Group Examination Analysis

Test Code: 7763, v1

Test Date: Tuesday, May 05, 2009

Number of Candidates: 10 Site Code: 8655

Examination Analysis

Number of Candidates: 10 49 Low Score: Mean: 60 High Score: 70 Number of Questions: 120 0 Pass Score: International Average: 0.0% Standard Deviation: 13.5 Standard Error of the 4.3 Measurement: KR20: 0.87

Group Examination Performance

1.0 Basic Concepts of Electricity		<u> </u>					
1.1 Systems of Units and Notation 2 20 18 90.0 1.2 Voltage and Current Concepts 1 10 10 100.0 1.3 Conductors and Insulators 3 30 11 36.7 1.4 Resistivity, Resistance and Color Codes 1 10 10 100.0 1.5 Ohm's Law 1 10 9 90.0 1.6 Capacitance, Capacitors and Markings 2 20 12 60.0 1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2. Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2. Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2. Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2. 1. Sinusoidal Concepts 16 160 69 43.1 2. 1. Sinusoidal Concepts 1 10 0 2. 2. I		Level/Title	Items in	Items Seen by	Items Passed	Performance	Pct
1.2 Voltage and Current Concepts 1 10 10 100.0 1.3 Conductors and Insulators 3 30 11 36.7 1.4 Resistivity, Resistance and Color Codes 1 10 9 90.0 1.5 Ohm's Law 1 10 9 90.0 1.6 Capacitance, Capacitors and Markings 2 20 12 60.0 1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2 1.9 Sinusoidal Concepts 2 20 12 60.0 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0.0 0.0 2.4 Energy Consumption and Storage 1 10 0 0.0 0.2 2.Energy Consumption and Storage 1 10 0 0.0 0.2 2.Energy Consumption and Storage 1 10 0 0.0 0.0 0.2 2.Energy Consumption and Storage	1	1.0 Basic Concepts of Electricity	16	160	121		75.6%
1.3 Conductors and Insulators 3 30 11 36.7 1.4 Resistivity, Resistance and Color Codes 1 10 10 100.0 1.5 Ohm's Law 1 10 9 90.0 1.6 Capacitores, Capacitors and Markings 2 20 12 60.0 1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2 2.0 Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 0 0.0 2.8 Simplified RC and RL Transients		1.1 Systems of Units and Notation	2	20	18		90.0%
1.3 Conductors and Insulators 3 30 11 36.7 1.4 Resistivity, Resistance and Color Codes 1 10 10 100.0 1.5 Ohm's Law 1 10 9 90.0 1.6 Capacitance, Capacitors and Markings 2 2 20 12 60.0 1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2. 2.0 Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10 0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 76.7 2.6 AC Impedance/Admittance 2 2 20 1 5.0 2.7 Phase Relationships 1 10 0 0		1.2 Voltage and Current Concepts	1	10	10		100.0%
1.5 Ohm's Law 1 10 9 90.0 1.6 Capacitance, Capacitors and Markings 2 20 12 60.0 1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2 Lo Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 0 0.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle <td< td=""><td></td><td>1.3 Conductors and Insulators</td><td>3</td><td>30</td><td>11</td><td></td><td>36.7%</td></td<>		1.3 Conductors and Insulators	3	30	11		36.7%
1.6 Capacitance, Capacitors and Markings		1.4 Resistivity, Resistance and Color Codes	1	10	10		100.0%
1.7 Inductance, Inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2 2.0 Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 50.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.8 Simplified RC and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 9 90.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance		1.5 Ohm's Law	1	10	9		90.0%
1.7 Inductance, inductors and Markings 1 10 8 80.0 1.8 Power and Energy 3 30 27 90.0 1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16 80.0 2 2.0 Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 50.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 9 90.0 2.11 Maximum Power Transfer 1 10 0 0.0 1 2.12 Series and Par		1.6 Capacitance, Capacitors and Markings	2	20	12		60.0%
1.9 Usage of Basic Electrical/Electronic Test Equipment 2 20 16			1	10	8		80.0%
2 2.0 Alternating Current (AC) Circuit Concepts 16 160 69 43.1 2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 33 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 1 1 10 1 3.5. Mesh Current Divider Rules 1 10 1 1 10 1 3.6. Node Voltage Analysis 1 10 1 1 10 1 3.7. Thevenin and Norton Theorems 1 10 5 50.0		1.8 Power and Energy	3	30	27		90.0%
2.1 Sinusoidal Concepts 2 20 12 60.0 2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 0 90.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 1 10.0 3.4. Voltage and Current Divider Rules 1 <td></td> <td>1.9 Usage of Basic Electrical/Electronic Test Equipment</td> <td>2</td> <td>20</td> <td>16</td> <td></td> <td>80.0%</td>		1.9 Usage of Basic Electrical/Electronic Test Equipment	2	20	16		80.0%
2.3 Inductance and Inductors 1 10 0 0.0 2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1	2	2.0 Alternating Current (AC) Circuit Concepts	16	160	69		43.1%
2.4 Energy Consumption and Storage 1 10 1 10.0 2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 9 90.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition			2	20	12		60.0%
2.5 Capacitive and Inductive Reactance 3 30 23 76.7 2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 0 0.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition 1 10 5 <td></td> <td>2.3 Inductance and Inductors</td> <td>1</td> <td>10</td> <td>0</td> <td></td> <td>0.0%</td>		2.3 Inductance and Inductors	1	10	0		0.0%
2.6 AC Impedance/Admittance 2 20 1 5.0 2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 0 0.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.4 Energy Consumption and Storage	1	10	1		10.0%
2.7 Phase Relationships 1 10 9 90.0 2.8 Simplified RC and RL Transients 1 10 0 0.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.5 Capacitive and Inductive Reactance	3	30	23		76.7%
2.8 Simplified RC and RL Transients 1 10 0 0.0 2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 0 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.6 AC Impedance/Admittance	2	20	1		5.0%
2.9 Complex Numbers and Phasors 1 10 9 90.0 2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.7 Phase Relationships	1	10	9		90.0%
2.10 AC Power, Power Factor and Power Triangle 1 10 3 30.0 2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.8 Simplified RC and RL Transients	1	10	0		0.0%
2.11 Maximum Power Transfer 1 10 0 0.0 2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.9 Complex Numbers and Phasors	1	10	9		90.0%
2.12 Series and Parallel Resonance 2 20 11 55.0 3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.10 AC Power, Power Factor and Power Triangle	1	10	3		30.0%
3 3.0 Basic Circuit Analysis Methods 8 80 33 41.3 3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.11 Maximum Power Transfer	1	10	0		0.0%
3.2 Ideal and Practical Source Models 1 10 9 90.0 3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		2.12 Series and Parallel Resonance	2	20	11		55.0%
3.3. Kirchhoff's Laws 1 10 0 0.0 3.4. Voltage and Current Divider Rules 1 10 1 10.0 3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0	3	3.0 Basic Circuit Analysis Methods	8	80	33		41.3%
3.4. Voltage and Current Divider Rules 1 10 1 3.5. Mesh Current Analysis 1 10 1 3.6. Node Voltage Analysis 1 10 1 3.7. Thevenin and Norton Theorems 1 10 7 3.9. Superposition 1 10 5		3.2 Ideal and Practical Source Models	1	10	9		90.0%
3.5. Mesh Current Analysis 1 10 1 10.0 3.6. Node Voltage Analysis 1 10 1 10.0 3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		3.3. Kirchhoff's Laws	1	10	0		0.0%
3.6. Node Voltage Analysis 1 10 1 3.7. Thevenin and Norton Theorems 1 10 7 3.9. Superposition 1 10 5		3.4. Voltage and Current Divider Rules	1	10	1		10.0%
3.7. Thevenin and Norton Theorems 1 10 7 70.0 3.9. Superposition 1 10 5 50.0		3.5. Mesh Current Analysis	1	10	1		10.0%
3.9. Superposition 1 10 5 50.0		3.6. Node Voltage Analysis	1	10	1		10.0%
		3.7. Thevenin and Norton Theorems	1	10	7		70.0%
3.10 Bridge and Ladder Networks		3.9. Superposition	1	10	5		50.0%
o. 10. Enlage and Educio Networks		3.10. Bridge and Ladder Networks	1	10	9		90.0%

4	5.0 Digital Electronics	26	260	194	74.6%
4	5.1 Numbering Systems and Codes	5	50	43	86.0%
	5.2 Boolean Algebra and Logic Operations	2	20	16	80.0%
		3	30	25	83.3%
	5.3 Logic Gates and Standard Symbols	2	20	20	100.0%
	5.4 Combinational Logic		20	10	
	5.5 Latches and Flip-Flops	3	30	18	50.0%
	5.7 Counters and Registers			9	60.0%
	5.8 Arithmetic Operations and Circuits	2	20		45.0%
	5.9 Analog-Digital Interfaces (A-D and D-A Circuits)	3	30	27	90.0%
	5.11 Encoders, Decoders and Multiplexers	1	10	10	100.0%
	5.12 IC Families	2	20	13	65.0%
_	5.20 Memory	1	10	3	30.0%
5	6.0 Analog Electronics	21	210	56	26.7%
	6.1 Semiconductor Theory	1	10	4	40.0%
	6.2 The Semiconductor Diode	1	10	2	20.0%
	6.3 Voltage Rectification and Regulation Concepts	1	10	1	10.0%
	6.4 The Bipolar Junction Transistor	2	20	6	30.0%
	6.5 The Field Effect Transistor	2	20	15	75.0%
	6.6 Discrete-Device Amplifier Concepts, Design and Operation	2	20	7	35.0%
	6.8 Ideal Operational Amplifiers	1	10	10	100.0%
	6.9 Actual Operational Amplifiers	1	10	0	0.0%
	6.10 Basic Operational Amplifier Circuits	1	10	1	10.0%
	6.11 Advanced Operational Amplifier Circuits	2	20	1	5.0%
	6.12 Special Purpose Amplifiers	2	20	0	0.0%
	6.13 Frequency Response	1	10	1	10.0%
	6.14 Precision Diode Circuits	2	20	8	40.0%
	6.17 Power Supply and Regulator Circuits	1	10	0	0.0%
	6.18 Timers and Relaxation Oscillators	1	10	0	0.0%
6	7.0 Microcontrollers and Microprocessors	19	190	75	39.5%
	7.1 Data representation	1	10	4	40.0%
	7.2 Computer Arithmetic Functions	2	20	10	50.0%
	7.4 Basic Machine Architectures	4	40	15	37.5%
	7.6 Stack Based Architectures	1	10	4	40.0%
	7.7 Device Architecture, Memory and I/O	4	40	23	57.5%
	7.8 Programming Basics	1	10	2	20.0%
	7.11 Basic Math Programming	1	10	7	70.0%
	7.12 Serial and Parallel Ports and I/O	1	10	0	0.0%
	7.13 Interrupts	1	10	2	20.0%
	7.14 Assembly Language	1	10	8	80.0%
	7.16 Bus-Level Timing Analysis	1	10	0	0.0%
	7.17 Cache Architecture Analysis	1	10	0	0.0%
7	12.0 Instrumentation and Measurements	14	140	61	43.6%
	12.1 Measurement Parameters	3	30	11	36.7%
	12.3 Roundoff Strategies	2	20	8	40.0%
	12.4 Statistical Measures of Data	2	20	19	95.0%
	12.5 Basic Passive DC Instruments	1	10	4	40.0%
	12.7 Multimeters	1	10	3	30.0%
	12.10. Oscilloscope Specifications and Measurements	1	10	1	10.0%
	12.11 Frequency Response Measurements	1	10	3	30.0%
	12.12 Spectrum Measurements	2	20	8	40.0%
	12.13 Miscellaneous Electrical/Electronic Instruments	1	10	4	40.0%
	12.10 miodonarious Electrica/Electroffic filstrafficia	'	ان ا	-	 70.070