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ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT, ELECTRONIC WA--ETC(U)
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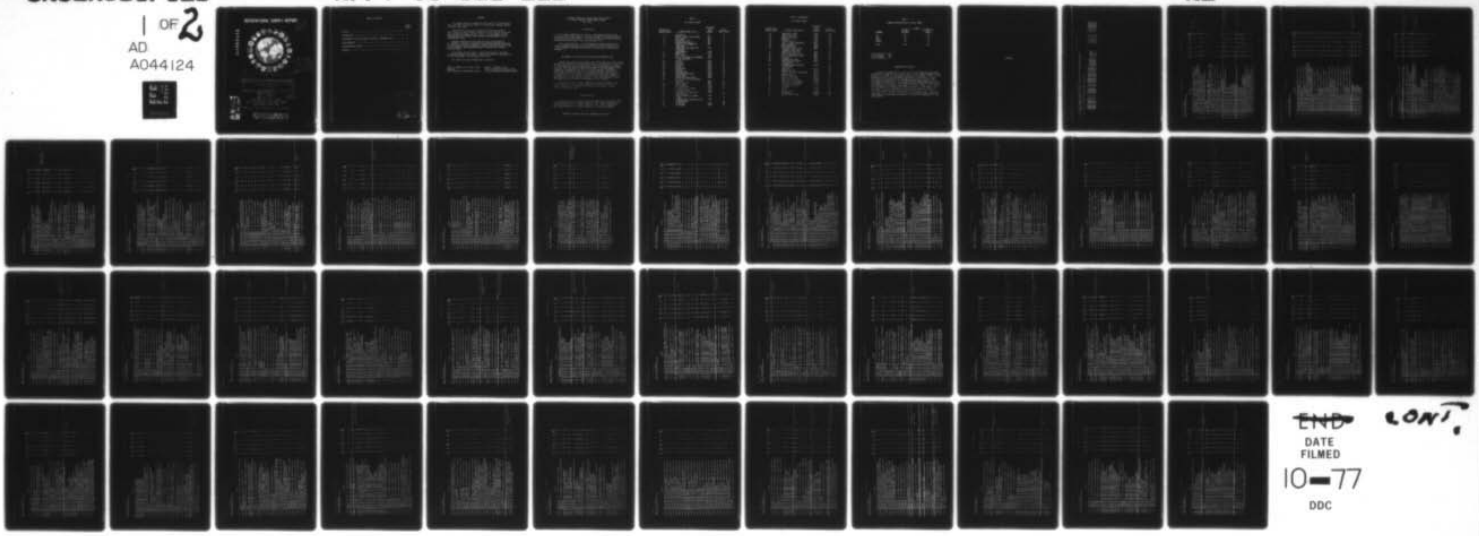

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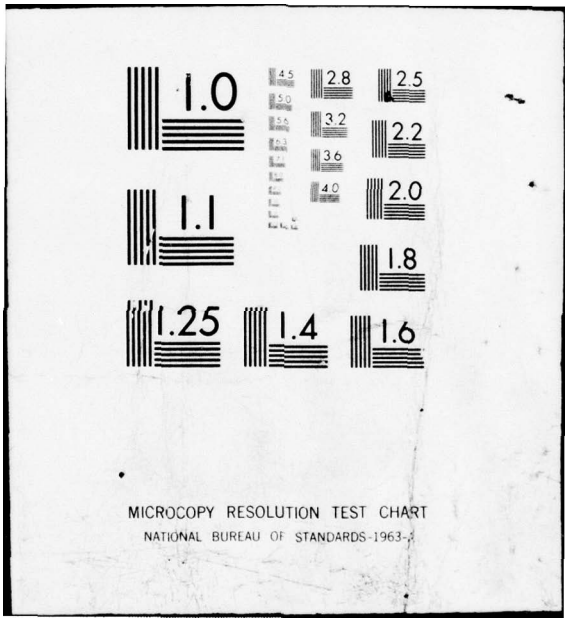
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OCCUPATIONAL SURVEY REPORT.

(9) Rept. for Oct 76 - Jan 77.

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ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
ELECTRONIC WARFARE SYSTEMS
CAREER LADDER
AFSC 328X3.

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OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

TABLE OF CONTENTS

PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Electronic Warfare Systems Specialty, AFSC 328X3.

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 David S. Street. 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
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ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
ELECTRONIC WARFARE SYSTEMS CAREER LADDER
AFSC 328X3

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned to Electronic Warfare Systems Specialty (AFSC 328X3). The data for this report were collected during the period October 1976 through January 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 32853 airmen worldwide. Responses from 422 individuals represented 25 percent of the total of all AFSC 32853 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	9
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	12
15	RELAYS	E294	12
16	MICROPHONES	F314	13
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	14
20	TRANSISTORS	G404	16
21	TRANSISTOR AMPLIFIERS	G428	17
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	20
25	MULTIVIBRATORS	I539	21
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	23
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	24
31	AM SYSTEMS	K638	24
32	FM SYSTEMS	K666	25

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	26
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	28
38	USE OF SIGNAL GENERATORS	M769	28
39	METER MOVEMENTS	M779	29
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	30
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	0845	31
44	PULSE MODULATION SYSTEMS	0875	32
45	ANTENNAS	0914	33
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	36
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	38
49	REGISTERS	Q1110	40
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	42
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	44
62	DB AND POWER RATIOS	U1255	44

TABLE 2

COMMAND REPRESENTATION OF SURVEY SAMPLE

	32853	
COMMAND	PERCENT ASSIGNED	PERCENT OF SAMPLE
SAC	33	42
TAC	27	36
USAFE	12	6
OTHERS	28	16
TOTAL	100	100

Total Assigned - 1,664
Total Sampled - 422
Percent Sampled - 25

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 six selected groups identified for this report. Pages 2-45 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 pages 6-7 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Soldering (p. 13) or Oscilloscopes (pp. 14-15) to low in areas such as Lasers (pp. 43-44). Additional 32853 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX A

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 328X3 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY = SPC001	ALL AIRMEN DAFSC 32853		CONTAINING	422 MEMBERS.
GROUP IDENTITY = SPC002	ALL AIRMEN DAFSC 32853	STATIONED IN CONUS	CONTAINING	361 MEMBERS.
GROUP IDENTITY = SPC003	ALL AIRMEN DAFSC 32853	STATIONED OVERSEAS	CONTAINING	60 MEMBERS.
GROUP IDENTITY = SPC004	ALL AIRMEN DAFSC 32853	ASSIGNED TO SAC	CONTAINING	176 MEMBERS.
GROUP IDENTITY = SPC005	ALL AIRMEN DAFSC 32853	ASSIGNED TO TAC	CONTAINING	150 MEMBERS.
GROUP IDENTITY = SPC006	ALL AIRMEN DAFSC 32853	ASSIGNED TO USAFE	CONTAINING	27 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
A	1	A1-01 DO YOU USE AN INSTRUMENT, SUCH AS METER OR AN OSCILLOSCOPE, IN WHICH IT IS NECESSARY TO AMPLIFY OR	77	77	78	74	83	89	MATHEMATICS
A	2	A1-02 DO YOU USE A PUBLICATION, SUCH AS A TECHNICAL ORDER OR MAINTENANCE MANUAL, IN WHICH IT IS NECESSARY	45	46	42	43	53	44	
A	3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	33	34	28	32	39	26	
A	4	A1-04 DO YOU FIND THE SQUARE ROOT OF A QUANTITY.	8	8	7	6	9	4	
A	5	A1-05 DO YOU SOLVE FOR AN UNKNOWN QUANTITY.	26	26	27	24	31	30	
A	6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	5	6	0	3	8	0	
A	7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	8	10	0	7	13	0	
A	8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	5	5	2	5	5	4	
A	9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS (THIS IS THE LOGARITHM SYSTEM WHICH USES THE NUMBER 2.718 AS	3	3	0	1	5	0	
A	10	A1-10 DO YOU WORK WITH VECTOR QUANTITIES, SUCH AS ADDING OR SUBTRACTING TWO VECTORS.	6	7	5	7	6	4	
A	11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	5	5	7	4	7	4	
A	12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES, SUCH AS AREAS OF CIRCLES OR TRIANGLES.	2	2	3	2	1	0	
A	13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	5	5	3	5	4	7	
A	14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	15	16	5	15	18	4	
A	15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT.	91	91	90	89	95	93	
A	16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	26	28	13	23	31	11	DIRECT CURRENT AND VOLTAGE
A	17	A2-03 DO YOU USE THE TERM OHM.	89	89	87	89	91	93	
A	18	A2-04 DO YOU USE THE TERM ION.	9	11	0	11	10	0	
A	19	A2-05 DO YOU USE THE TERM DYNE.	7	8	2	6	10	4	
A	20	A2-06 DO YOU USE THE TERM AMPERE.	84	84	80	83	89	93	
A	21	A2-07 DO YOU USE THE TERM NEUTRON.	9	11	0	9	10	0	
A	22	A2-08 DO YOU USE THE TERM COULOMB.	10	12	2	9	14	0	
A	23	A2-09 DO YOU USE THE TERM PROTON.	9	11	0	9	11	0	
A	24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	73	72	73	64	87	89	
A	25	A3-02 DO YOU INSPECT RESISTORS.	73	73	70	62	90	93	RESISTANCE
A	26	A3-03 DO YOU CLEAN RESISTORS.	51	53	40	45	62	59	
A	27	A3-04 DO YOU ADJUST RESISTORS.	77	77	73	68	93	89	
A	28	A3-05 DO YOU CHECK OHMIC VALUE OF RESISTORS.	72	72	73	64	85	89	
A	29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	70	70	73	59	85	96	
A	30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS IN YOUR PRESENT JOB.	18	20	7	20	19	11	
A	31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS, SUCH AS FOR FIXED RESISTORS OR FOR TAPPED RESISTORS.	71	73	63	66	84	89	
A	32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT OR	67	68	62	63	76	85	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
A	33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE OHMIC VALUE OF RESISTANCE.	67	68	60	63	75	85	
A	34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE TOLERANCE OF RESISTORS.	55	57	40	55	59	48	
A	35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE FAILURE RATE OF RESISTORS.	19	20	10	19	19	15	
A	36	A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO	18	18	18	18	17	19	
A	37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT ANY OF THE FOLLOWING COMPONENTS: BATTERY,	77	78	77	71	89	93	
A	38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	36	37	25	36	41	22	
A	39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	30	32	22	32	33	19	
A	40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	35	37	23	35	41	26	
A	41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	26	27	18	27	29	19	
A	42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	34	35	23	34	38	22	
A	43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	29	30	18	31	31	19	
A	44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	31	33	20	32	35	22	
A	45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	26	27	18	26	28	22	
A	46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	25	26	17	26	27	19	
A	47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	33	35	25	35	36	26	
A	48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	28	29	20	30	29	22	
A	49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	31	33	22	32	36	26	
A	50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	24	26	15	24	28	19	
A	51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	23	24	13	24	25	15	
B	52	B1-01 DO YOU MEASURE RESISTANCE.	87	86	93	82	93	96	
B	53	B1-02 DO YOU REPAIR AN OHMMETER.	5	6	2	5	7	4	MULTIMETER USES
B	54	B1-03 DO YOU MEASURE VOLTAGE.	89	87	97	83	94	100	
B	55	B1-04 DO YOU REPAIR A VOLTMETER.	4	4	2	4	3	4	
B	56	B1-05 DO YOU REPAIR AN AMMETER.	4	4	2	3	5	4	
B	57	B1-06 DO YOU MEASURE CURRENT.	70	71	63	69	79	67	
B	58	B1-07 DO YOU USE A MULTIMETER.	91	90	95	86	95	96	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
B	59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	3	4	2	2	6	0	
B	60	B1-09 DO YOU READ SCHEMATICS.	87	87	92	84	93	96	
B	61	B2-01 DO YOU USE OR REFER THE TERM EFFECTIVE VOLTAGE (RMS).	57	59	45	58	63	48	ALTERNATING CURRENT
B	62	B2-02 DO YOU USE OR REFER THE TERM PEAK TO PEAK VOLTAGE.	67	67	65	61	78	78	
B	63	B2-03 DO YOU USE OR REFER THE TERM AVERAGE VOLTAGE (DC).	66	66	65	61	76	74	
B	64	B2-04 DO YOU USE OR REFER THE TERM WAVE LENGTH.	50	52	38	49	61	41	
B	65	B2-05 DO YOU USE OR REFER THE TERM FREQUENCY.	82	83	72	82	90	85	
B	66	B2-06 DO YOU USE OR REFER THE TERM INSTANTANEOUS VALUE.	27	28	27	27	29	30	
B	67	B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	52	54	40	50	61	52	INDUCTORS AND INDUCTIVE REACTANCE
B	68	B3-02 DO YOU INSPECT INDUCTORS.	46	49	30	45	53	41	
B	69	B3-03 DO YOU CLEAN INDUCTORS.	35	38	18	36	37	30	
B	70	B3-04 DO YOU ADJUST INDUCTORS.	36	39	15	40	35	15	
B	71	B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	46	49	32	43	54	44	
B	72	B3-06 DO YOU USE OR REFER TO INDUCTANCE.	39	42	18	39	46	26	
B	73	B3-07 DO YOU USE OR REFER TO HENRIES.	27	29	15	26	31	15	
B	74	B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	28	29	17	28	31	22	
B	75	B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	8	9	5	6	11	11	
B	76	B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	8	9	5	8	9	11	
B	77	B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.	8	9	7	6	11	15	
B	78	B3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE	9	9	7	9	9	11	
B	79	B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE	8	8	5	7	8	7	
B	80	B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO	7	7	5	6	8	7	
B	81	B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE	6	7	3	6	7	4	
B	82	B3-16 DO YOU CALCULATE INDUCTANCE FOR A PARTICULAR INDUCTOR USING FORMULAS.	7	7	5	7	9	7	
B	83	B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES.	9	9	7	6	11	11	
B	84	B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	9	9	8	6	11	15	
B	85	B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	8	9	7	6	10	11	
B	86	B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	17	19	7	17	20	7	
B	87	B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	9	8	10	7	9	11	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
B	88	B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO	14	14	13	14	15	15	
B	89	B3-23 DO YOU WORK WITH POWER INDUCTORS.	28	29	25	30	27	41	
B	90	B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	27	29	15	25	33	26	
B	91	B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	37	40	20	38	42	33	
C	92	C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS ON YOUR PRESENT JOB.	66	67	60	59	79	74	CAPACITORS AND CAPACITIVE REACTANCE
C	93	C1-02 DO YOU INSPECT CAPACITORS.	63	64	55	54	77	78	
C	94	C1-03 DO YOU CLEAN CAPACITORS.	45	48	28	44	52	44	
C	95	C1-04 DO YOU ADJUST CAPACITORS.	43	47	18	45	48	26	
C	96	C1-05 DO YOU TEST CAPACITORS.	55	57	40	46	71	52	
C	97	C1-06 DO YOU DISCHARGE CAPACITORS.	51	55	32	49	61	37	
C	98	C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	63	64	58	53	79	81	
C	99	C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	17	18	7	18	16	11	
C	100	C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	3	3	2	1	5	4	
C	101	C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	56	58	45	53	67	70	
C	102	C1-11 DO YOU USE OR REFER TO CAPACITANCE.	57	58	47	55	65	70	
C	103	C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT.	10	11	5	11	10	4	
C	104	C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS.	42	44	32	42	47	41	
C	105	C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE.	24	25	15	21	29	22	
C	106	C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES.	23	24	15	26	23	15	
C	107	C1-16 THE CAPACITORS YOU WORK WITH IN DC CIRCUITS.	64	64	60	56	77	78	
C	108	C1-17 THE CAPACITORS YOU WORK WITH ARE IN AC CIRCUITS.	60	61	58	56	67	74	
C	109	C1-18 THE CAPACITORS YOU WORK WITH ARE IN CIRCUITS WITH BOTH DC AND AC.	59	60	53	53	71	67	
C	110	C1-19 THE CAPACITORS YOU WORK WITH ARE DON'T REMEMBER WHICH CIRCUITS.	15	15	15	15	15	19	
C	111	C1-20 DO YOU CALCULATE CAPACITANCE FOR A PARTICULAR CAPACITOR USING FORMULAS.	6	7	3	7	6	0	
C	112	C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL	4	5	2	2	5	0	
C	113	C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL	5	5	3	3	5	4	
C	114	C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES.	12	12	8	9	15	7	
C	115	C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL.	12	12	8	9	14	7	
C	116	C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS.	12	12	10	9	13	11	
C	117	C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY	26	28	17	24	32	22	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
C 118	C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS.	18	19	8	16	23	7	
C 119	C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO	15	15	13	11	19	19	
C 120	C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE.	10	10	8	8	12	7	
C 121	C1-30 DO YOU WORK WITH ROTOR-STATOR CAPACITORS (VARIABLE).	32	35	13	38	32	19	
C 122	C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS.	35	39	15	38	37	22	
C 123	C1-32 DO YOU WORK WITH ELECTROLYTIC CAPACITORS (FIXED).	57	58	50	51	67	70	
C 124	C1-33 DO YOU WORK WITH PAPER CAPACITORS (FIXED).	47	48	38	44	54	56	
C 125	C1-34 DO YOU WORK WITH MICA CAPACITORS (FIXED).	52	53	42	48	59	59	
C 126	C1-35 DO YOU WORK WITH CERAMIC CAPACITORS (FIXED).	54	54	50	47	63	63	
C 127	C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS.	19	19	18	15	25	22	
C 128	C2-01 DO YOU WORK WITH TRANSFORMERS ON YOUR PRESENT JOB.	54	55	43	51	63	52	
C 129	C2-02 DO YOU INSPECT TRANSFORMERS.	51	52	40	48	57	59	TRANSFORMERS
C 130	C2-03 DO YOU CLEAN TRANSFORMERS.	38	41	23	41	38	37	
C 131	C2-04 DO YOU ADJUST TRANSFORMERS.	29	32	7	30	31	11	
C 132	C2-05 DO YOU TROUBLESHOOT TRANSFORMERS.	47	47	43	44	49	63	
C 133	C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS.	52	53	45	48	59	63	
C 134	C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING.	6	7	3	4	7	4	
C 135	C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M).	4	4	2	2	5	4	
C 136	C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M.	3	3	3	1	4	4	
C 137	C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS.	7	7	5	6	7	11	
C 138	C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS.	8	9	3	7	8	7	
C 139	C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS.	7	8	2	5	9	4	
C 140	C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS.	5	5	2	4	5	4	
C 141	C2-14 DO YOU WORK WITH AUTOTRANSFORMERS.	20	22	7	22	21	7	
C 142	C2-15 DO YOU WORK WITH POWER TRANSFORMERS.	50	51	42	46	56	56	
C 143	C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS.	30	32	13	30	32	15	
C 144	C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS.	34	38	10	38	36	15	
C 145	C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMER.	14	14	13	12	17	19	
C 146	C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE.	49	50	40	44	57	52	
C 147	C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE.	44	45	38	40	51	48	
C 148	C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES.	45	46	43	42	51	59	
C 149	C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR	17	19	8	19	17	4	

PCT MEMBERS RESPONDING "YES" BY SELECTED SPC — GROUP PAGE 1

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
C 150	C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-	24	26	15	26	25	15	
C 151	C2-24 DO YOU REFER TO THE BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS.	53	54	45	50	60	63	
C 152	C2-25 DO YOU REFER TO THE MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS.	47	48	40	47	49	56	
C 153	C2-26 DO YOU REFER TO THE MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS.	47	48	42	47	49	63	
C 154	C2-27 DO YOU REFER TO THE CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS.	50	51	42	47	55	63	
C 155	C2-28 DO YOU REFER TO THE AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	31	33	18	34	31	19	
C 156	C2-29 DO YOU REFER TO THE IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	35	36	30	39	32	37	
C 157	C2-30 DO YOU REFER TO THE COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	41	42	32	42	42	33	
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING	28	29	20	24	32	26	
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH.	17	18	5	17	17	7	
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	16	17	12	15	19	15	
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS.	24	25	17	20	30	26	
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS.	10	11	7	7	13	7	
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS.	7	7	5	6	7	4	
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH 3 PHASE TRANSFORMERS.	43	44	40	38	51	56	
C 165	C2-38 DO YOU INSPECT 3 PHASE TRANSFORMERS.	36	37	32	35	37	44	
C 166	C2-39 DO YOU CLEAN OR LUBRICATE 3 PHASE TRANSFORMERS.	22	23	15	23	20	22	
C 167	C2-40 DO YOU ADJUST 3 PHASE TRANSFORMERS.	16	19	3	17	16	7	
C 168	C2-41 DO YOU TROUBLESHOOT 3 PHASE TRANSFORMERS.	36	36	33	34	37	44	
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE 3 PHASE TRANSFORMER.	37	38	35	33	42	44	
C 170	C2-43 DO YOU REMOVE OR REPLACE 3 PHASE TRANSFORMER PARTS, SUCH AS A WINDING.	5	6	2	3	6	4	
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS.	35	37	22	37	37	26	
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS.	21	21	15	21	19	22	MAGNETISM
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS.	8	9	2	10	7	4	
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS.	6	7	2	6	6	4	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
C 175	C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS.	9	10	2	11	7	4	
C 176	C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM.	11	12	5	14	8	4	
C 177	C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX.	15	16	5	17	14	7	
C 178	C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM.	3	3	2	2	4	4	
C 179	C3-09 DO YOU USE OR REFER TO THE DOMAIN THEORY OF MAGNETISM.	4	4	5	1	6	4	
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION.	14	15	10	15	13	11	
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY.	9	11	2	10	11	4	
C 182	C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES	33	35	18	36	33	15	
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES.	12	13	2	14	13	0	
C 184	C3-14 DO YOU USE THE LEFT THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL.	11	12	3	13	12	4	
D 185	D1-01 DO YOU WORK WITH RC, LR, OR RCL CIRCUITS ON YOUR PRESENT JOB.	46	48	30	44	56	37	RCL CIRCUITS
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS.	7	7	3	3	11	0	
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS.	5	6	3	3	9	0	
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS.	8	8	3	5	12	0	
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS.	7	7	3	4	11	0	
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS.	6	7	3	4	9	0	
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS.	28	31	15	23	41	15	
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS.	17	18	12	13	21	11	
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS.	20	21	15	16	27	19	
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS.	19	21	12	17	24	11	
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS.	14	14	8	12	17	7	
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS.	13	13	8	11	16	7	
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS.	29	32	12	28	34	15	
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS.	42	45	22	42	49	26	
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS.	36	39	18	35	43	26	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS.	33	36	15	34	37	19
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS.	28	31	12	22	39	15
D 202	D1-18 DO YOU USE OR REFER TO BRANDPASS REGION WHEN WORKING WITH RCL CIRCUITS.	30	33	13	28	35	15
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS.	17	19	7	14	21	7
D 204	D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS.	27	29	13	28	27	15
D 205	D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS: SINE OF AN ANGLE = OPPOSITE SIDE	6	6	5	5	7	4
D 206	D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS.	4	4	2	5	1	4
D 207	D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS.	9	9	7	9	7	7
D 208	D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS.	3	3	2	2	3	4
D 209	D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS.	9	9	7	7	7	7
D 210	D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS.	4	4	3	3	3	7
D 211	D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS.	5	6	3	2	8	7
D 212	D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS.	8	8	3	6	9	7
D 213	D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS.	7	7	3	6	7	7
D 214	D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS.	9	10	7	6	11	7
D 215	D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS.	3	3	2	2	3	4
D 216	D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD.	5	5	2	3	5	4
D 217	D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW.	7	8	2	7	6	4
D 218	D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS.	42	45	25	37	54	30
D 219	D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION.	28	31	13	28	31	22
D 220	D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS.	37	40	22	35	44	26
D 221	D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION.	26	28	10	26	29	19
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	3	0	2	3	0
D 223	D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS.	8	9	5	9	8	4
D 224	D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE	13	14	5	14	12	4

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
D 225	D1-01 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT	10	11	5	11	10	4	
D 226	D1-02 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK	24	26	10	22	31	15	
D 227	D1-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q.	12	13	5	9	17	4	
D 228	D1-04 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT	11	13	0	10	15	0	
D 229	D2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANCE CIRCUITS OR	22	23	18	19	25	22	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
D 230	D2-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS.	20	21	12	18	23	11	
D 231	D2-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE.	14	14	10	12	14	15	
D 232	D2-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS.	11	11	10	8	11	7	
D 233	D2-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE	14	16	8	15	15	7	
D 234	D2-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS.	6	7	0	6	7	0	
D 235	D2-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUITS CURRENT OR COMPONENT VOLTAGES AFTER A	7	7	5	6	7	4	
D 236	D2-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT	6	6	7	5	5	4	
D 237	D2-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND	5	5	7	6	4	7	
D 238	D2-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR	6	6	5	6	5	4	
D 239	D3-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS ON YOUR PRESENT JOB.	50	51	50	45	57	59	FILTERS
D 240	D3-02 DO YOU INSPECT FILTER CIRCUITS.	47	48	38	43	54	48	
D 241	D3-03 DO YOU CLEAN FILTER CIRCUITS.	33	35	18	35	34	22	
D 242	D3-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS.	30	33	10	32	33	7	
D 243	D3-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT.	42	43	35	37	49	44	
D 244	D3-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF FILTER CIRCUITS.	39	42	20	38	45	26	
D 245	D3-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT.	47	48	45	41	55	59	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
D	246	D3-08 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF FILTER CIRCUITS.	36	38	20	35	40	26	
D	247	D3-09 DO YOU WORK ON LOW PASS FILTERS.	43	46	25	41	51	26	
D	248	D3-10 DO YOU WORK ON HIGH PASS FILTERS.	43	46	25	43	51	26	
D	249	D3-11 DO YOU WORK ON BANDPASS FILTERS.	49	50	40	43	57	48	
D	251	D3-13 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF FILTER	37	39	25	35	43	37	
D	250	D3-12 DO YOU WORK ON BAND-REJECT FILTERS.	14	14	12	15	14	15	
D	252	D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATIONS.	26	28	12	27	27	7	
D	253	D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATIONS.	24	27	10	27	23	7	
D	254	D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATIONS.	25	27	10	26	25	7	
D	255	D3-17 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF FILTER CONFIGURATIONS.	26	26	23	22	32	33	
D	256	D3-18 ARE PARALLEL RESONANT CIRCUITS USED IN FILTERS YOU WORK WITH.	25	28	10	27	25	7	
D	257	D3-19 ARE SERIES-PARALLEL CIRCUITS USED IN FILTERS YOU WORK WITH.	27	29	10	28	27	7	
D	258	D3-20 ARE SERIES RESONANT CIRCUITS USED IN FILTERS YOU WORK WITH.	27	29	12	27	28	15	
D	259	D3-21 ARE DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT USED IN FILTERS YOU WORK WITH.	24	23	28	21	26	44	
D	260	D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC	6	6	7	5	6	4	
E	261	E1-01 DO YOU WORK WITH COUPLING DEVICES ON YOUR PRESENT JOB.	48	49	42	45	53	56	COUPLING
E	262	E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	40	42	27	37	47	37	
E	263	E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	38	42	18	39	44	30	
E	264	E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	41	43	27	38	47	37	
E	265	E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE RC COUPLING FUNCTIONS.	38	40	27	35	44	41	
E	266	E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE IMPEDANCE COUPLING FUNCTIONS.	36	40	17	38	41	26	
E	267	E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE TRANSFORMER COUPLING FUNCTIONS.	39	42	25	36	45	33	
E	268	E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS.	41	43	28	38	48	37	
E	269	E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS.	36	38	22	32	43	33	
E	270	E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS.	32	35	15	31	37	22	
E	271	E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS.	37	39	22	33	43	26	
E	272	E1-12 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUIT.	14	14	13	15	13	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
E	273	E2-01 ON YOUR PRESENT JOB DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS.	85	84	88	81	91	89	SOLDERING
E	274	E2-02 DO YOU SELECT TYPE OF SOLDER TO USE.	65	65	65	60	77	63	
E	275	E2-03 DO YOU ADD FLUX TO CONNECTIONS.	79	79	80	72	94	74	
E	276	E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS.	76	75	82	66	88	85	
E	277	E2-05 DO YOU STRIP INSULATION FROM WIRES.	87	86	93	80	96	93	
E	278	E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS.	77	76	78	68	90	85	
E	279	E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS.	84	83	92	76	95	93	
E	280	E2-08 DO YOU CUT WIRES.	87	86	93	80	96	93	
E	281	E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS.	67	65	80	57	76	81	
E	282	E2-10 DO YOU TIN SOLDERING IRON TIPS.	84	83	92	76	94	93	
E	283	E2-11 DO YOU CLEAN SOLDERING IRON TIPS.	85	84	93	77	95	93	
E	284	E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS.	73	72	75	65	87	93	
E	285	E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS.	82	81	83	74	93	89	
E	286	E2-14 DO YOU INSPECT SOLDERED CONNECTIONS.	85	84	90	77	95	89	
E	287	E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING.	55	56	50	49	67	59	
E	288	E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS.	80	80	77	74	90	85	
E	289	E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS.	60	60	60	53	68	81	
E	290	E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL.	28	28	25	19	37	26	
E	291	E2-19 DO YOU MAKE HARDWIRE CONNECTIONS.	81	80	85	76	88	85	
E	292	E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	68	68	67	55	87	93	
E	293	E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	67	68	63	54	87	89	
E	294	E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	67	68	62	54	87	89	
E	295	E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	62	64	52	62	67	56	RELAYS
E	296	E3-02 DO YOU ADJUST RELAYS	19	21	10	20	17	15	
E	297	E3-03 DO YOU CLEAN RELAYS	39	41	23	43	39	26	
E	298	E3-04 DO YOU INSPECT RELAYS	52	53	42	51	56	48	
E	299	E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	60	61	52	57	66	56	
E	300	E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS	11	12	7	11	14	7	
E	301	E3-07 DO YOU TROUBLESHOOT RELAYS	54	56	47	53	57	56	
E	302	E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	28	30	17	31	24	22	
E	303	E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	24	26	12	23	28	15	
E	304	E3-10 DO YOU PERFORM TASKS ON RELAY CORES	6	7	3	5	8	4	
E	305	E3-11 DO YOU PERFORM TASKS ON RELAY COILS	8	9	3	7	9	4	
E	306	E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	8	9	3	7	9	4	
E	307	E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	9	10	3	9	10	4	
E	308	E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPER (NO) SCHEMATIC SYMBOLS FOR RELAYS	51	52	43	51	53	52	
E	309	E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	50	51	43	50	52	52	
E	310	E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	49	50	38	48	51	41	
E	311	E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	48	49	40	47	51	44	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
E	312	E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	43	44	37	43	45	48	
E	313	E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	46	48	32	45	49	30	
F	314	F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	15	16	8	14	20	0	MICROPHONES
F	315	F1-02 DO YOU INSPECT MICROPHONES	8	8	7	8	9	0	
F	316	F1-03 DO YOU CLEAN MICROPHONES	5	5	3	5	4	0	
F	317	F1-04 DO YOU OPERATE MICROPHONES	16	16	12	16	19	4	
F	318	F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT	9	9	8	9	10	4	
F	319	F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	2	2	2	2	1	0	
F	320	F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	7	8	5	9	6	0	
F	321	F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	2	2	0	2	1	0	
F	322	F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	2	2	3	1	2	0	
F	323	F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	2	2	3	1	1	0	
F	324	F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	2	2	3	2	1	0	
F	325	F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	4	4	3	3	3	0	
F	326	F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	1	1	0	0	1	0	
F	327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	12	12	8	9	15	4	SPEAKERS
F	328	F2-02 DO YOU INSPECT SPEAKERS	8	8	5	5	11	0	
F	329	F2-03 DO YOU CLEAN SPEAKERS	5	6	2	5	7	0	
F	330	F2-04 DO YOU OPERATE SPEAKERS	11	11	7	7	15	0	
F	331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT	9	9	5	6	11	0	
F	332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	2	2	2	1	1	0	
F	333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	8	8	5	5	11	0	
F	334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	1	1	0	0	1	0	
F	335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	1	1	0	1	1	0	
F	336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	1	1	0	0	1	0	
F	337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	1	1	0	0	1	0	
F	338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	1	1	0	0	1	0	
F	339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	1	1	0	1	1	0	
F	340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	1	1	0	1	1	0	
F	341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	1	1	0	1	1	0	
F	342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	75	76	73	72	86	89	
F	343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	71	73	58	68	82	70	OSCILLOSCOPES
F	344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	67	68	62	60	81	81	
F	345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	68	68	63	63	79	81	
F	346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	70	71	67	68	80	89	
F	347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	69	70	67	64	79	85	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
F	348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	23	22	22	23	21	22	
F	349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	67	67	65	64	75	85	
F	350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	42	43	32	37	51	37	
F	351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	70	70	67	68	77	89	
F	352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	59	58	58	58	61	81	
F	353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	72	73	65	66	85	89	
G	354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	62	63	53	51	80	78	SEMICONDUCTOR DIODES
G	355	G1-02 DO YOU INSPECT DIODES	58	59	50	48	73	74	
G	356	G1-03 DO YOU REMOVE OR REPLACE DIODES	60	62	52	49	79	78	
G	357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	59	61	50	50	75	74	
G	358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	5	6	2	4	9	0	
G	359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE,	9	9	7	7	9	7	
G	360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	15	16	8	13	19	11	
G	361	G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	37	37	35	32	44	56	
G	362	G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON	53	55	43	40	74	63	
G	363	G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	11	12	8	10	15	7	
G	364	G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	40	41	33	35	46	52	
G	365	G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	25	26	15	23	30	15	
G	366	G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	2	3	0	2	3	0	
G	367	G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	3	3	0	2	4	0	
G	368	G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	48	49	42	43	58	67	
G	369	G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	2	3	0	2	3	0	
G	370	G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	2	2	0	2	3	0	
G	371	G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	38	39	37	30	47	52	
G	372	G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	2	3	0	2	3	0	
G	373	G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	2	3	0	2	3	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
G 374	G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	2	2	0	1	3	0
G 375	G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	4	4	0	3	5	0
G 376	G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	2	2	0	1	3	0
G 377	G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	51	53	42	42	67	67
G 378	G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	14	15	7	17	12	7
G 379	G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE	23	24	17	22	29	26
G 380	G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT	11	12	3	11	11	4
G 381	G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR	43	45	35	36	56	48
G 382	G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	4	4	0	3	4	0
G 383	G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	4	4	0	3	5	0
G 384	G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	5	5	2	5	5	0
G 385	G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	3	4	0	3	5	0
G 386	G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	4	5	0	4	6	0
G 387	G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	9	11	2	9	12	0
G 388	G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	4	4	0	3	5	0
G 389	G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	4	4	0	3	5	0
G 390	G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	21	23	12	18	29	7
G 391	G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	21	23	12	18	29	7
G 392	G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	6	6	2	5	6	0
G 393	G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	5	6	2	4	6	0
G 394	G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	4	5	0	4	5	0
G 395	G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	6	7	0	6	7	0
G 396	G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	6	7	0	5	7	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
G	397	G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	33	33	33	27	38	48	
G	398	G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	4	4	5	2	5	11	
G	399	G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	23	25	15	21	27	19	
G	400	G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	15	17	8	15	17	11	
G	401	G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	13	14	8	13	15	11	
G	402	G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	14	16	7	13	17	11	
G	403	G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	18	19	10	17	19	15	
G	404	G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	63	64	57	52	81	81	
G	405	G2-02 DO YOU INSPECT TRANSISTORS	61	61	57	51	76	85	TRANSISTORS
G	406	G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	62	63	58	51	80	85	
G	407	G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	60	62	47	49	79	63	
G	408	G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	57	59	45	48	75	56	
G	409	G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	56	58	43	46	73	56	
G	410	G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	56	58	42	46	73	52	
G	411	G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	18	20	8	16	25	15	
G	412	G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	18	20	7	16	25	7	
G	413	G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	31	32	25	29	37	33	
G	414	G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	14	16	7	10	22	7	
G	415	G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS,	63	64	55	51	81	78	
G	416	G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	63	64	55	51	82	78	
G	417	G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	39	41	23	34	49	37	
G	418	G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY	23	25	8	17	33	7	
G	419	G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR	31	32	22	25	40	26	
G	420	G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	15	17	5	13	21	4	
G	421	G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	10	11	3	7	12	0	

PCT MEMBERS RESPONDING 'YES' BY SELECTED SPC

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
G 422	G2-19	DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	9	10	2	7	13	4	
G 423	G2-20	DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	8	9	2	6	12	4	
G 424	G2-21	DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	8	9	2	6	11	4	
G 425	G2-22	DO YOU CALCULATE BETA TRANSISTOR GAINS	4	4	0	2	7	0	
G 426	G2-23	DO YOU CALCULATE ALPHA TRANSISTOR GAINS	4	5	0	2	7	0	
G 427	G2-24	DO YOU CALCULATE GAMMA TRANSISTOR GAINS	4	4	0	2	6	0	
G 428	G3-01	DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	50	51	45	41	64	59	TRANSISTOR AMPLIFIERS
G 429	G3-02	DO YOU INSPECT TRANSISTOR AMPLIFIERS	49	50	43	41	61	59	
G 430	G3-03	DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	41	42	37	39	45	48	
G 431	G3-04	DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	48	49	42	41	60	59	
G 432	G3-05	DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	45	47	35	39	57	48	
G 433	G3-06	DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	47	48	40	40	59	48	
G 434	G3-07	DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	44	45	37	37	55	44	
G 435	G3-08	DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE	22	23	17	22	26	22	
G 436	G3-09	DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	11	12	5	9	15	0	
G 437	G3-10	DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE	21	22	18	20	23	22	
G 438	G3-11	DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	10	11	8	9	11	7	
G 439	G3-12	DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	21	22	15	18	25	22	
G 440	G3-13	DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	11	11	7	10	13	4	
G 441	G3-14	DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A	5	5	3	3	6	4	
G 442	G3-15	DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	14	15	8	11	19	15	
G 443	G3-16	DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	7	7	7	6	7	11	
G 444	G3-17	DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	31	32	22	31	35	33	
G 445	G3-18	DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	22	24	12	22	25	11	
G 446	G3-19	DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	24	26	17	24	28	19	
G 447	G3-20	DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE	6	6	5	5	7	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
G 448	G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE	6	6	5	5	7	0
G 449	G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE	6	6	3	5	7	0
G 450	G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE	7	7	7	7	8	4
G 451	G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT [Q] OF A TRANSISTOR AT DIFFERENT TEMPERATURES	2	2	0	1	3	0
G 452	G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	21	22	12	19	25	15
G 453	G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-	21	23	12	21	25	15
G 454	G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	20	22	12	19	25	15
G 455	G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	21	22	15	19	25	22
G 456	G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	21	22	13	19	25	19
G 457	G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	19	20	13	18	23	19
G 458	G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	24	25	15	22	27	19
G 459	G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	24	26	13	24	29	19
G 460	G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	24	25	13	22	29	19
G 461	G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	24	26	13	23	27	22
G 462	G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	24	26	13	24	27	22
G 463	G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	21	22	13	19	25	19
G 464	G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	27	28	20	23	33	30
G 465	G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	30	31	23	24	35	37

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
G	466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	28	30	18	24	35	30	
G	467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	19	21	7	15	25	4	
G	468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	19	21	7	15	23	4	
G	469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	25	27	17	23	29	26	
G	470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR	12	13	8	10	13	15	
G	471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	17	17	15	14	21	22	
G	472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	20	22	13	18	23	19	
G	473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	35	37	23	32	42	33	
G	474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	27	29	18	24	31	30	
G	475	G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	26	27	22	20	33	33	
G	476	G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	30	31	25	25	36	41	
H	477	H1-01 DO YOU USE OR REFER TO VARACTORS	35	37	22	32	43	26	SOLID-STATE SPECIAL PURPOSE DEVICES
H	478	H1-02 DO YOU USE OR REFER TO TUNNEL DIODES	38	39	33	34	45	48	
H	479	H1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	45	45	42	38	56	59	
H	480	H1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	46	47	42	40	57	59	
H	481	H1-05 DO YOU USE OR REFER TO ZENER DIODES	58	59	52	51	71	78	
H	482	H1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	58	58	57	48	73	81	
H	483	H2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	70	71	62	69	78	70	
H	484	H2-02 DO YOU INSPECT POWER SUPPLIES	65	66	60	61	75	70	POWER SUPPLIES
H	485	H2-03 DO YOU CLEAN POWER SUPPLIES	49	52	28	51	55	41	
H	486	H2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	59	60	52	48	75	67	
H	487	H2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	58	59	52	51	70	70	
H	488	H2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	45	46	37	44	47	48	
H	489	H2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	71	72	63	69	80	74	
H	490	H2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	43	44	37	41	45	52	
H	491	H2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	45	48	28	42	55	33	
H	492	H2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	46	48	32	43	56	41	
H	493	H2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	47	48	37	41	55	52	
H	494	H2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	46	48	37	41	55	44	
H	495	H2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	55	57	45	49	67	59	
H	496	H2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	44	45	38	39	52	48	
H	497	H2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	45	47	38	39	54	56	
H	498	H2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	45	46	42	39	53	56	
H	499	H2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	40	40	35	35	45	44	
H	500	H2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	35	37	25	31	43	26	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
H 501	H2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	26	27	18	23	29	22	
H 502	H2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	47	48	42	41	55	52	
H 503	H2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	48	49	42	44	55	56	
H 504	H2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	42	45	27	38	51	33	
H 505	H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	40	43	22	39	47	30	
H 506	H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	35	37	22	34	39	30	
H 507	H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	34	37	17	34	37	22	
H 508	H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	33	35	22	33	36	30	
H 509	H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	34	35	23	31	39	33	
H 510	H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	26	27	18	23	35	26	
H 511	H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	4	4	2	3	4	4	
H 512	H3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	53	55	38	53	60	44	
H 513	H3-02 DO YOU INSPECT OSCILLATORS	47	48	40	43	54	48	OSCILLATORS
H 514	H3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	44	45	40	38	53	52	
H 515	H3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	50	51	43	49	55	52	
H 516	H3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	30	32	17	28	33	22	
H 517	H3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	42	44	32	34	54	41	
H 518	H3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	32	33	20	30	35	26	
H 519	H3-08 DO YOU USE OR REFER TO FEEDBACK	34	36	18	31	41	19	
H 520	H3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	32	34	22	31	37	30	
H 521	H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	33	35	23	31	39	30	
H 522	H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	38	40	27	36	45	33	
H 523	H3-12 DO YOU USE OR REFER TO DAMPING	21	23	8	17	29	11	
H 524	H3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	29	32	13	26	38	15	
H 525	H3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	12	12	7	10	16	7	
H 526	H3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	12	13	7	10	15	7	
H 527	H3-16 DO YOU USE OR REFER TO UNDER DAMPING	13	14	7	11	17	7	
H 528	H3-17 DO YOU USE OR REFER TO OVER DAMPING	13	14	7	10	18	7	
H 529	H3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	21	23	8	19	23	7	
H 530	H3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	27	29	13	24	31	19	
H 531	H3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	27	29	20	22	32	30	
H 532	H3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	16	17	8	15	21	11	
H 533	H3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	20	22	3	19	23	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			By-Task	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
M	534	M3-23	DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	18	20	3	18	20	0	
M	535	M3-24	DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	19	21	5	19	19	0	
M	536	M3-25	DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	13	15	3	11	15	0	
M	537	M3-26	DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	11	12	3	10	12	0	
M	538	M3-27	DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	26	28	18	24	34	30	
I	539	I1-01	DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	45	48	32	34	63	37	
I	540	I1-02	DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	40	42	32	31	51	41	MULTIVIBRATORS
I	541	I1-03	DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	40	42	28	30	53	37	
I	542	I1-04	DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	29	30	22	24	35	26	
I	543	I1-05	DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	41	43	32	32	55	41	
I	544	I1-06	DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	37	38	27	29	47	37	
I	545	I1-07	DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	36	37	27	26	49	37	
I	546	I1-08	DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	35	36	25	27	45	33	
I	547	I1-09	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	24	26	8	22	29	4	
I	548	I1-10	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	29	31	18	25	37	22	
I	549	I1-11	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	22	24	15	18	27	15	
I	550	I1-12	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDD	19	20	13	15	27	19	
I	551	I1-13	DO YOU WORK WITH ASTABLE MULTIVIBRATORS	33	35	23	27	44	22	
I	552	I1-14	DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	35	37	23	28	47	22	
I	553	I1-15	DO YOU WORK WITH BISTABLE MULTIVIBRATORS	36	38	27	28	48	26	
I	554	I1-16	DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	14	15	8	11	19	15	
I	555	I2-01	DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	38	41	22	32	50	26	LIMITERS AND CLAMPERS
I	556	I2-02	DO YOU WORK WITH SERIES DIODE LIMITERS	27	30	13	20	39	15	
I	557	I2-03	DO YOU WORK WITH SHUNT DIODE LIMITERS	24	27	10	21	30	15	
I	558	I2-04	DO YOU WORK WITH LIMITERS WITH BIAS	22	24	12	19	25	19	
I	559	I2-05	DO YOU WORK WITH ZENER DIODE LIMITERS	28	31	13	23	37	19	
I	560	I2-06	DO YOU WORK WITH TRANSISTOR LIMITERS	26	28	15	20	34	19	
I	561	I2-07	DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	14	15	8	11	19	11	
I	562	I2-08	DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	24	26	10	22	28	11	
I	563	I2-09	DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	21	22	10	19	23	11	
I	564	I2-10	DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	13	14	10	10	18	15	
I	565	I3-01	IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	31	35	3	41	25	0	ELECTRON TUBES
I	566	I3-02	DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	24	28	5	28	21	4	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
I	567	I3-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	16	18	2	25	8	4
I	568	I3-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	21	24	3	22	18	0
I	569	I3-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES	20	23	3	22	18	0
I	570	I3-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	24	27	5	29	19	4
I	571	I3-07 DO YOU USE OR REFER TO CUTOFF	13	15	3	15	9	0
I	572	I3-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	9	9	3	11	5	0
I	573	I3-09 DO YOU USE OR REFER TO PEAK CURRENT RATING	9	11	3	13	6	0
I	574	I3-10 DO YOU USE OR REFER TO TRANSIT TIME	9	10	3	10	7	0
I	575	I3-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING	8	9	3	10	6	0
I	576	I3-12 DO YOU USE OR REFER TO SATURATION	15	17	3	17	11	0
I	577	I3-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE	11	12	3	13	7	0
I	578	I3-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	4	5	0	5	2	0
I	579	I3-15 DO YOU USE OR REFER TO PLATE VOLTAGE	22	25	3	27	17	0
I	580	I3-16 DO YOU USE OR REFER TO PLATE CURRENT	18	20	3	22	13	0
I	581	I3-17 DO YOU USE OR REFER TO GRID VOLTAGE	21	24	3	27	15	0
I	582	I3-18 DO YOU USE OR REFER TO GRID CURRENT	18	20	3	22	12	0
I	583	I3-19 DO YOU USE OR REFER TO CATHODE VOLTAGE	22	25	3	27	17	0
I	584	I3-20 DO YOU USE OR REFER TO CATHODE CURRENT	18	20	3	22	13	0
I	585	I3-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS	5	6	0	7	4	0
I	586	I3-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	2	3	0	3	1	0
I	587	I3-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	5	6	0	6	5	0
I	588	I3-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	3	3	0	3	3	0
I	589	I3-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	2	2	0	3	1	0
I	590	I3-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	5	5	2	5	3	4
I	591	I3-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	3	3	0	5	1	0
I	592	I3-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	6	7	2	9	3	4
I	593	I3-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	4	4	3	5	3	0
I	594	I3-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	5	6	3	6	5	0
I	595	I3-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	5	6	3	6	5	0
I	596	I3-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	5	6	3	6	5	0
I	597	I3-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	5	6	3	6	5	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
I 598	I3-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	17	19	5	20	12	4	
I 599	I3-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	11	12	3	14	8	0	
I 600	I3-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	11	13	0	20	5	0	
I 601	I3-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	14	16	3	18	10	0	
I 602	I3-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	19	22	5	23	17	4	
I 603	I3-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	7	7	3	7	7	0	
I 604	I3-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	2	2	0	3	1	0	
I 605	I3-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	20	24	0	26	17	0	
I 606	I3-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	24	28	2	30	19	4	
I 607	I3-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE	5	6	0	7	4	0	
I 608	I3-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	10	12	0	15	6	0	
J 609	J1-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	19	22	3	25	12	0	ELECTRON TUBE AMPLIFIERS AND CIRCUITS
J 610	J1-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER	7	7	3	7	5	0	
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	10	11	5	12	5	4	
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	13	14	3	16	6	0	
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	10	11	3	15	3	0	
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	12	13	3	18	4	0	
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DON'T KNOW WHICH TYPE OF AMPLIFIER	7	8	0	7	4	0	
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	15	17	3	20	7	4	SPECIAL PURPOSE ELECTRON TUBES
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	27	30	8	27	32	4	
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	7	9	0	11	4	0	
J 619	J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	8	9	2	12	3	4	
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	5	6	0	8	3	0	
J 621	J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	6	7	0	10	3	0	
J 622	J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	19	19	17	20	17	11	
J 623	J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES	20	21	15	21	21	7	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
J 624	J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES	17	18	15	19	15	7	
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	21	22	17	23	21	7	
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	12	13	5	10	16	0	
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	8	9	5	9	9	0	
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	18	19	13	20	19	0	
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	12	13	8	13	13	0	
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	14	15	8	16	14	0	
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	16	17	10	18	16	0	
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	74	75	63	74	82	78	
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	44	46	35	41	51	48	HETERODYNING, MODULATION, AND DEMODULATION
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	44	45	37	41	50	48	
J 635	J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	40	41	28	39	43	44	
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	17	18	10	18	15	7	
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	35	36	28	34	39	33	
K 638	K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	47	49	35	52	49	41	
K 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	44	45	33	44	49	37	AM SYSTEMS
K 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	39	42	20	40	46	19	
K 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	41	43	30	39	49	33	
K 642	K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	44	46	33	45	49	37	
K 643	K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	37	38	30	34	43	33	
K 644	K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	43	46	28	46	47	33	
K 645	K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	37	39	28	35	43	30	
K 646	K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	31	34	17	29	39	22	
K 647	K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	34	37	20	32	41	22	
K 648	K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	23	26	8	22	29	4	
K 649	K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	31	33	20	27	39	22	
K 650	K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	31	33	20	29	38	22	
K 651	K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	30	33	15	28	38	26	
K 652	K1-15 DO YOU PERFORM TASKS ON DETECTORS	34	36	23	31	43	26	
K 653	K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	10	11	10	11	10	11	
K 654	K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	22	23	13	20	28	15	
K 655	K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	23	25	17	22	29	15	
K 656	K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	40	44	20	43	47	22	
K 657	K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	37	40	20	39	43	22	
K 658	K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	21	24	5	24	23	4	
K 659	K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	27	29	15	32	27	19	
K 660	K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	9	9	7	9	8	4	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
K	661	K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	16	16	12	15	16	15	
K	662	K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	22	24	12	22	23	11	
K	663	K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	17	17	12	18	14	11	
K	664	K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	29	30	23	27	36	22	
K	665	K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	36	39	23	35	43	33	
K	666	K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	50	54	28	55	57	37	
K	667	K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	48	52	25	52	54	33	FM SYSTEMS
K	668	K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	43	47	17	45	52	26	
K	669	K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	44	47	23	42	54	33	
K	670	K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	48	52	28	52	55	37	
K	671	K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	41	43	25	40	47	37	
K	672	K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	47	52	22	52	53	33	
K	673	K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	40	43	25	40	45	37	
K	674	K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	29	32	10	30	34	11	
K	675	K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	29	31	18	30	32	26	
K	676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	34	36	23	31	41	33	
K	677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	35	37	23	32	43	30	
K	678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	38	42	17	36	49	22	
K	679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	31	34	17	30	37	22	
K	680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	34	37	18	34	39	30	
K	681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	29	32	12	30	33	15	
K	682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	30	33	12	31	35	11	
K	683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	33	35	20	31	42	26	
K	684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	39	43	18	39	48	30	
K	685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	16	17	10	9	26	15	NUMBERING SYSTEMS
K	686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	23	24	13	15	35	15	
K	687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	14	15	5	9	23	4	
K	688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	15	16	7	10	25	4	
K	689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	21	23	7	14	33	4	
K	690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	14	16	5	10	24	4	
K	691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	15	17	8	13	21	11	
K	692	K3-08 DO YOU SUBRRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	11	12	7	9	15	7	
K	693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	13	14	8	10	19	11	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	10	11	5	8	16	4	
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	37	35	43	24	53	52	LOGIC FUNCTIONS
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	18	17	23	12	25	22	
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	18	17	23	12	25	22	
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	18	17	23	12	24	22	
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	17	17	18	12	25	15	
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	27	26	30	16	40	37	
L 701	K1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	27	26	32	16	40	41	
L 702	K1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	26	26	28	16	39	33	
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	26	25	28	16	39	37	
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	34	33	42	22	49	56	
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	34	33	40	22	50	52	
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	34	32	42	20	50	56	
L 707	L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	33	32	38	21	50	52	
L 708	L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC	24	24	18	17	35	11	BOOLEAN EQUATIONS
L 709	L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	9	9	7	7	11	7	
L 710	L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	7	6	10	5	9	7	
L 711	L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	8	8	10	6	10	11	
L 712	L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	22	23	13	15	33	15	
L 713	L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	13	13	12	10	19	11	
L 714	L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	12	13	10	9	18	11	
L 715	L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	17	17	12	11	25	15	
L 716	L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	9	9	12	7	12	11	
L 717	L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	23	23	17	16	33	15	
L 718	L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	8	8	5	5	11	4	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
L 719	L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	12	12	8	9	17	7	
L 720	L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	24	25	17	15	36	11	
L 721	L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	25	26	17	15	37	11	
L 722	L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	24	25	15	15	36	7	
L 723	L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	23	24	17	15	33	11	
L 724	L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	22	23	15	15	32	7	
L 725	L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	24	24	18	15	34	15	
L 726	L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	17	18	12	13	23	7	
L 727	L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	18	19	15	14	25	11	
L 728	L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	18	19	13	14	25	7	
L 729	L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	24	24	18	17	34	15	
L 730	L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	19	20	13	15	26	11	
L 731	L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	19	20	12	15	25	7	
L 732	L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	11	12	10	8	16	7	
L 733	L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	36	37	30	27	50	33	
L 734	L3-02 DO YOU USE OR REFER TO UP-COUNTERS	32	33	30	21	49	33	COUNTERS
L 735	L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	32	32	30	21	47	33	
L 736	L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	29	30	25	22	40	33	
L 737	L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	24	25	18	18	33	26	
L 738	L3-06 DO YOU USE OR REFER TO RING COUNTERS	18	19	15	12	28	19	
L 739	L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	22	23	13	14	34	15	
L 740	L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	22	22	22	15	31	22	
L 741	L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	31	31	30	19	47	33	
L 742	L3-10 DO YOU USE OR REFER TO UP CLOCKS	31	31	30	19	47	33	
L 743	L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	21	21	23	15	29	30	
L 744	L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-	21	21	25	15	28	33	
L 745	L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	18	18	15	12	25	19	
L 746	L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	15	16	13	11	21	19	
L 747	L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	18	19	17	14	23	19	
L 748	L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	20	21	15	15	29	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
L	749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	17	17	17	15	21	26	
L	750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	14	14	12	11	19	11	
L	751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENT-	13	14	10	11	16	7	
L	752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE	13	14	10	11	15	11	
L	753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	12	12	13	10	15	15	
L	754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	7	7	7	7	8	4	
L	755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	12	12	10	10	14	11	
L	756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	13	13	12	11	16	15	
M	757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	52	53	43	45	63	56	
M	758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	24	25	17	21	31	22	TIMING CIRCUITS
M	759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	28	29	22	23	35	30	
M	760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	27	28	20	23	33	26	
M	761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	36	37	23	28	49	37	
M	762	M1-06 DO YOU USE OR REFER TO RISE TIME	44	45	43	36	57	59	
M	763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	43	43	38	38	51	44	
M	764	M1-08 DO YOU USE OR REFER TO SWEEP TIME	54	54	52	48	63	67	
M	765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	39	39	37	34	46	48	
M	766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	43	43	42	38	51	59	
M	767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	37	39	23	36	43	33	
M	768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	32	33	23	27	40	33	
M	769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	68	69	63	63	81	78	USE OF SIGNAL GENERATORS
M	770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	63	64	57	58	76	70	
M	771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL	42	43	35	38	51	37	
M	772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	42	42	42	36	51	48	
M	773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	29	29	25	23	37	30	
M	774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	25	26	16	23	28	19	

FCT MEMBERS RESPONDING "YES" BY SELECTED GPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK		SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
M	775	M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	31	31	28	26	38	33	
M	776	M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	43	46	25	49	47	37	
M	777	M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	61	61	60	55	74	74	
M	778	M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	46	46	42	45	53	52	
M	779	M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR	27	29	18	34	17	26	MOTORS AND GENERATORS
M	780	M3-02 DO YOU INSPECT MOTORS	24	25	18	29	13	26	
M	781	M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	21	21	18	26	9	26	
M	782	M3-04 DO YOU OPERATE MOTORS	24	25	17	30	15	22	
M	783	M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	24	25	18	28	15	26	
M	784	M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	10	11	5	14	4	0	
M	785	M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	24	25	18	28	16	26	
M	786	M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	9	9	5	11	3	0	
M	787	M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	4	4	3	5	2	0	
M	788	M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	5	6	3	6	3	0	
M	789	M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	5	6	3	6	3	0	
M	790	M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	10	11	5	15	4	4	
M	791	M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	6	7	5	7	3	4	
M	792	M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS	6	6	5	6	3	4	
M	793	M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	5	5	3	6	3	0	
M	794	M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	3	3	3	2	2	0	
M	795	M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	7	7	7	8	4	7	
M	796	M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	3	3	5	3	1	4	
M	797	M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	7	7	5	7	4	4	
M	798	M3-20 DO YOU WORK WITH INDUCTION MOTORS	11	11	10	13	6	11	
M	799	M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	6	6	3	7	5	0	
M	800	M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	12	12	7	15	8	7	
M	801	M3-23 DO YOU INSPECT GENERATORS	9	9	8	7	7	11	
M	802	M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	7	7	7	5	5	7	
M	803	M3-25 DO YOU OPERATE GENERATORS	10	10	12	7	9	19	
M	804	M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	6	6	5	4	4	4	
M	805	M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	5	4	5	2	3	4	
M	806	M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	6	7	5	5	4	4	
M	807	M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	3	3	3	2	3	0	
N	808	N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	74	74	72	71	78	70	METER MOVEMENTS
N	809	N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	19	20	15	19	21	15	
N	810	N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	22	23	18	22	24	19	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
N 811	N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	19	19	17	18	19	11	
N 812	N1-05 DO YOU READ METER SCALES	76	76	75	73	80	78	
N 813	N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	30	30	28	32	28	22	
N 814	N1-07 DO YOU ZERO OHMMETERS	75	75	77	72	79	81	
N 815	N1-08 DO YOU ZERO AMMETERS	34	35	32	36	35	37	
N 816	N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	45	46	45	44	46	37	
N 817	N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	43	44	35	40	49	37	
N 818	N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	12	13	3	12	13	0	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS
N 819	N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	10	11	3	9	12	0	
N 820	N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	9	10	2	8	10	0	
N 821	N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	7	7	3	5	8	0	
N 822	N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	10	11	3	10	11	0	
N 823	N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	10	11	3	10	11	0	
N 824	N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	6	6	3	5	7	0	
N 825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	4	5	0	5	5	0	
N 826	N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF	7	8	3	7	9	0	
N 827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE	8	8	3	8	8	0	
N 828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	6	6	3	5	7	0	
N 829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	3	3	3	2	3	0	
N 830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	4	4	3	2	5	0	
N 831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	4	4	3	3	4	0	
N 832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	5	5	3	4	6	0	
N 833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	8	9	3	10	9	0	
N 834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	45	45	42	33	62	52	WAVESHAPING CIRCUITS
N 835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	25	26	20	21	31	26	
N 836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	45	45	43	33	61	59	
N 837	N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	45	45	43	34	61	59	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
N	838	N3-05	DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	46	45	43	34	62	59	
N	839	N3-06	DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	32	33	25	27	41	37	
N	840	N3-07	DO YOU USE OR REFER TO INTEGRATING CIRCUITS	34	34	33	20	43	48	
N	841	N3-08	DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	19	20	13	16	25	15	
N	842	N3-09	DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT	13	14	7	11	17	4	
N	843	N3-10	DO YOU WORK WITH SQUARE WAVE GENERATORS	39	39	40	28	54	48	
N	844	N3-11	DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	30	29	32	21	41	41	
O	845	01-01	DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	6	7	0	4	5	0	SINGLE SIDEBAND SYSTEMS
O	846	01-02	DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	6	7	2	5	4	4	
O	847	01-03	DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	5	6	2	4	4	4	
O	848	01-04	DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	5	6	2	3	5	4	
O	849	01-05	DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	6	6	2	5	4	4	
O	850	01-06	DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	5	6	2	4	4	4	
O	851	01-07	DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	5	6	2	4	3	4	
O	852	01-08	DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	5	6	2	4	3	4	
O	853	01-09	DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	4	4	0	2	3	0	
O	854	01-10	DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	3	4	0	2	3	0	
O	855	01-11	DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	4	4	2	2	3	4	
O	856	01-12	DO YOU PERFORM TASKS ON SSB LC FILTERS	4	4	2	2	3	4	
O	857	01-13	DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	4	4	0	2	3	0	
O	858	01-14	DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	3	3	0	1	3	0	
O	859	01-15	DO YOU PERFORM TASKS ON SSB OSCILLATORS	4	5	0	2	4	0	
O	860	01-16	DO YOU PERFORM TASKS ON SSB MIXERS	4	5	0	2	4	0	
O	861	01-17	DO YOU PERFORM TASKS ON SSB DRIVERS	4	4	0	1	4	0	
O	862	01-18	DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	4	4	2	1	3	4	
O	863	01-19	DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	4	5	0	2	4	0	
O	864	01-20	DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	4	5	2	2	4	4	
O	865	01-21	DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	5	5	2	2	4	4	
O	866	01-22	DO YOU PERFORM TASKS ON SSB DEMODULATORS	4	4	2	2	3	4	
O	867	01-23	DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	2	2	2	2	2	4	
O	868	01-24	DO YOU USE OR REFER TO SELECTIVE FADING	2	2	2	1	3	4	
O	869	01-25	DO YOU USE OR REFER TO PEAK POWER	4	4	2	2	3	4	
O	870	01-26	DO YOU USE OR REFER TO FREQUENCY STABILITY	4	5	2	2	4	4	
O	871	01-27	DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	3	3	2	1	3	4	
O	872	01-28	DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	2	2	2	1	2	4	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
0 873	01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	2	2	2	1	3	4	
0 874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	4	4	2	2	3	4	
0 875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	29	29	28	24	35	37	PULSE MODULATION SYSTEMS
0 876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	26	26	27	22	31	33	
0 877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	23	23	23	18	27	30	
0 878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	26	26	27	19	33	33	
0 879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	28	28	27	23	34	33	
0 880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	21	20	25	14	27	33	
0 881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	25	27	18	22	32	22	
0 882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	20	20	25	13	26	33	
0 883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	21	22	17	18	25	15	
0 884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	14	14	15	15	13	19	
0 885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	13	14	8	12	15	7	
0 886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	10	11	8	8	12	11	
0 887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	9	9	5	9	8	11	
0 888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	10	10	8	9	10	19	
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	19	20	13	17	24	19	
0 890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	9	10	5	9	9	4	
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	18	19	17	14	23	26	
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	14	14	13	10	17	19	
0 893	02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	4	4	2	5	3	4	
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	9	9	8	10	7	11	
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	13	13	13	12	14	22	
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	19	19	20	15	23	30	
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	16	15	20	11	18	26	
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	17	16	18	12	20	30	
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	18	18	23	13	22	33	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
0	900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	19	19	22	14	23	30	
0	901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	14	15	12	11	17	15	
0	902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	5	5	5	3	8	11	
0	903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	25	25	28	20	31	37	
0	904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	24	23	28	18	29	37	
0	905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	27	27	28	23	33	37	
0	906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	25	25	28	20	32	37	
0	907	02-33 DO YOU USE OR REFER TO PEAK POWER	20	20	22	18	23	30	
0	908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	20	20	22	18	23	30	
0	909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	18	16	27	9	24	37	
0	910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	21	20	27	13	30	37	
0	911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	9	9	13	9	8	15	
0	912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	22	21	25	17	26	33	
0	913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	23	22	25	17	28	37	
0	914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	77	76	82	68	89	93	
0	915	03-02 DO YOU INSPECT ANTENNAS	76	75	80	66	88	89	
0	916	03-03 DO YOU CLEAN ANTENNAS	66	65	68	63	73	85	ANTENNAS
0	917	03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	22	23	20	24	22	15	
0	918	03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	10	11	3	11	11	4	
0	919	03-06 DO YOU TROUBLESHOOT TO ANTENNAS	67	66	75	60	77	89	
0	920	03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	17	17	15	18	15	26	
0	921	03-08 DO YOU REMOVE OR INSTALL ANTENNAS	76	75	82	68	90	89	
0	922	03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	14	15	8	14	14	15	
0	923	03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES	8	8	7	7	8	15	
0	924	03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	8	9	5	8	9	11	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
O	929	03-16 DO YOU WORK WITH HERTZ ANTENNAS	16	17	8	18	17	7	
O	930	03-17 DO YOU WORK WITH MARCONI ANTENNAS	11	12	5	13	9	0	
O	931	03-18 DO YOU WORK WITH BROADSIDE ARRAYS	16	18	7	22	11	0	
O	932	03-19 DO YOU WORK WITH END-FIRE ARRAYS	13	14	10	18	8	7	
O	933	03-20 DO YOU WORK WITH CARDIOID ARRAYS	11	11	12	12	9	7	
O	934	03-21 DO YOU WORK WITH COLLINEAR ARRAYS	14	14	8	17	11	4	
O	935	03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	7	7	5	6	9	11	
O	936	03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	5	5	3	3	7	7	
O	937	03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	9	10	3	8	11	7	
O	938	03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	7	7	5	6	9	11	
O	939	03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	3	3	0	2	3	0	
O	940	03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	3	3	0	3	3	0	
O	941	03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	23	24	17	27	21	11	
O	942	03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	41	41	42	32	53	52	
O	943	03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	8	9	2	9	9	0	
O	944	03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR	3	4	0	3	4	0	
O	945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	10	9	15	12	5	19	
O	946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	9	7	17	9	4	22	
O	947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	8	7	10	10	3	11	
O	948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	34	34	35	28	41	33	
O	949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	44	44	47	41	46	48	
O	850	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	34	34	30	35	35	30	
O	851	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	18	20	10	18	23	11	
O	852	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	7	8	0	13	3	0	
P	953	P1-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS	54	56	40	56	60	44	
P	954	P1-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES	7	7	5	6	7	7	TRANSMISSION LINES
P	955	P1-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	9	9	10	8	10	19	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
P 956	P1-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	18	19	10	21	17	19
P 957	P1-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	12	12	13	13	9	19
P 958	P1-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	15	15	13	16	15	19
P 959	P1-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	9	10	3	10	7	4
P 960	P1-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	9	9	5	10	7	4
P 961	P1-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	7	7	5	7	5	0
P 962	P1-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	52	54	40	54	57	44
P 963	P1-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	35	36	28	38	37	30
P 964	P1-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	44	45	38	43	51	41
P 965	P1-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION	8	7	12	5	10	4
P 966	P1-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	9	8	10	9	7	11
P 967	P1-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	16	16	15	14	19	15
P 968	P1-16 DO YOU MEASURE STANDING WAVE RATIOS (SR) OF TRANSMISSION LINES	16	17	8	18	15	4
P 969	P1-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	11	12	5	12	12	4
P 970	P1-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH	6	6	2	6	6	4
P 971	P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	9	10	3	9	9	4
P 972	P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	5	6	2	5	5	4
P 973	P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	6	6	5	5	7	11
P 974	P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	9	9	10	7	10	11
P 975	P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	3	3	2	2	3	0
P 976	P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	6	6	5	5	9	7
P 977	P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	2	3	0	2	3	0
P 978	P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	5	5	0	5	4	0
P 979	P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	5	5	0	3	6	0
P 980	P1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF	7	8	2	7	7	0

P/T MEMBERS RESPONDING "YES" BY SELECTED GPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
P 981	P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	9	9	8	9	9	7
P 982	P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	13	14	5	13	14	7
P 983	P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	9	9	7	7	11	7
P 984	P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	44	45	33	53	40	37
P 985	P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	42	43	33	50	38	41
P 986	P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	33	34	25	41	31	37
P 987	P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	20	21	15	26	15	19
P 988	P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	17	17	12	23	11	15
P 989	P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	14	16	3	27	6	0
P 990	P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	8	9	3	13	5	0
P 991	P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	28	30	20	34	27	22
P 992	P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	39	40	33	44	36	37
P 993	P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	34	35	27	42	30	30
P 994	P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	35	35	33	35	37	37
P 995	P2-12 DO YOU REMOVE OR INSTALL E BENDS	17	17	10	24	12	11
P 996	P2-13 DO YOU REMOVE OR INSTALL H BENDS	16	17	10	23	13	11
P 997	P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	18	19	8	24	15	11
P 998	P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	7	8	3	8	7	0
P 999	P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	6	7	3	8	6	0
P1000	P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	34	35	32	36	37	33
P1001	P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	18	19	13	22	16	11
P1002	P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	4	4	2	4	4	4
P1003	P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES	3	3	0	3	4	0
P1004	P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	7	7	8	7	8	11
P1005	P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	4	5	2	5	5	4
P1006	P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	5	5	5	5	5	7
P1007	P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	3	4	0	3	4	0
P1008	P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	3	4	0	4	4	0
P1009	P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	3	3	0	2	4	0
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	2	2	0	1	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	2	2	0	1	3	0
P1012	P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	5	6	2	5	6	4
P1013	P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	3	3	3	3	3	0

WAVEGUIDES AND CAVITY RESONATOI

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK		SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
P1014	P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR	3	4	0	3	3	0	
P1015	P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES	3	3	0	2	4	0	
P1016	P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES	2	3	0	1	4	0	
P1017	P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES	2	2	0	1	3	0	
P1018	P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	8	7	13	7	6	19	
P1019	P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	10	8	17	7	10	19	
P1020	P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	9	9	8	9	7	4	
P1021	P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	13	13	12	11	13	11	
P1022	P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	15	16	12	16	17	15	
P1023	P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO	2	2	0	1	3	0	
P1024	P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO	1	2	0	1	2	0	
P1025	P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO	2	2	0	1	3	0	
P1026	P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	5	5	3	2	7	4	
P1027	P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	4	5	0	5	4	0	
P1028	P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	16	16	13	20	11	11	
P1029	P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	5	6	0	7	6	0	
P1030	P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	6	6	3	7	5	7	
P1031	P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	6	7	3	6	7	7	
P1032	P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	10	10	12	10	9	7	
P1033	P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	10	10	12	12	8	11	
P1034	P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR	44	45	37	43	51	41	MICROWAVE AMPLIFIERS AND OSCILLATORS
P1035	P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	11	12	7	14	10	7	
P1036	P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	8	9	2	10	10	0	
P1037	P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	8	8	8	9	8	11	

PCT MEMBERS RESPONDING YES* AT SELECTED GPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
P1038	P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	20	19	25	18	23	22
P1039	P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	13	13	12	13	15	11
P1040	P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	15	16	12	16	18	11
P1041	P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	4	4	0	5	4	0
P1042	P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	2	3	0	3	3	0
P1043	P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	5	6	0	9	4	0
P1044	P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	36	35	37	36	41	41
P1045	P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	4	4	3	2	7	7
P1046	P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	4	5	0	4	6	0
P1047	P3-14 DO YOU WORK WITH MAGNETRONS	18	20	3	18	25	4
P1048	P3-15 DO YOU INSPECT KLYSTRONS OR TWT	32	31	35	28	39	41
P1049	P3-16 DO YOU CLEAN KLYSTRONS OR TWT	24	24	23	24	29	30
P1050	P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	22	24	10	25	26	7
P1051	P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	10	11	3	11	13	4
P1052	P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	33	32	37	31	40	41
P1053	P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	28	27	32	26	33	37
P1054	P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	34	34	35	34	41	37
P1055	P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	5	6	2	6	5	0
P1056	P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	5	5	0	4	7	0
P1057	P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	4	5	0	4	6	0
P1058	P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	5	6	0	5	7	0
P1059	P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	4	4	0	3	5	0
P1060	P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	5	6	0	5	7	0
P1061	P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	4	5	0	3	7	0
P1062	P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	4	4	0	3	7	0
P1063	P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	3	3	0	1	5	0
P1064	P3-31 DO YOU INSPECT MAGNETRONS	18	20	2	18	25	4
P1065	P3-32 DO YOU CLEAN MAGNETRONS	15	17	2	16	19	4
P1066	P3-33 DO YOU ADJUST MAGNETRONS	16	18	0	15	21	0
P1067	P3-34 DO YOU TUNE MAGNETRONS	17	19	0	15	23	0
P1068	P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	17	19	0	15	23	0
P1069	P3-36 DO YOU TROUBLESHOOT MAGNETRONS	15	18	0	14	21	0
P1070	P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	17	20	0	15	25	0
P1071	P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	5	5	0	6	5	0
P1072	P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	3	3	0	2	5	0
P1073	P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	3	3	0	2	5	0
P1074	P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	3	3	0	2	5	0

PCT MEMBERS RESPONDING "YES" BY SELECTED SPC

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006
P1075	P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	2	3	0	1	5	0
P1076	P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	1	2	0	1	3	0
P1077	P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	2	3	0	1	5	0
P1078	P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	3	3	0	2	5	0
P1079	P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	3	3	0	1	5	0
P1080	P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	3	4	0	2	6	0
P1081	P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	4	5	0	6	3	0
P1082	P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	4	5	0	6	4	0
P1083	P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	4	4	0	6	3	0
P1084	P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	4	5	0	6	3	0
P1085	P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	3	4	0	4	3	0
P1086	P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	4	5	0	6	4	0
P1087	P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	4	5	0	6	4	0
P1088	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	4	4	0	5	4	0
P1089	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	27	25	35	23	32	37
P1090	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	25	24	30	21	32	26
P1091	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	18	18	18	16	24	19
P1092	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	26	25	30	24	31	26
P1093	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	26	25	28	24	31	26
P1094	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	23	22	27	19	29	26
P1095	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	17	17	22	18	17	22
P1096	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	22	21	25	21	24	30
P1097	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	1	1	0	1	2	0
P1098	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	2	2	0	1	3	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	1	1	0	1	2	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	3	3	0	2	5	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	2	2	0	1	3	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	2	2	0	1	3	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	7	8	0	7	9	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	4	4	0	3	5	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	5	6	0	3	7	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	6	7	0	4	9	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	5	6	0	5	7	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATHODES	8	9	0	8	11	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	6	7	0	6	8	0	
Q1110	Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	23	25	15	18	31	19	
Q1111	Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	24	25	17	18	33	19	REGISTERS
Q1112	Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	22	24	13	16	33	15	
Q1113	Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	22	23	15	15	33	15	
Q1114	Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	18	19	12	14	23	11	
Q1115	Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	18	18	17	14	22	19	
Q1116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES	14	15	7	12	16	4	
Q1117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	27	28	25	21	37	33	STORAGE DEVICES
Q1118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	14	14	13	8	21	15	
Q1119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	9	9	5	5	11	4	
Q1120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	3	4	0	1	6	0	
Q1121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	12	13	5	14	10	0	
Q1122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	8	9	3	3	16	4	
Q1123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	13	14	8	9	18	7	
Q1124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	6	6	5	3	9	0	
Q1125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	13	13	12	9	17	11	
Q1126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D)	18	18	22	12	27	22	DIGITAL TO ANALOG CONVERTERS
Q1127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT	6	6	7	4	7	4	
Q1128	Q3-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A)	3	3	3	2	6	0	

PCT MEMBERS RESPONDING 'YES' BY SELECTED GRS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
Q1129	Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	7	7	5	6	9	4	
Q1130	Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	7	3	6	9	4	
Q1131	Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	6	7	3	6	9	4	
Q1132	Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	7	8	5	6	9	7	
Q1131	Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	6	7	5	5	8	7	
Q1134	Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER	6	6	10	5	7	11	
Q1135	Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	8	9	3	6	12	4	
Q1136	Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	8	9	2	6	13	0	
Q1137	Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	8	9	3	6	12	4	
Q1138	Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	9	9	7	7	12	7	
Q1139	Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	4	4	2	2	5	0	
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	2	2	2	1	3	0	PHANTASTRONS
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	26	27	15	24	29	15	SCHMITT TRIGGERS
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	22	24	12	22	23	11	
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	19	19	15	16	22	19	
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	61	61	58	56	69	59	CABLE FABRICATION
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	68	68	65	60	81	59	
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	36	38	28	35	43	41	INPUT/OUTPUT DEVICES
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	14	15	10	14	13	7	
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	7	7	5	6	6	0	
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	5	5	7	2	5	4	PHOTO SENSITIVE DEVICES
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	14	15	5	14	15	0	
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	6	6	5	5	7	0	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	5	5	5	5	6	0	
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	5	5	5	5	5	0	
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	5	5	5	5	6	0	
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	7	7	5	9	4	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

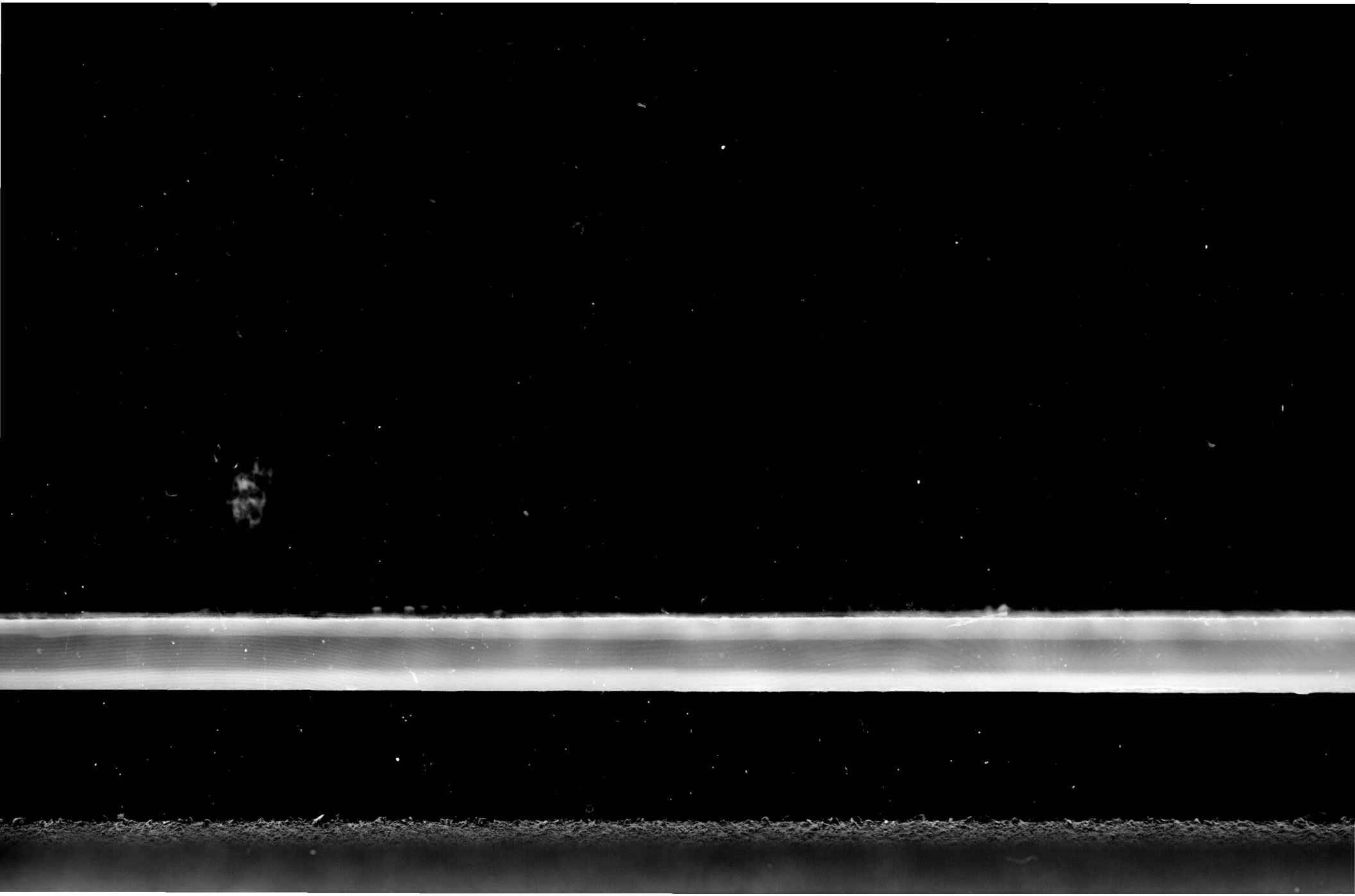
	Dy-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
S1156	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	9	10	5	10	9	0	
S1157	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	10	11	5	9	10	0	
S1158	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	11	12	5	12	11	0	
T1159	T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	4	5	0	8	1	0	INFRARED
T1160	T1-02 DO YOU INSPECT INFRARED SYSTEMS	4	4	0	7	1	0	
T1161	T1-03 DO YOU CLEAN INFRARED SYSTEMS	3	4	0	7	0	0	
T1162	T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	3	4	0	6	1	0	
T1163	T1-05 DO YOU OPERATE INFRARED SYSTEMS	3	4	0	7	1	0	
T1164	T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	4	4	0	7	1	0	
T1165	T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	4	4	0	7	1	0	
T1166	T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	3	4	0	7	1	0	
T1167	T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	4	4	0	7	1	0	
T1168	T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	3	4	0	7	0	0	
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	1	2	0	2	1	0	
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	1	2	0	3	0	0	
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	1	1	0	2	0	0	
T1172	T1-14 DO YOU USE OR REFER TO MICRON	1	2	0	2	1	0	
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	0	1	0	1	0	0	
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	2	2	0	4	0	0	
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	1	1	0	2	0	0	
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0	
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	1	1	0	1	0	0	
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0	0	0	0	
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	1	2	0	2	1	0	
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	0	0	0	0	0	0	
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	0	0	0	0	0	0	
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	1	1	0	1	1	0	
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	2	2	0	3	1	0	
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	1	1	0	1	0	0	
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	1	1	0	3	0	0	
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0	LASERS
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0	
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0	
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0	

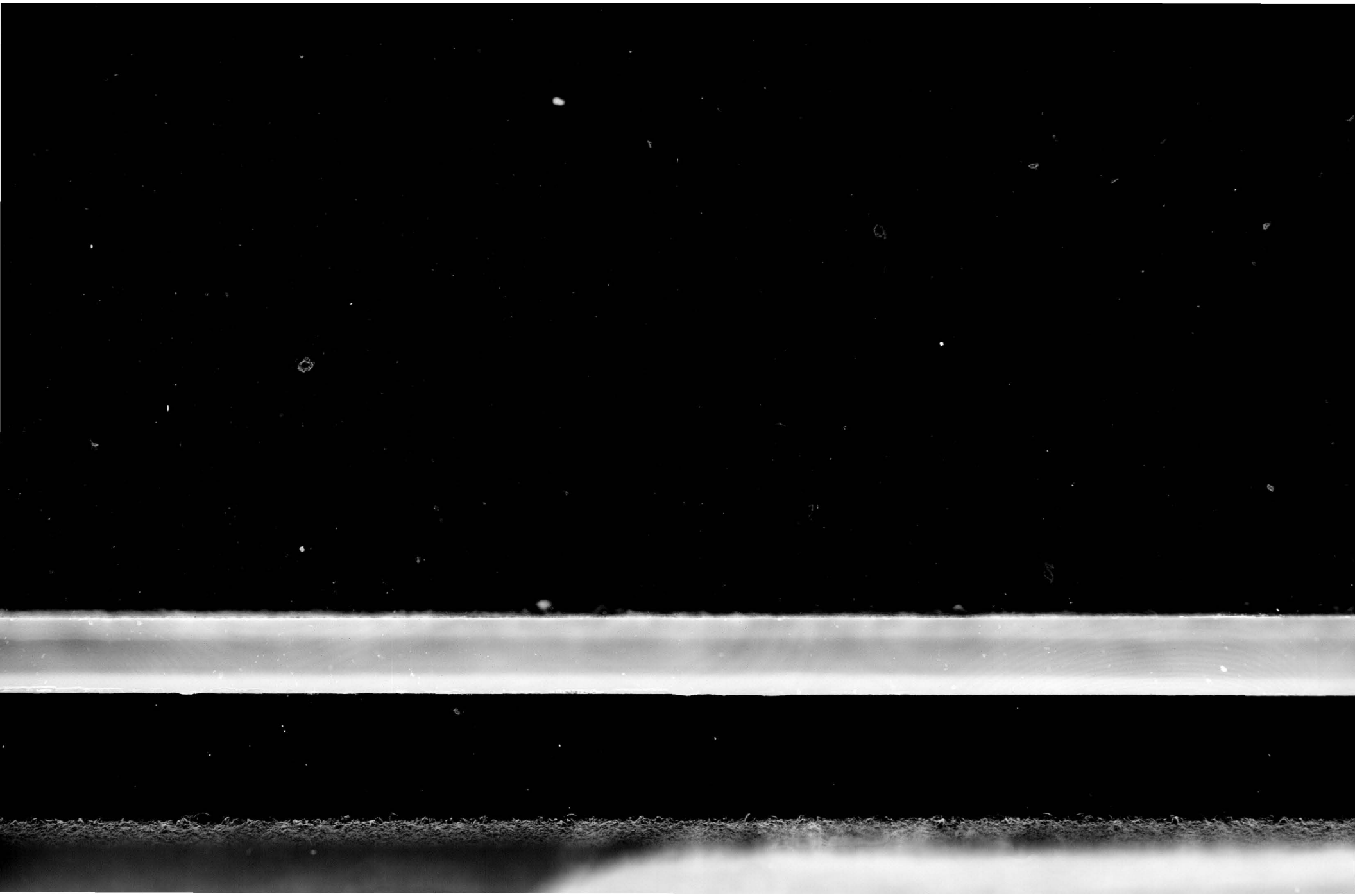
TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

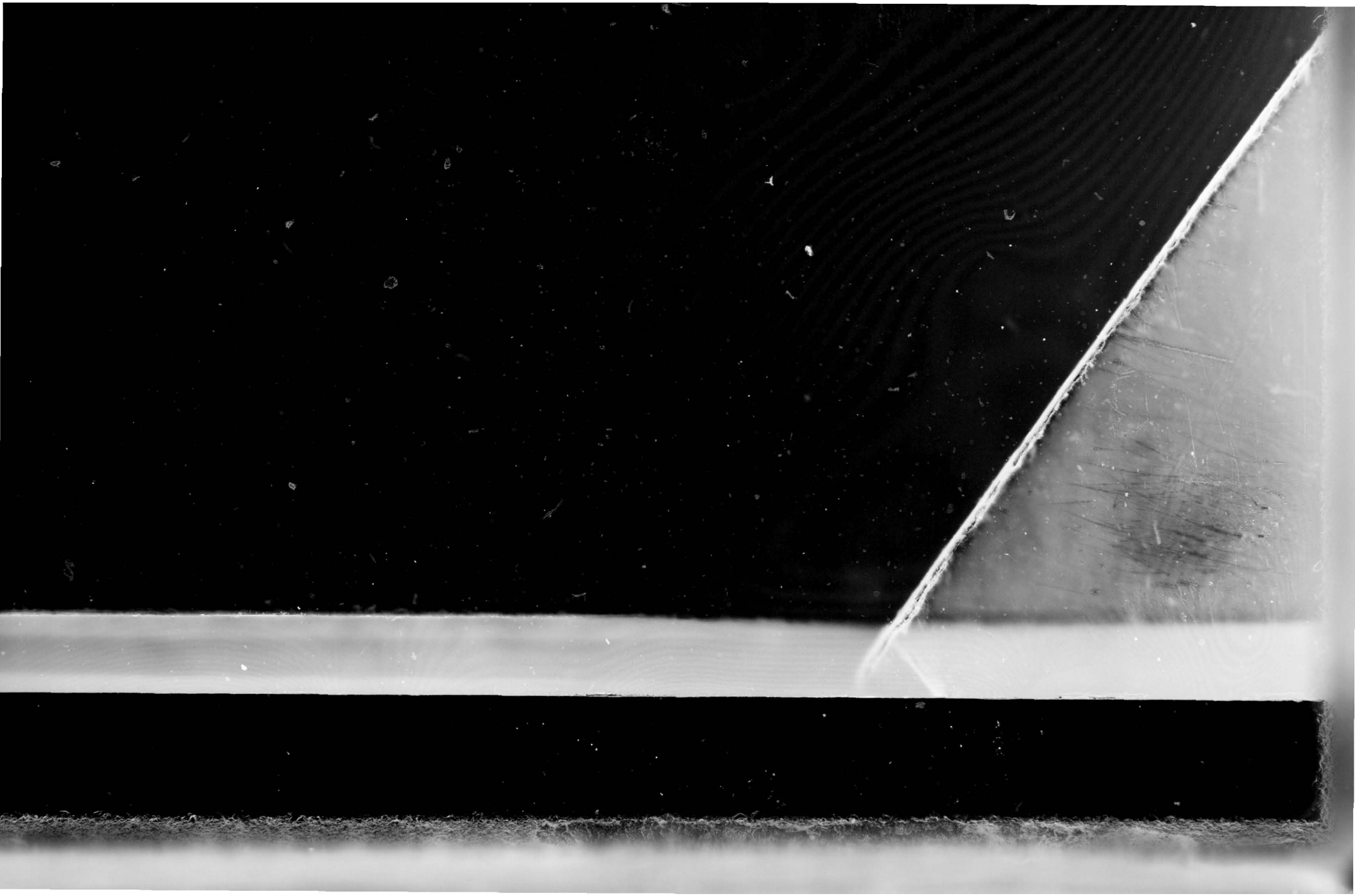
	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	2	0	0	0	
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0	
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0	
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0	
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0	
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0	
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0	
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0	
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	1	0	1	0	0	
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0	
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0	
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0	
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0	
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	0	
T1210	T2-25 DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	0	0	0	0	0	0	
T1211	T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	0	
T1212	T2-27 DO YOU WORK WITH RUBY	0	0	0	0	0	0	
T1213	T2-28 DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	0	
T1214	T2-29 DO YOU WORK WITH HELIUM-XENON	0	0	0	0	0	0	
T1215	T2-30 DO YOU WORK WITH XENON	0	0	0	0	0	0	
T1216	T2-31 DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	0	
T1217	T2-32 DO YOU WORK WITH ARGON	0	0	0	0	0	0	
T1218	T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	0	
T1219	T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	0	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	4	4	2	4	4	0	DISPLAY TUBES
T1221	T3-02 DO YOU INSPECT DVST OR MMST	3	3	0	2	4	0	
T1222	T3-03 DO YOU CLEAN DVST OR MMST	2	3	0	2	3	0	
T1223	T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	2	2	2	2	3	0	
T1224	T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	4	4	2	5	4	0	
T1225	T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	2	2	0	2	2	0	
T1226	T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	2	2	2	2	2	0	
T1227	T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	1	1	2	1	1	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	
T1228	T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF HMST	1	1	2	0	1	0	
T1229	T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	1	1	0	1	1	0	
T1230	T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	1	1	0	1	1	0	
T1231	T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	0	1	0	0	1	0	
T1232	T3-13 DO YOU PERFORM TASKS ON ERASE GUNS	1	1	0	1	1	0	
T1233	T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	1	1	0	1	1	0	
U1234	U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	24	23	33	7	41	48	PROGRAMMING
U1235	U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	14	14	12	6	24	22	
U1236	U1-03 DO YOU USE OR REFER TO PROGRAMS	21	20	23	6	37	30	
U1237	U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	3	3	0	2	5	0	
U1238	U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	5	5	3	3	7	7	
U1239	U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS	3	2	7	1	3	7	
U1240	U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS	14	14	13	4	27	26	
U1241	U1-08 DO YOU USE OR REFER TO TIME-SHARING	6	7	3	3	10	4	
U1242	U1-09 DO YOU USE OR REFER TO DATA WORDS	17	17	22	5	31	33	
U1243	U1-10 DO YOU USE OR REFER TO ADDRESS WORDS	12	14	5	5	24	7	
U1244	U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	9	10	2	4	15	4	
U1245	U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION	5	5	5	4	5	11	
U1246	U1-13 DO YOU USE OR REFER TO INFORMATION WORDS	10	10	10	3	18	15	
U1247	U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	10	11	10	5	16	19	
U1248	U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	7	7	7	3	11	7	
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	10	11	7	4	18	7	
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	10	10	8	4	17	11	
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	4	4	2	2	7	4	
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	9	9	8	3	15	7	
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	9	9	7	4	16	7	
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	8	8	7	3	13	4	
U1255	U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	65	66	50	69	72	52	DB AND POWER RATIOS
U1256	U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	14	14	15	16	14	11	
U1257	U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	14	14	13	15	15	11	
U1258	A DUMMY TASK WHICH ALLOWS THOSE INCUMBENTS REPORTING NO TASKS PERFORMED TO BE RETAINED FOR OTHER	3	2	3	4	1	0	







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Avionics
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Electronics
Air Force training
Teaching methods
Training

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

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned to Electronic Warfare Systems Specialty (AFSC 328X3). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.

CONTINUED

This specialty has the following functions:

Installs, maintains, and repairs avionic electronic warfare equipment, ground electronic intercept and analysis equipment, and special purpose test equipment. Performs preventive maintenance on avionics electronic warefare and ground intercept and analysis equipment. Maintains inspection and maintenance records. Supervises electronic warfare systems maintenance personnel.