIMETERS.	90	93	77	93	77	
B	59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	0	0	0	0	0	
B	60	B1-09 DO YOU READ SCHEMATICS.	90	93	77	93	77	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
B	61	B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	71	71	69	71	69	
B	62	B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	82	84	77	84	77	ALTERNATING CURRENT
B	63	B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	72	73	69	73	69	
B	64	B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	71	71	69	71	69	
B	65	B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	82	84	77	84	77	
B	66	B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	35	40	15	40	15	
A	67	B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	41	45	23	45	23	
B	68	B3-02 DO YOU INSPECT INDUCTORS.	34	35	31	35	31	
B	69	B3-03 DO YOU CLEAN INDUCTORS.	21	20	23	20	23	
A	70	B3-04 DO YOU ADJUST INDUCTORS.	24	24	23	24	23	INDUCTORS AND
B	71	B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	29	27	38	27	38	INDUCTIVE REACTANCE
A	72	B3-06 DO YOU USE OR REFER TO INDUCTANCE.	34	33	38	33	38	
B	73	B3-07 DO YOU USE OR REFER TO HENRIES.	21	18	31	18	31	
B	74	B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	24	24	23	24	23	
B	75	B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	0	0	0	0	0	
B	76	B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	3	4	0	4	0	
B	77	B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS	3	4	0	4	0	
B	78	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.	6	5	8	5	8	
B	79	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.	4	4	8	4	8	
B	80	B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	4	4	8	4	8	
B	81	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.	7	7	8	7	8	
B	82	B3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	4	5	0	5	0	
B	83	B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	9	9	8	9	8	
B	84	B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	9	9	8	9	8	
B	85	B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	9	9	8	9	8	
B	86	B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	19	20	15	20	15	
B	87	B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	12	11	15	11	15	
B	88	B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	15	13	15	13	15	
B	89	B3-23 DO YOU WORK WITH POWER INDUCTORS.	18	16	23	16	23	
B	90	B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	9	11	0	11	0	
B	91	B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	21	20	23	20	23	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
C	92	C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	59	58	62	56	62	
C	93	C1-02 DO YOU INSPECT CAPACITORS.	44	40	62	40	62	
C	94	C1-03 DO YOU CLEAN CAPACITORS.	32	27	54	27	54	
C	95	C1-04 DO YOU ADJUST CAPACITORS.	50	55	31	55	31	CAPACITORS AND CAPACITIVE REACTANCE
C	96	C1-05 DO YOU TEST CAPACITORS.	31	31	31	31	31	
C	97	C1-06 DO YOU DISCHARGE CAPACITORS.	43	42	46	42	46	
C	98	C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	41	38	54	38	54	
C	99	C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	9	11	0	11	0	
C	100	C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	0	0	0	0	0	
C	101	C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	44	42	54	42	54	
C	102	C1-11 DO YOU USE OR REFER TO CAPACITANCE.	44	42	54	42	54	
C	103	C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	7	7	8	7	8	
C	104	C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	22	25	8	25	8	
C	105	C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	19	20	15	20	15	
C	106	C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	12	11	15	11	15	
C	107	C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	49	47	54	47	54	
C	108	C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	49	47	54	47	54	
C	109	C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	46	44	54	44	54	
C	110	C1-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	13	16	0	16	0	
C	111	C1-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	9	7	15	7	15	
C	112	C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	3	4	0	4	0	
C	113	C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	3	4	0	4	0	
C	114	C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	15	15	15	15	15	
C	115	C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	15	15	15	15	15	
C	116	C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	12	11	15	11	15	
C	117	C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	15	15	15	15	15	
C	118	C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	15	13	23	13	23	
C	119	C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	10	9	15	9	15	
C	120	C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE	12	11	15	11	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
C 121	C1-30 DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	40	44	23	44	23	
C 122	C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	24	25	15	25	15	
C 123	C1-32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	38	36	46	36	46	
C 124	C1-33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS	32	31	38	31	38	
C 125	C1-34 DO YOU WORK WITH MICA (FIXED) CAPACITORS	29	29	31	29	31	
C 126	C1-35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	37	36	38	36	38	
C 127	C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	18	15	31	15	31	
C 128	C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	57	55	69	55	69	
C 129	C2-02 DO YOU INSPECT TRANSFORMERS	51	47	69	47	69	
C 130	C2-03 DO YOU CLEAN TRANSFORMERS	28	25	38	25	38	
C 131	C2-04 DO YOU ADJUST TRANSFORMERS	37	35	46	35	46	
C 132	C2-05 DO YOU TROUBLESHOOT TRANSFORMERS	51	45	77	45	77	TRANSFORMERS
C 133	C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	56	53	69	53	69	
C 134	C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	3	4	0	4	0	
C 135	C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)	1	2	0	2	0	
C 136	C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	3	2	8	2	8	
C 137	C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	6	5	8	5	8	
C 138	C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	7	7	8	7	8	
C 139	C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	4	5	0	5	0	
C 140	C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	3	4	0	4	0	
C 141	C2-14 DO YOU WORK WITH AUTOTRANSFORMERS	35	27	69	27	69	
C 142	C2-15 DO YOU WORK WITH POWER TRANSFORMERS	59	55	77	55	77	
C 143	C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS	13	16	0	16	0	
C 144	C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	26	29	15	29	15	
C 145	C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	12	13	8	13	8	
C 146	C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	53	47	77	47	77	
C 147	C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	47	40	77	40	77	
C 148	C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	41	40	46	40	46	
C 149	C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	7	7	8	7	8	
C 150	C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	15	16	8	16	8	
C 151	C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	57	53	77	53	77	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
C 152	C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	53	51	62	51	62	
C 153	C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	53	49	69	49	69	
C 154	C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	54	51	69	51	69	
C 155	C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	26	25	31	25	31	
C 156	C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	35	33	46	33	46	
C 157	C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	49	44	69	44	69	
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	29	35	8	35	8	
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	19	18	23	18	23	
C 160	C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	10	9	15	9	15	
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	21	24	8	24	8	
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	7	7	8	7	8	
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	6	7	0	7	0	
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	37	38	31	38	31	
C 165	C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	26	27	23	27	23	
C 166	C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	12	13	8	13	8	
C 167	C2-40 DO YOU ADJUST THREE-PHASE TRANSFORMERS	15	18	0	18	0	
C 168	C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	22	22	23	22	23	
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	29	31	23	31	23	
C 170	C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	1	2	0	2	0	
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	53	56	38	56	38	
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	22	22	23	22	23	
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	4	5	0	5	0	MAGNETISM
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	7	9	0	9	0	
C 175	C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	12	15	0	15	0	
C 176	C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	7	9	0	9	0	
C 177	C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	22	18	38	18	38	
C 178	C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	1	2	0	2	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
C 179	C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	1	2	0	2	0	
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	15	15	15	15	15	
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY	12	11	15	11	15	
C 182	C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT	34	31	46	31	46	
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	22	22	23	22	23	
C 184	C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	18	18	15	18	15	
D 185	D1-01 DO YOU WORK WITH RC, LR, RCL CIRCUITS IN YOUR PRESENT JOB	26	25	31	25	31	
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	12	13	8	13	8	
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	9	9	8	9	8	RCL CIRCUITS
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	15	13	23	13	23	
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	15	13	23	13	23	
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	10	11	8	11	8	
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	13	11	23	11	23	
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	9	9	8	9	8	
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	9	9	8	9	8	
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	9	9	8	9	8	
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	7	7	8	7	8	
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	6	5	8	5	8	
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	16	15	23	15	23	
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	22	22	23	22	23	
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	18	18	15	18	15	
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	21	20	23	20	23	
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	6	5	8	5	8	
D 202	D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	10	9	15	9	15	
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	6	5	8	5	8	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
D 204	D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	13	11	23	11	23
D 205	D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	13	13	15	13	15
D 206	D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	7	7	8	7	8
D 207	D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	9	7	15	7	15
D 208	D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	3	4	0	4	0
D 209	D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	7	5	15	5	15
D 210	D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	4	4	8	4	8
D 211	D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	6	5	8	5	8
D 212	D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	6	5	8	5	8
D 213	D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	6	5	8	5	8
D 214	D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	9	7	15	7	15
D 215	D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	3	4	0	4	0
D 216	D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	1	2	0	2	0
D 217	D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	9	7	15	7	15
D 218	D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS	21	16	38	16	38
D 219	D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	10	7	23	7	23
D 220	D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS	21	18	31	18	31
D 221	D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	10	9	15	9	15
D 222	D1-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT THETA= 0, PF = 1, AND PA = PT FOR RESONANT CIRCUITS	3	4	0	4	0
D 223	D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	7	7	8	7	8
D 224	D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	7	7	8	7	8
225	D1-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	7	7	8	7	8
D 226	D1-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	10	9	15	9	15
D 227	D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	6	5	8	5	8
D 228	D1-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	4	4	8	4	8

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
D 229	D2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	12	11	15	11	15	
D 230	D2-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	12	11	15	11	15	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
D 231	D2-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	3	4	0	4	0	
D 232	D2-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	3	4	0	4	0	
D 233	D2-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	7	7	8	7	8	
D 234	D2-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	3	4	0	4	0	
D 235	D2-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	3	2	8	2	8	
D 236	D2-08 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	1	0	8	0	8	
D 237	D2-09 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	8	0	8	
D 238	D2-10 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	4	4	8	4	8	
D 239	D3-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	32	36	15	36	15	
D 240	D3-02 DO YOU INSPECT FILTER CIRCUITS	28	33	8	33	8	
D 241	D3-03 DO YOU CLEAN FILTER CIRCUITS	16	22	0	22	0	
D 242	D3-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	24	29	0	29	0	FILTERS
D 243	D3-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	32	36	8	36	8	
D 244	D3-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	21	24	8	24	8	
D 245	D3-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	37	44	8	44	8	
D 246	D3-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	19	22	8	22	8	
D 247	D3-09 DO YOU WORK WITH LOW PASS FILTERS	19	22	8	22	8	
D 248	D3-10 DO YOU WORK WITH HIGH PASS FILTERS	19	22	8	22	8	
D 249	D3-11 DO YOU WORK WITH BANDPASS FILTERS	13	16	0	16	0	
D 250	D3-12 DO YOU WORK WITH BAND-REJECT FILTERS	10	13	0	13	0	
D 251	D3-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	16	20	8	20	8	
D 252	D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	6	7	0	7	0	
D 253	D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	6	7	0	7	0	
D 254	D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	4	5	0	5	0	
D 255	D3-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	24	25	15	25	15	
D 256	D3-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	9	11	0	11	0	
D 257	D3-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	12	15	0	15	0	
D 258	D3-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	9	11	0	11	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
		D4-TSK						
D	259	D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT	24	25	15	25	15	
D	260	D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS	6	5	8	5	8	
E	261	E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB	21	22	15	22	15	
E	262	E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING	19	20	15	20	15	
E	263	E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING	18	18	15	18	15	COUPLING
E	264	E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING	19	20	15	20	15	
E	265	E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING	18	18	15	18	15	
E	266	E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING	16	16	15	16	15	
E	267	E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING	15	15	15	15	15	
E	268	E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS	19	20	15	20	15	
E	269	E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS	18	18	15	18	15	
E	270	E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS	16	16	15	16	15	
E	271	E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS	18	18	15	18	15	
E	272	E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS	9	11	0	11	0	
E	273	E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS	78	78	77	78	77	
E	274	E2-02 DO YOU SELECT TYPE OF SOLDER TO USE	62	64	54	64	54	
E	275	E2-03 DO YOU ADD FLUX TO CONNECTIONS	69	71	62	71	62	
E	276	E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS	60	60	62	60	62	SOLDERING
E	277	E2-05 DO YOU STRIP INSULATION FROM WIRES	84	85	77	85	77	
E	278	E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS	71	73	62	73	62	
E	279	E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS	81	82	77	82	77	
E	280	E2-08 DO YOU CUT WIRES	84	85	77	85	77	
E	281	E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS	66	67	62	67	62	
E	282	E2-10 DO YOU TIN SOLDERING IRON TIPS	82	84	77	84	77	
E	283	E2-11 DO YOU CLEAN SOLDERING IRON TIPS	81	82	77	82	77	
E	284	E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS	41	44	31	44	31	
E	285	E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS	76	78	77	78	77	
E	286	E2-14 DO YOU INSPECT SOLDERED CONNECTIONS	82	84	77	84	77	
E	287	E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING	50	50	15	50	15	
E	288	E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS	57	55	69	55	69	
E	289	E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS	68	67	69	67	69	
E	290	E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL	22	24	15	24	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
E	291	E2-19 DO YOU MAKE HARDWIRE CONNECTIONS	79	82	69	82	69	
E	292	E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	41	42	38	42	38	
E	293	E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	38	38	38	38	38	
E	294	E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	32	31	38	31	38	
E	295	E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	84	85	77	85	77	
E	296	E3-02 DO YOU ADJUST RELAYS	31	36	8	36	8	
E	297	E3-03 DO YOU CLEAN RELAYS	37	40	23	40	23	
E	298	E3-04 DO YOU INSPECT RELAYS	65	67	54	67	54	
E	299	E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	85	89	69	89	69	RELAYS
E	300	E3-06 DO YOU REMOVE OR REPLACE PARTS OF RELAYS	4	5	0	5	0	
E	301	E3-07 DO YOU TROUBLESHOOT RELAYS	72	71	77	71	77	
E	302	E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	56	60	38	60	38	
E	303	E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	21	20	23	20	23	
E	304	E3-10 DO YOU PERFORM TASKS ON RELAY CORES	4	5	0	5	0	
E	305	E3-11 DO YOU PERFORM TASKS ON RELAY COILS	7	9	0	9	0	
E	306	E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	10	13	0	13	0	
E	307	E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	4	5	0	5	0	
E	308	E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS	60	58	69	58	69	
E	309	E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	59	56	69	56	69	
E	310	E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	57	55	69	55	69	
E	311	E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	56	53	69	53	69	
E	312	E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	62	60	69	60	69	
E	313	E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	49	47	54	47	54	
F	314	F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	7	4	23	4	23	
F	315	F1-02 DO YOU INSPECT MICROPHONES	3	2	8	2	8	
F	316	F1-03 DO YOU CLEAN MICROPHONES	1	0	8	0	8	MICROPHONES
F	317	F1-04 DO YOU OPERATE MICROPHONES	7	4	23	4	23	
F	318	F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES	4	2	15	2	15	
F	319	F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	0	0	0	0	0	
F	320	F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	3	2	8	2	8	
F	321	F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	1	2	0	2	0	
F	322	F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	0	0	0	0	0	
F	323	F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	0	0	0	0	0	
F	324	F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	0	0	0	0	0	
F	325	F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	1	2	0	2	0	
F	326	F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	0	0	0	0	0	
F 328	F2-02 DO YOU INSPECT SPEAKERS	0	0	0	0	0	
F 329	F2-03 DO YOU CLEAN SPEAKERS	0	0	0	0	0	
F 330	F2-04 DO YOU OPERATE SPEAKERS	0	0	0	0	0	SPEAKERS
F 331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	0	0	0	0	0	
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	0	0	0	0	0	
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	0	0	0	0	0	
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	0	0	0	0	0	
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	0	0	0	0	0	
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	0	0	0	0	0	
F 337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	0	0	0	0	0	
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	0	0	0	0	0	
F 339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	0	0	0	0	0	
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	0	0	0	0	0	
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	0	0	0	0	0	
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	84	85	77	85	77	
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	85	87	77	87	77	
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	87	89	77	89	77	OSCILLOSCOPES
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	84	85	77	85	77	
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	75	76	69	76	69	
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	82	84	77	84	77	
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	40	40	38	40	38	
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	72	75	62	75	62	
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	71	75	54	75	54	
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	81	82	77	82	77	
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	66	65	69	65	69	
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	88	91	77	91	77	
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	37	40	23	40	23	
G 355	G1-02 DO YOU INSPECT DIODES	38	44	15	44	15	
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	40	45	15	45	15	
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	38	44	15	44	15	SEMICONDUCTOR
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	1	2	0	2	0	DIODES
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE	1	2	0	2	0	
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	6	7	0	7	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
G 361	GI-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	12	11	15	11	15
G 362	GI-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	37	40	23	40	23
G 363	GI-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	7	7	8	7	8
G 364	GI-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	21	24	8	24	8
G 365	GI-12 DO YOU USE OR REFER TO DIODE COLOR CODING	12	13	8	13	8
G 366	GI-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	1	2	0	2	0
G 367	GI-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	1	2	0	2	0
G 368	GI-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	29	31	23	31	23
G 369	GI-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	3	4	0	4	0
G 370	GI-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	3	4	0	4	0
G 371	GI-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	22	25	8	25	8
G 372	GI-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	1	2	0	2	0
G 373	GI-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	1	2	0	2	0
G 374	GI-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	1	2	0	2	0
G 375	GI-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	1	2	0	2	0
G 376	GI-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	1	2	0	2	0
G 377	GI-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	29	33	15	33	15
G 378	GI-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	10	11	8	11	8
G 379	GI-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	10	11	8	11	8
G 380	GI-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	3	4	0	4	0
G 381	GI-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	25	29	8	29	8
G 382	GI-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	4	4	8	4	8

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
G 383	G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	3	4	0	4	0	
G 384	G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	6	5	8	5	8	
G 385	G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	3	4	0	4	0	
G 386	G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	6	5	8	5	8	
G 387	G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	6	5	8	5	8	
G 388	G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	3	4	0	4	0	
G 389	G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	4	5	0	5	0	
G 390	G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	9	9	8	9	8	
G 391	G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	10	11	8	11	8	
G 392	G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	4	4	8	4	8	
G 393	G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	4	4	8	4	8	
G 394	G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	3	2	8	2	8	
G 395	G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	4	5	0	5	0	
G 396	G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	6	7	0	7	0	
G 397	G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	18	20	8	20	8	
G 398	G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	3	4	0	4	0	
G 399	G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	16	18	8	18	8	
G 400	G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	9	11	0	11	0	
G 401	G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	7	9	0	9	0	
G 402	G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	7	9	0	9	0	
G 403	G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	9	11	0	11	0	
G 404	G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	31	35	15	35	15	
G 405	G2-02 DO YOU INSPECT TRANSISTORS	28	31	15	31	15	
G 406	G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	25	27	15	27	15	
G 407	G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	22	24	15	24	15	TRANSISTORS
G 408	G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	18	20	8	20	8	
G 409	G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	18	20	8	20	8	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
G 410	G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	16	18	8	18	8	
G 411	G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	7	9	0	9	0	
G 412	G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	7	9	0	9	0	
G 413	G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	12	13	8	13	8	
G 414	G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	6	7	0	7	0	
G 415	G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	31	35	15	35	15	
G 416	G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	29	33	15	33	15	
G 417	G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	15	16	8	16	8	
G 418	G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IE (USUALLY IB BEING 2 TO 8 PERCENT OF IE)	9	9	8	9	8	
G 419	G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	9	11	0	11	0	
G 420	G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	4	5	0	5	0	
G 421	G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	4	5	0	5	0	
G 422	G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	6	7	0	7	0	
G 423	G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	6	7	0	7	0	
G 424	G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	6	7	0	7	0	
G 425	G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	3	4	0	4	0	
G 426	G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	3	4	0	4	0	
G 427	G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	3	4	0	4	0	
G 428	G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	21	22	15	22	15	
G 429	G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	15	16	8	16	8	
G 430	G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	12	11	15	11	15	TRANSISTOR AMPLIFIERS
G 431	G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	13	15	8	15	8	
G 432	G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	10	11	8	11	8	
G 433	G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	21	22	15	22	15	
G 434	G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	7	7	8	7	8	
G 435	G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	4	5	0	5	0	
G 436	G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	4	5	0	5	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
G 437	G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT	6	7	0	7	0
G 438	G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	1	2	0	2	0
G 439	G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	6	7	0	7	0
G 440	G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL	3	4	0	4	0
G 441	G3-14 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)	3	4	0	4	0
G 442	G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	4	5	0	5	0
G 443	G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	3	4	0	4	0
G 444	G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	13	15	8	15	8
G 445	G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	12	15	0	15	0
G 446	G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	12	15	0	15	0
G 447	G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE THE BASE COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN	3	4	0	4	0
G 448	G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT TO DETERMINE THE CURRENT GAIN	3	4	0	4	0
G 449	G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE CURRENT GAIN TIMES THE VOLTAGE GAIN TO DETERMINE THE POWER GAIN	1	2	0	2	0
G 450	G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE INCREASES (THIS AFFECTS THE STATIC OPERATING POINT (Q) OF THE TRANSISTOR)	1	2	0	2	0
G 451	G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT (Q) OF A TRANSISTOR AT DIFFERENT TEMPERATURES	3	4	0	4	0
G 452	G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR S#ABILIZATION	3	4	0	4	0
G 453	G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	4	5	0	5	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
	BY-TSK					
G 454	G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	4	5	0	5	0
G 455	G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	4	5	0	5	0
G 456	G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	6	7	0	7	0
G 457	G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	6	7	0	7	0
G 458	G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	4	5	0	5	0
G 459	G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	4	5	0	5	0
G 460	G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	6	7	0	7	0
G 461	G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	4	5	0	5	0
G 462	G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	6	7	0	7	0
G 463	G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	4	5	0	5	0
G 464	G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	10	11	8	11	8
G 465	G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	9	9	8	9	8
G 466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	9	9	8	9	8
G 467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	7	7	8	7	8
G 468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	4	5	0	5	0
G 469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	6	7	0	7	0
G 470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS OF THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	1	2	0	2	0
G 471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	4	5	0	5	0
G 472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	4	5	0	5	0
G 473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	12	13	8	13	8
G 474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	7	9	0	9	0
G 475	G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	4	5	0	5	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		By-Task	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
G	476	G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	9	9	8	9	8	
M	477	H1-01 DO YOU USE OR REFER TO VARACTORS	12	15	0	15	0	
M	478	H1-02 DO YOU USE OR REFER TO TUNNEL DIODES	13	16	0	16	0	
M	479	H1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	25	27	15	27	15	SOLID-STATE SPECIAL PURPOSE DEVICES
M	480	H1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	12	13	8	13	8	
M	481	H1-05 DO YOU USE OR REFER TO ZENER DIODES	37	40	23	40	23	
M	482	H1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	47	55	15	55	15	
M	483	H2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	84	85	77	85	77	
M	484	H2-02 DO YOU INSPECT POWER SUPPLIES	71	69	77	69	77	
M	485	H2-03 DO YOU CLEAN POWER SUPPLIES	56	51	77	51	77	
M	486	H2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	74	73	77	73	77	POWER SUPPLIES
M	487	H2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	66	65	69	65	69	
M	488	H2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	51	47	69	47	69	
M	489	H2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	84	85	77	85	77	
M	490	H2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	50	44	77	44	77	
M	491	H2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	31	33	23	33	23	
M	492	H2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	34	35	31	35	31	
M	493	H2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	36	40	31	40	31	
M	494	H2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	26	25	31	25	31	
M	495	H2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	47	49	38	49	38	
M	496	H2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	35	38	23	38	23	
M	497	H2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	46	49	31	49	31	
M	498	H2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	47	51	31	51	31	
M	499	H2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	49	55	23	55	23	
M	500	H2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	29	33	15	33	15	
M	501	H2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	19	20	15	20	15	
M	502	H2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	32	35	23	35	23	
M	503	H2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	40	44	23	44	23	
M	504	H2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	24	25	15	25	15	
M	505	H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	25	27	15	27	15	
M	506	H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	15	16	8	16	8	
M	507	H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	15	16	8	16	8	
M	508	H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	13	15	8	15	8	
M	509	H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	13	15	8	15	8	
M	510	H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	22	24	15	24	15	
M	511	H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	3	4	0	4	0	
M	512	H3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	24	25	15	25	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
M 513	M3-02 DO YOU INSPECT OSCILLATORS	18	16	23	16	23	
M 514	M3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	21	20	23	20	23	
M 515	M3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	22	22	23	22	23	OSCILLATORS
M 516	M3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	7	7	8	7	8	
M 517	M3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	16	16	15	16	15	
M 518	M3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	6	7	0	7	0	
M 519	M3-08 DO YOU USE OR REFER TO FEEDBACK	18	20	8	20	8	
M 520	M3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	12	15	0	15	0	
M 521	M3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	16	20	0	20	0	
M 522	M3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	18	22	0	22	0	
M 523	M3-12 DO YOU USE OR REFER TO DAMPING	16	20	0	20	0	
M 524	M3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	18	20	8	20	8	
M 525	M3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	9	11	0	11	0	
M 526	M3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	7	9	0	9	0	
M 527	M3-16 DO YOU USE OR REFER TO UNDER DAMPING	6	7	0	7	0	
M 528	M3-17 DO YOU USE OR REFER TO OVER DAMPING	7	9	0	9	0	
M 529	M3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	12	13	8	13	8	
M 530	M3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	13	15	8	15	8	
M 531	M3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	16	18	8	18	8	
M 532	M3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	10	9	15	9	15	
M 533	M3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	9	11	0	11	0	
M 534	M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	10	13	0	13	0	
M 535	M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	10	13	0	13	0	
M 536	M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	3	4	0	4	0	
M 537	M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	3	4	0	4	0	
M 538	M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	16	15	23	15	23	
I 539	I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	22	25	8	25	8	
I 540	I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	19	24	0	24	0	
I 541	I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	24	27	0	27	0	
I 542	I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	19	24	0	24	0	MULTIVIBRATORS
I 543	I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	21	25	0	25	0	
I 544	I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	16	20	0	20	0	
I 545	I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	21	25	0	25	0	
I 546	I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	9	11	0	11	0	
I 547	I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	16	20	0	20	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
I 548	11-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	18	22	0	22	0	
I 549	11-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	19	24	0	24	0	
I 550	11-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDD	12	13	8	13	8	
I 551	11-13 DO YOU WORK WITH ASTABLE MULTIVIBRATORS	15	16	0	18	0	
I 552	11-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	18	22	0	22	0	
I 553	11-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS	18	22	0	22	0	
I 554	11-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	9	9	8	9	8	
I 555	12-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	29	27	0	27	8	
I 556	12-02 DO YOU WORK WITH SERIES DIODE LIMITERS	18	22	0	22	0	
I 557	12-03 DO YOU WORK WITH SHUNT DIODE LIMITERS	16	22	0	22	0	LIMITERS AND CLAMPERS
I 558	12-04 DO YOU WORK WITH LIMITERS WITH BIAS	7	9	0	9	0	
I 559	12-05 DO YOU WORK WITH ZENER DIODE LIMITERS	13	16	0	16	0	
I 560	12-06 DO YOU WORK WITH TRANSISTOR LIMITERS	12	15	0	15	0	
I 561	12-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	10	11	8	11	8	
I 562	12-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	12	15	0	15	0	
I 563	12-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	9	11	0	11	0	
I 564	12-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	12	13	8	13	8	
I 565	13-01 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	47	40	77	40	77	
I 566	13-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	38	29	77	29	77	
I 567	13-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	37	27	77	27	77	
I 568	13-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	22	18	38	18	38	ELECTRON TUBES
I 569	13-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES	22	22	23	22	23	
I 570	13-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	35	27	69	27	69	
I 571	13-07 DO YOU USE OR REFER TO CUTOFF	9	9	8	9	8	
I 572	13-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	6	7	0	7	0	
I 573	13-09 DO YOU USE OR REFER TO PEAK CURRENT RATING	6	7	0	7	0	
I 574	13-10 DO YOU USE OR REFER TO TRANSIT TIME	6	5	8	5	8	
I 575	13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING	4	5	0	5	0	
I 576	13-12 DO YOU USE OR REFER TO SATURATION	10	11	8	11	8	
I 577	13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE	4	5	0	5	0	
I 578	13-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	1	2	0	2	0	
I 579	13-15 DO YOU USE OR REFER TO PLATE VOLTAGE	26	24	38	24	38	
I 580	13-16 DO YOU USE OR REFER TO PLATE CURRENT	16	15	23	15	23	
I 581	13-17 DO YOU USE OR REFER TO GRID VOLTAGE	25	22	38	22	38	
I 582	13-18 DO YOU USE OR REFER TO GRID CURRENT	16	15	23	15	23	
I 583	13-19 DO YOU USE OR REFER TO CATHODE VOLTAGE	25	22	38	22	38	
I 584	13-20 DO YOU USE OR REFER TO CATHODE CURRENT	16	15	23	15	23	
I 585	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)	1	2	0	2	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
I 586	I3-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	1	2	0	2	0
I 587	I3-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	3	4	0	4	0
I 588	I3-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	1	2	0	2	0
I 589	I3-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	1	2	0	2	0
I 590	I3-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	0	0	0	0	0
I 591	I3-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	1	2	0	2	0
I 592	I3-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	1	2	0	2	0
I 593	I3-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	0	0	0	0	0
I 594	I3-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	0	0	0	0	0
I 595	I3-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	1	2	0	2	0
I 596	I3-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	3	4	0	4	0
I 597	I3-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	3	4	0	4	0
I 598	I3-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	15	16	8	16	8
I 599	I3-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	9	11	0	11	0
I 600	I3-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	19	16	31	16	31
I 601	I3-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	12	11	15	11	15
I 602	I3-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	15	15	15	15	15
I 603	I3-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	6	7	0	7	0
I 604	I3-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	3	4	0	4	0
I 605	I3-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	29	27	38	27	38
I 606	I3-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	31	25	54	25	54
I 607	I3-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE ELECTRON TUBES YOU WORK ON	6	7	0	7	0
I 608	I3-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	21	13	54	13	54
J 609	J1-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	19	16	23	16	23
J 610	J1-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	4	5	0	5	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	7	7	8	7	8	
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	12	13	8	13	8	ELECTRON TUBE AMPLIFIERS AND CIRCUITS
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	6	7	0	7	0	
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	9	11	0	11	0	
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DON'T KNOW WHICH TYPE OF AMPLIFIER	9	7	15	7	15	
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	29	22	31	22	31	
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	51	47	69	47	69	
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	7	5	15	5	15	
J 619	J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	10	5	31	5	31	SPECIAL PURPOSE ELECTRON TUBES
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	25	27	15	27	15	
J 621	J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	31	31	31	31	31	
J 622	J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	34	29	54	29	54	
J 623	J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	38	36	46	36	46	
J 624	J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	29	27	38	27	38	
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	35	31	54	31	54	
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	32	29	46	29	46	
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	19	29	0	29	0	
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	37	31	62	31	62	
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	16	20	0	20	0	
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	18	20	8	20	8	
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	18	20	8	20	8	
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	49	56	15	56	15	
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	19	22	8	22	8	
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	25	31	0	31	0	HETERODYNING, MODULATION, AND DEMODULATION
J 635	J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	19	29	0	29	0	
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	15	18	0	18	0	
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	21	25	0	25	0	
* 638	K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	7	9	0	9	0	
* 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	6	7	0	7	0	AM SYSTEMS
* 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	7	9	0	9	0	
* 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	7	9	0	9	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
K 642	K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	7	9	0	9	0	
K 643	K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	7	9	0	9	0	
K 644	K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	6	7	0	7	0	
K 645	K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	7	9	0	9	0	
K 646	K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	7	9	0	9	0	
K 647	K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	7	9	0	9	0	
K 648	K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	3	4	0	4	0	
K 649	K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	4	5	0	5	0	
K 650	K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	6	7	0	7	0	
K 651	K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	6	7	0	7	0	
K 652	K1-15 DO YOU PERFORM TASKS ON DETECTORS	7	9	0	9	0	
K 653	K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	1	2	0	2	0	
K 654	K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	4	5	0	5	0	
K 655	K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	6	7	0	7	0	
K 656	K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	9	11	0	11	0	
K 657	K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	6	7	0	7	0	
K 658	K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	3	4	0	4	0	
K 659	K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	3	4	0	4	0	
K 660	K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	1	2	0	2	0	
K 661	K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	1	2	0	2	0	
K 662	K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	6	7	0	7	0	
K 663	K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	6	7	0	7	0	
K 664	K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	7	9	0	9	0	
K 665	K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	7	9	0	9	0	
K 666	K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	13	16	0	16	0	FM SYSTEMS
K 667	K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	12	15	0	15	0	
K 668	K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	12	15	0	15	0	
K 669	K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	12	15	0	15	0	
K 670	K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	13	16	0	16	0	
K 671	K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	12	15	0	15	0	
K 672	K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	12	15	0	15	0	
K 673	K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	12	15	0	15	0	
K 674	K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	1	2	0	2	0	
K 675	K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	4	5	0	5	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
K 676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	7	9	0	9	0	
K 677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	7	9	0	9	0	
K 678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	7	9	0	9	0	
K 679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	3	4	0	4	0	
K 680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	12	15	0	15	0	
K 681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	4	5	0	5	0	
K 682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	10	13	0	13	0	
K 683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	12	15	0	15	0	
K 684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	13	16	0	16	0	
K 685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	31	38	0	38	0	
K 686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	34	42	0	42	0	NUMBERING SYSTEMS
K 687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	32	40	0	40	0	
K 688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	28	35	0	35	0	
K 689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	34	42	0	42	0	
K 690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	31	38	0	38	0	
K 691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	26	33	0	33	0	
K 692	K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	25	31	0	31	0	
K 693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	25	31	0	31	0	
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	22	27	0	27	0	
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	29	36	0	36	0	
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	22	27	0	27	0	
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	21	25	0	25	0	LOGIC FUNCTIONS
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	21	25	0	25	0	
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	21	25	0	25	0	
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	28	35	0	35	0	
L 701	K1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	28	35	0	35	0	
L 702	K1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	29	36	0	36	0	
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	29	36	0	36	0	
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	32	40	0	40	0	
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	32	40	0	40	0	
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	32	40	0	40	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
L 707	L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	32	40	0	40	0	
L 708	L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	15	18	0	18	0	
L 709	L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	4	5	0	5	0	BOOLEAN EQUATIONS
L 710	L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	6	7	0	7	0	
L 711	L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	7	9	0	9	0	
L 712	L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	10	13	0	13	0	
L 713	L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	7	9	0	9	0	
L 714	L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	9	11	0	11	0	
L 715	L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	7	9	0	9	0	
L 716	L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	6	7	0	7	0	
L 717	L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	15	18	0	18	0	
L 718	L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	7	9	0	9	0	
L 719	L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	7	9	0	9	0	
L 720	L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	13	16	0	16	0	
L 721	L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	13	16	0	16	0	
L 722	L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	13	16	0	16	0	
L 723	L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	15	18	0	18	0	
L 724	L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	12	15	0	15	0	
L 725	L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	16	20	0	20	0	
L 726	L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	15	18	0	18	0	
L 727	L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	12	15	0	15	0	
L 728	L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	12	15	0	15	0	
L 729	L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	12	15	0	15	0	
L 730	L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	12	15	0	15	0	
L 731	L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	12	15	0	15	0	
L 732	L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	10	13	0	13	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
L 733	L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	29	36	0	36	0	
L 734	L3-02 DO YOU USE OR REFER TO UP-COUNTERS	21	25	0	25	0	
L 735	L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	21	25	0	25	0	COUNTERS
L 736	L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	18	22	0	22	0	
L 737	L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	13	16	0	16	0	
L 738	L3-06 DO YOU USE OR REFER TO RING COUNTERS	7	9	0	9	0	
L 739	L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	13	16	0	16	0	
L 740	L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	7	9	0	9	0	
L 741	L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	22	27	0	27	0	
L 742	L3-10 DO YOU USE OR REFER TO UP CLOCKS	22	27	0	27	0	
L 743	L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	13	16	0	16	0	
L 744	L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	12	15	0	15	0	
L 745	L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	12	15	0	15	0	
L 746	L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	9	11	0	11	0	
L 747	L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	15	18	0	18	0	
L 748	L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	18	22	0	22	0	
L 749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	15	18	0	18	0	
L 750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	9	11	0	11	0	
L 751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	9	11	0	11	0	
L 752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTERS	9	11	0	11	0	
L 753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	10	13	0	13	0	
L 754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	7	9	0	9	0	
L 755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	7	9	0	9	0	
L 756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	7	9	0	9	0	
* 757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	44	49	23	49	23	
* 758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	26	29	8	29	8	
* 759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	31	35	15	35	15	TIMING CIRCUITS
* 760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	24	25	15	25	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
M 761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	44	51	15	51	15	
M 762	M1-06 DO YOU USE OR REFER TO RISE TIME	57	64	31	64	31	
M 763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	44	47	31	47	31	
M 764	M1-08 DO YOU USE OR REFER TO SWEEP TIME	54	58	38	58	38	
M 765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	43	45	31	45	31	
M 766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	37	38	31	38	31	
M 767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	37	38	31	38	31	
M 768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	37	38	31	38	31	
M 769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	29	31	23	31	23	
M 770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	29	31	23	31	23	USE OF SIGNAL GENERATORS
M 771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS [illegible], ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	26	29	15	29	15	
M 772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	16	18	15	16	15	
M 773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	9	9	8	9	8	
M 774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	18	20	0	20	0	
M 775	M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	12	15	0	15	0	
M 776	M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	18	20	8	20	8	
M 777	M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	19	22	8	22	8	
M 778	M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	22	25	8	25	8	
M 779	M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	38	29	77	29	77	
M 780	M3-02 DO YOU INSPECT MOTORS	34	24	77	24	77	MOTORS AND GENERATORS
M 781	M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	34	24	77	24	77	
M 782	M3-04 DO YOU OPERATE MOTORS	31	20	77	20	77	
M 783	M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	35	25	77	25	77	
M 784	M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	13	11	23	11	23	
M 785	M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	38	29	77	29	77	
M 786	M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	15	9	38	9	38	
M 787	M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	12	9	23	9	23	
M 788	M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	12	9	23	9	23	
M 789	M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	13	9	31	9	31	
M 790	M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	15	9	38	9	38	
M 791	M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	12	9	23	9	23	
M 792	M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS	10	7	23	7	23	
M 793	M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	9	5	23	5	23	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
M 794	M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	7	9	0	9	0	
M 795	M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	9	11	0	11	0	
M 796	M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	4	5	0	5	0	
M 797	M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	22	16	46	16	46	
M 798	M3-20 DO YOU WORK WITH INDUCTION MOTORS	21	18	31	18	31	
M 799	M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	12	9	23	9	23	
M 800	M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	25	22	38	22	38	
M 801	M3-23 DO YOU INSPECT GENERATORS	19	15	38	15	38	
M 802	M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	15	11	31	11	31	
M 803	M3-25 DO YOU OPERATE GENERATORS	16	13	31	13	31	
M 804	M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	19	16	31	16	31	
M 805	M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	7	7	8	7	8	
M 806	M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	22	18	38	18	38	
M 807	M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	6	5	8	5	8	
N 808	N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	71	71	69	71	69	
N 809	N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	18	18	15	18	15	
N 810	N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	21	24	8	24	8	METER MOVEMENTS
N 811	N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	15	16	8	16	8	
N 812	N1-05 DO YOU READ METER SCALES	75	76	69	76	69	
N 813	N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	29	35	8	35	8	
N 814	N1-07 DO YOU ZERO OHMMETERS	75	76	69	76	69	
N 815	N1-08 DO YOU ZERO AMMETERS	35	40	15	40	15	
N 816	N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	41	45	23	45	23	
N 817	N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	37	42	15	42	15	
N 818	N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	6	7	0	7	0	
N 819	N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	4	5	0	5	0	
N 820	N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	4	5	0	5	0	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS
N 821	N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	2	0	2	0	
N 822	N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	4	5	0	5	0	
N 823	N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	6	7	0	7	0	
N 824	N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
N	825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	1	2	0	2	0	
N	826	N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	3	4	0	4	0	
N	827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	4	5	0	5	0	
N	828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	6	7	0	7	0	
N	829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	0	0	0	0	0	
N	830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	0	0	0	0	0	
N	831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	0	0	0	0	0	
N	832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	1	2	0	2	0	
N	833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	4	5	0	5	0	
N	834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	46	51	23	51	23	
N	835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	18	20	8	20	8	
N	836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	41	45	23	45	23	
N	837	N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	31	33	23	33	23	
N	838	N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	43	47	23	47	23	WAVESHAPING CIRCUITS
N	839	N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	21	25	0	25	0	
N	840	N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	29	36	0	36	0	
N	841	N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	18	18	15	18	15	
N	842	N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION	10	13	0	13	0	
N	843	N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	18	20	8	20	8	
N	844	N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	13	15	8	15	8	
O	845	01-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	
O	846	01-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	1	2	0	2	0	
O	847	01-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	
O	848	01-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	SINGLE SIDEBAND SYSTEMS
O	849	01-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	
O	850	01-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	
O	851	01-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	
O	852	01-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
		BY-TSK						
0	853	01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0	
0	854	01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0	
0	855	01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0	0	0	
0	856	01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	0	
0	857	01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	0	
0	858	01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	0	
0	859	01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	0	
0	860	01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	0	
0	861	01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	0	
0	862	01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	0	
0	863	01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	0	0	0	0	0	
0	864	01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	0	
0	865	01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	0	
0	866	01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0	0	0	
0	867	01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	0	0	0	0	0	
0	868	01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	0	
0	869	01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0	
0	870	01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0	0	0	
0	871	01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	0	0	0	0	0	
0	872	01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	0	0	0	0	0	
0	873	01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0	
0	874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	
0	875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	31	35	15	35	15	
0	876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	26	31	8	31	8	
0	877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	24	27	8	27	8	PULSE MODULATION SYSTEMS
0	878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	24	27	8	27	8	
0	879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	34	38	15	38	15	
0	880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	28	31	15	31	15	
0	881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	32	36	15	36	15	
0	882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	26	31	8	31	8	
0	883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	18	20	8	20	8	
0	884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	15	16	8	16	8	
0	885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	6	7	0	7	0	
0	886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	3	4	0	4	0	
0	887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	6	5	8	5	8	
0	888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	15	16	8	16	8	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	26	29	15	29	15	
0 890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	12	13	8	13	8	
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	26	29	15	29	15	
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	16	18	8	18	8	
0 893	02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	21	22	15	22	15	
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	16	16	15	16	15	
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	21	22	15	22	15	
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	22	24	15	24	15	
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	16	16	15	16	15	
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	28	31	15	31	15	
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	21	22	15	22	15	
0 900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	29	33	15	33	15	
0 901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	19	20	15	20	15	
0 902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	7	9	0	9	0	
0 903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	34	36	15	36	15	
0 904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	16	18	8	18	8	
0 905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	29	33	15	33	15	
0 906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	24	27	8	27	8	
0 907	02-33 DO YOU USE OR REFER TO PEAK POWER	21	24	8	24	8	
0 908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	18	20	8	20	8	
0 909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	16	18	8	18	8	
0 910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	22	25	8	25	8	
0 911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	6	5	8	5	8	
0 912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	28	31	15	31	15	
0 913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	29	33	15	33	15	
0 914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	74	75	69	75	69	ANTENNAS
0 915	03-02 DO YOU INSPECT ANTENNAS	75	76	69	76	69	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
U 916	03-03 DO YOU CLEAN ANTENNAS	59	58	62	58	62
U 917	03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	72	76	54	76	54
U 918	03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	68	73	46	73	46
U 919	03-06 DO YOU TROUBLESHOOT TO ANTENNAS	72	73	69	73	69
U 920	03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	63	67	46	67	46
U 921	03-08 DO YOU REMOVE OR INSTALL ANTENNAS	76	82	54	82	54
U 922	03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	74	78	54	78	54
U 923	03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES	9	9	8	9	8
U 924	03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	7	9	0	9	0
U 925	03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS	7	9	0	9	0
U 926	03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS INDUCTIVE LOADS TO THE GENERATOR	7	9	0	9	0
U 927	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	7	9	0	9	0
U 928	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	6	7	0	7	0
U 929	03-16 DO YOU WORK WITH HERTZ ANTENNAS	9	11	0	11	0
U 930	03-17 DO YOU WORK WITH MARCONI ANTENNAS	1	2	0	2	0
U 931	03-18 DO YOU WORK WITH BROADSIDE ARRAYS	1	2	0	2	0
U 932	03-19 DO YOU WORK WITH END-FIRE ARRAYS	1	2	0	2	0
U 933	03-20 DO YOU WORK WITH CARDIOID ARRAYS	6	7	0	7	0
U 934	03-21 DO YOU WORK WITH COLLINEAR ARRAYS	6	7	0	7	0
U 935	03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	4	5	0	5	0
U 936	03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	4	5	0	5	0
U 937	03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	16	16	15	16	15
U 938	03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	6	7	0	7	0
U 939	03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	4	5	0	5	0
U 940	03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	3	4	0	4	0
U 941	03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	6	7	0	7	0
U 942	03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	4	5	0	5	0
U 943	03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	4	5	0	5	0
U 944	03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS	3	4	0	4	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
D	945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	4	5	0	5	0	
D	946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	4	5	0	5	0	
D	947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	9	11	0	11	0	
D	948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	32	29	46	29	46	
D	949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	22	24	15	24	15	
D	850	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	19	18	23	18	23	
D	851	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	29	27	38	27	38	
D	852	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	31	31	31	31	31	
P	953	PI-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS BETWEEN RECEIVERS AND ANTENNAS, TELEPHONE LEADS, AS WELL AS HIGH VOLTAGE POWER LINES, ETC. DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES	13	13	15	13	15	TRANSMISSION LINES
P	954	PI-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES	1	2	0	2	0	
P	955	PI-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	4	5	0	5	0	
P	956	PI-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	1	2	0	2	0	
P	957	PI-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	1	2	0	2	0	
P	958	PI-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	4	5	0	5	0	
P	959	PI-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	3	4	0	4	0	
P	960	PI-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	3	4	0	4	0	
P	961	PI-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	1	2	0	2	0	
P	962	PI-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	9	7	15	7	15	
P	963	PI-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	4	4	8	4	8	
P	964	PI-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	10	11	8	11	8	
P	965	PI-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	3	4	0	4	0	
P	966	PI-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	6	5	8	5	8	
P	967	PI-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	4	5	0	5	0	
P	968	PI-16 DO YOU MEASURE STANDING WAVE RATIOS (SR) OF TRANSMISSION LINES	4	5	0	5	0	
P	969	PI-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	3	4	0	4	0	
P	970	PI-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS	3	4	0	4	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
P 971	P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	3	4	0	4	0	
P 972	P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	3	4	0	4	0	
P 973	P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	1	2	0	2	0	
P 974	P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	3	4	0	4	0	
P 975	P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	1	2	0	2	0	
P 976	P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	3	4	0	4	0	
P 977	P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	1	2	0	2	0	
P 978	P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	1	2	0	2	0	
P 979	P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	3	4	0	4	0	
P 980	P1-28 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	4	4	8	4	8	
P 981	P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	1	2	0	2	0	
P 982	P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	6	5	8	5	8	
P 983	P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	4	5	0	5	0	
P 984	P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	71	75	54	75	54	
P 985	P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	68	73	46	73	46	
P 986	P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	51	56	31	56	31	
P 987	P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	13	16	0	16	0	
P 988	P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	9	11	0	11	0	WAVEGUIDES AND
P 989	P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	71	76	46	76	46	CAVITY RESONATORS
P 990	P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	18	22	0	22	0	
P 991	P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	51	56	31	56	31	
P 992	P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	63	69	38	69	38	
P 993	P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	66	71	46	71	46	
P 994	P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	60	64	46	64	46	
P 995	P2-12 DO YOU REMOVE OR INSTALL E BENDS	19	24	0	24	0	
P 996	P2-13 DO YOU REMOVE OR INSTALL H BENDS	18	22	0	22	0	
P 997	P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	35	44	0	44	0	
P 998	P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	7	9	0	9	0	
P 999	P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	10	9	15	9	15	
P1000	P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	35	40	15	40	15	
P1001	P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	19	22	8	22	8	
P1002	P2-19 DO YOU USE OR REFER TO MAP MALL OF WAVEGUIDES	6	7	0	7	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
P1003	P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES	6	7	0	7	0
P1004	P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	9	11	0	11	0
P1005	P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	6	7	0	7	0
P1006	P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	4	5	0	5	0
P1007	P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	4	5	0	5	0
P1008	P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	6	7	0	7	0
P1009	P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	9	9	8	9	8
P1010	P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OF .7 WAVELENGTHS OF THE OPERATING FREQUENCY	3	4	0	4	0
P1011	P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 USED AS AN AVERAGE	4	5	0	5	0
P1012	P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	10	11	8	11	8
P1013	P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	3	4	0	4	0
P1014	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	4	5	0	5	0
P1015	P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES	6	7	0	7	0
P1016	P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES	4	5	0	5	0
P1017	P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES	4	5	0	5	0
P1018	P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	15	16	0	16	0
P1019	P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	13	16	0	16	0
P1020	P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	7	9	0	9	0
P1021	P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	29	35	8	35	8
P1022	P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	22	20	31	20	31
P1023	P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	2	0	2	0
P1024	P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	2	0	2	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
P1025	P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	2	0	2	0	
P1026	P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	9	11	0	11	0	
P1027	P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	26	25	31	25	31	
P1028	P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	32	33	31	33	31	
P1029	P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	9	11	0	11	0	
P1030	P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	12	15	0	15	0	
P1031	P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	12	15	0	15	0	
P1032	P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	24	20	38	20	38	
P1033	P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	28	29	23	29	23	
P1034	P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	37	35	46	35	46	
P1035	P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	6	7	0	7	0	MICROWAVE AMPLIFIERS AND OSCILLATORS
P1036	P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	4	5	0	5	0	
P1037	P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	4	5	0	5	0	
P1038	P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	10	13	0	13	0	
P1039	P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	6	7	0	7	0	
P1040	P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	4	5	0	5	0	
P1041	P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	10	9	15	9	15	
P1042	P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	3	2	8	2	8	
P1043	P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	26	29	15	29	15	
P1044	P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	4	4	8	4	8	
P1045	P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	1	2	0	2	0	
P1046	P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	1	2	0	2	0	
P1047	P3-14 DO YOU WORK WITH MAGNETRONS	40	38	46	38	46	
P1048	P3-15 DO YOU INSPECT KLYSTRONS OR TWT	22	22	23	22	23	
P1049	P3-16 DO YOU CLEAN KLYSTRONS OR TWT	16	16	15	16	15	
P1050	P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	26	27	23	27	23	
P1051	P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	16	16	15	16	15	
P1052	P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	29	31	23	31	23	
P1053	P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	22	22	23	22	23	
P1054	P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	29	29	31	29	31	
P1055	P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	3	4	0	4	0	
P1056	P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	1	2	0	2	0	
P1057	P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	1	2	0	2	0	
P1058	P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	1	2	0	2	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005
P1059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	1	2	0	2	0
P1060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	1	2	0	2	0
P1061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	1	2	0	2	0
P1062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	1	2	0	2	0
P1063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0	0	0
P1064 P3-31 DO YOU INSPECT MAGNETRONS	29	29	31	29	31
P1065 P3-32 DO YOU CLEAN MAGNETRONS	21	22	15	22	15
P1066 P3-33 DO YOU ADJUST MAGNETRONS	29	31	23	31	23
P1067 P3-34 DO YOU TUNE MAGNETRONS	26	27	23	27	23
P1068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	31	35	15	35	15
P1069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	28	31	15	31	15
P1070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	28	29	23	29	23
P1071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	4	5	0	5	0
P1072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	3	4	0	4	0
P1073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	3	4	0	4	0
P1074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	3	4	0	4	0
P1075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	3	4	0	4	0
P1076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	1	2	0	2	0
P1077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	1	2	0	2	0
P1078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	1	2	0	2	0
P1079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	3	4	0	4	0
P1080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	4	5	0	5	0
P1081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	13	16	0	16	0
P1082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	12	15	0	15	0
P1083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	7	9	0	9	0
P1084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	13	16	0	16	0
P1085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	7	9	0	9	0
P1086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	12	15	0	15	0
P1087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	12	15	0	15	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
P1088	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	9	11	0	11	0	
P1089	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	3	4	0	4	0	
P1090	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	3	4	0	4	0	
P1091	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	1	2	0	2	0	
P1092	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	1	2	0	2	0	
P1093	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	1	2	0	2	0	
P1094	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	1	2	0	2	0	
P1095	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0	0	0	
P1096	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	0	0	0	0	0	
P1097	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	3	4	0	4	0	
P1098	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	3	4	0	4	0	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	0	0	0	0	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	3	4	0	4	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	6	7	0	7	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0	0	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	4	5	0	5	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	4	5	0	5	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	3	4	0	4	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	3	4	0	4	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	4	5	0	5	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATHODES	3	4	0	4	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	6	7	0	7	0	
41110	41-01 DO YOU USE OR REFER TO STORAGE REGISTERS	35	44	0	44	0	
41111	41-02 DO YOU USE OR REFER TO SHIFT REGISTERS	35	44	0	44	0	
41112	41-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	31	38	0	38	0	REGISTERS
41113	41-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	31	38	0	38	0	
41114	41-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	24	29	0	29	0	
41115	41-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	24	27	8	27	8	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	QY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
Q1116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	16	20	0	20	0	
Q1117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	26	33	0	33	0	
Q1118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	7	9	0	9	0	STORAGE DEVICES
Q1119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	25	31	0	31	0	
Q1120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	4	5	0	5	0	
Q1121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	10	13	0	13	0	
Q1122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OF MEMORY SYSTEMS	22	27	0	27	0	
Q1123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	24	29	0	29	0	
Q1124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	7	9	0	9	0	
Q1125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	6	7	0	7	0	
Q1126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D) CONVERTERS, OR BINARY-TO-DECIMAL READOUT CONVERTERS	26	33	0	33	0	
Q1127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	7	9	0	9	0	DIGITAL TO ANALOG CONVERTERS
Q1128	Q3-03 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	7	9	0	9	0	
Q1129	Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	10	13	0	13	0	
Q1130	Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	9	0	9	0	
Q1131	Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	9	11	0	11	0	
Q1132	Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	9	0	9	0	
Q1133	Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	9	0	9	0	
Q1134	Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	9	0	9	0	
Q1135	Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	7	9	0	9	0	
Q1136	Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	9	11	0	11	0	
Q1137	Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	9	11	0	11	0	
Q1138	Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	9	11	0	11	0	
Q1139	Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	12	15	0	15	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	29	31	23	31	23	PHANTASTRONS
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	18	20	8	20	8	
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	13	15	8	15	8	SCHMITT TRIGGERS
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	10	13	0	13	0	
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	35	35	38	35	38	CABLE FABRICATION
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	54	51	69	51	69	
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	49	56	15	56	15	
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	9	11	0	11	0	INPUT/OUTPUT DEVICES
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	6	7	0	7	0	
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	24	24	23	24	23	PHOTO SENSITIVE DEVICES
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	9	11	0	11	0	
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	7	9	0	9	0	
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	6	7	0	7	0	
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	7	9	0	9	0	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	6	7	0	7	0	
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	10	13	0	13	0	
S1156	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	10	13	0	13	0	
S1157	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	12	15	0	15	0	
S1158	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	10	13	0	13	0	
T1159	T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	68	84	0	84	0	
T1160	T1-02 DO YOU INSPECT INFRARED SYSTEMS	62	76	0	76	0	
T1161	T1-03 DO YOU CLEAN INFRARED SYSTEMS	59	73	0	73	0	INFRARED
T1162	T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	38	47	0	47	0	
T1163	T1-05 DO YOU OPERATE INFRARED SYSTEMS	66	82	0	82	0	
T1164	T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	66	82	0	82	0	
T1165	T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	66	82	0	82	0	
T1166	T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	37	45	0	45	0	
T1167	T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	63	78	0	78	0	
T1168	T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	38	47	0	47	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	6	7	0	7	0	
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	6	7	0	7	0	
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	4	5	0	5	0	
T1172	T1-14 DO YOU USE OR REFER TO MICRON	9	11	0	11	0	
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	10	13	0	13	0	
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	38	47	0	47	0	
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	19	24	0	24	0	
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	6	7	0	7	0	
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	40	49	0	49	0	
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	1	2	0	2	0	
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	1	2	0	2	0	
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	3	4	0	4	0	
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	3	4	0	4	0	
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	4	5	0	5	0	
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	7	9	0	9	0	
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	3	4	0	4	0	
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	12	15	0	15	0	
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	LASERS
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
T1210	T2-25 DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	0	0	0	0	0	
T1211	T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	
T1212	T2-27 DO YOU WORK WITH RUBY	0	0	0	0	0	
T1213	T2-28 DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	
T1214	T2-29 DO YOU WORK WITH HELIUM-XENON	0	0	0	0	0	
T1215	T2-30 DO YOU WORK WITH XENON	0	0	0	0	0	
T1216	T2-31 DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	
T1217	T2-32 DO YOU WORK WITH ARGON	0	0	0	0	0	
T1218	T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	
T1219	T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	0	0	0	0	0	
T1220	T3-01 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	18	20	8	20	8	
T1221	T3-02 DO YOU INSPECT DVST OR MMST	15	18	0	18	0	
T1222	T3-03 DO YOU CLEAN DVST OR MMST	12	15	0	15	0	DISPLAY TUBES
T1223	T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	9	11	0	11	0	
T1224	T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	18	20	8	20	8	
T1225	T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	12	15	0	15	0	
T1226	T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	9	11	0	11	0	
T1227	T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	6	7	0	7	0	
T1228	T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	3	4	0	4	0	
T1229	T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	6	7	0	7	0	
T1230	T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	6	7	0	7	0	
T1231	T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	1	2	0	2	0	
T1232	T3-13 DO YOU PERFORM TASKS ON ERASE GUNS	6	7	0	7	0	
T1233	T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	6	7	0	7	0	
U1234	U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	25	31	0	31	0	
U1235	U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	22	27	0	27	0	
U1236	U1-03 DO YOU USE OR REFER TO PROGRAMS	21	25	0	25	0	PROGRAMMING
U1237	U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	19	24	0	24	0	
U1238	U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	10	13	0	13	0	
U1239	U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS	7	9	0	9	0	
U1240	U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS	26	33	0	33	0	
U1241	U1-08 DO YOU USE OR REFER TO TIME-SHARING	6	7	0	7	0	
U1242	U1-09 DO YOU USE OR REFER TO DATA WORDS	18	22	0	22	0	
U1243	U1-10 DO YOU USE OR REFER TO ADDRESS WORDS	24	29	0	29	0	
U1244	U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	19	24	0	24	0	
U1245	U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION	9	11	0	11	0	
U1246	U1-13 DO YOU USE OR REFER TO INFORMATION WORDS	16	20	0	20	0	
U1247	U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	18	22	0	22	0	
U1248	U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	9	11	0	11	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	
01249	01-16 DO YOU PERFORM TASKS ON INPUT DEVICES	18	22	0	22	0	
01250	01-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	19	24	0	24	0	
01251	01-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	18	22	0	22	0	
01252	01-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	22	27	0	27	0	
01253	01-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	22	27	0	27	0	
01254	01-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	24	29	0	29	0	
01255	02-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	32	36	15	36	15	
01256	02-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	1	2	0	2	0	DB AND POWER RATIOS
01257	02-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	3	4	0	4	0	
01258	02-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	4	2	15	2	15	

AD-A046 097 AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9
BOMB-NAVIGATION SYSTEMS MECHANIC AFSC 32150K/L.(U)
SEP 77 T J O'CONNOR, L J TAUSCHER

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INFORMATION

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A046 097

REPORT DOCUMENTATION PAGE

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Avionics
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Electronic technicians
Electronics
Air Force training
Teaching methods
Training

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This report summarixes the results of the administration of the Electronic Principles Inventory to airmen assigned as Bomb-Navigation Systems Mechanic (AFSC 32150K/L). This report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.

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This specialty has the following functions:

Isolates unit malfunctions and performs organizational and field maintenance on bomb-navigation systems assemblies. Performs organizational and field maintenance on bomb navigation systems and equipment components. Checks operation of and performs maintenance on optical stabilization systems. Checks operation of and performs maintenance on bomb-navigation computer, associated radar systems, and electro-optical viewing systems. Supervises bomb-navigation systems personnel.