

# جامعة البلقاء التطبيقية

وحدة التقييم والامتحانات العامة  
الدائرة الفنية وتكنولوجيا المعلومات  
امتحان الشهادة الجامعية المتوسطة



الكفايات العملية لتخصص: النظم الكهربائية والأجهزة الدقيقة في الطائرة

## **Aircraft electrical systems and instrumentation specialist practical exercises:-**

**After graduation; its expected from the student to be able to: -**

Exercise NO.	Exercise	subject
1	Follow the safety precautions when dealing with electrical equipments and measuring instruments.	Electrical circuits lab.
2	Measure voltages to verify KVL.	Electrical circuits lab.
3	Measure currents to verify KCL	Electrical circuits lab.
4	Identify shorts and opens in a malfunctioning circuit	Electrical circuits lab.
5	Define and verify the equivalent resistance of a given network	Electrical circuits lab.
6	Calculate the inductance of an inductor .	Electrical circuits lab.
7	Calculate the capacitance of a capacitor.	Electrical circuits lab.
8	To be familiar with an oscilloscope	Electrical circuits lab.
9	Identify resonance circuit.	Electrical circuits lab.
10	Using digital multimeter to measure electrical current	Electrical circuits lab.
11	Using digital multimeter to measure voltage	Electrical circuits lab.
12	Using digital multimeter to measure resistance	Electrical circuits lab.
13	Distinguish series and parallel circuits	Electrical circuits lab.
14	Build simple and complex electrical circuit	Electrical circuits lab.
15	Know and distinguish basic electrical elements and testing methods	Electrical circuits lab.
16	Resistor color codes	Electrical circuits lab.
17	Verify ohms law practically	Electrical circuits lab.
18	Implement series dc circuits	Electrical circuits lab.
19	Implement series ac circuits	Electrical circuits lab.
20	Implement parallel dc circuits	Electrical circuits lab.
21	Implement parallel ac circuits	Electrical circuits lab.
22	Superposition theorem	Electrical circuits lab.
23	Series rlc circuits and its components	Electrical circuits lab.
24	Parallel rlc circuits and its components	Electrical circuits lab.

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25	Series resonant circuits	Electrical circuits lab.
26	Parallel resonant circuits	Electrical circuits lab.
27	Operation and construction of d.c generator	Aircraft electrical systems workshop
28	Operation and construction of a.c generator	Aircraft electrical systems workshop
29	Measuring instruments and warning lights	Aircraft electrical systems workshop
30	Landing gear system	Aircraft electrical systems workshop
31	Warning and indicating lights	Aircraft electrical systems workshop
32	Fire detection and extinguishing system for c130	Aircraft electrical systems workshop
33	Wires and cables inspection and installation	Aircraft electrical systems workshop
34	Methods of wires connection	Aircraft electrical systems workshop
35	Switches identification, inspection and installation	Aircraft electrical systems workshop
36	Relays identification, inspection and installation	Aircraft electrical systems workshop
37	Describe the precautions concerning safety in the workplace.	Soldering techniques
38	Describe correct safety procedures for hand and power tools.	Soldering techniques
39	Identify hand tools used by electronics technicians.	Soldering techniques
40	Describe the procedures used to care for hand tools.	Soldering techniques
41	Explain the principles of soldering and de-soldering.	Soldering techniques
42	Fire extinguishers identification	Soldering techniques
43	Wiring and stripping techniques	Soldering techniques
44	Connect the electrical wiring by soldering .	Soldering techniques
45	Connect the electrical wiring by crimping .	Soldering techniques
46	Connect the electrical wiring by terminal lugs .	Soldering techniques
47	Connect the electrical wiring by splice .	Soldering techniques
48	Connect the electrical wiring by Plug and socket .	Soldering techniques
49	Analyze circuits with nonlinear elements using semiconductor characteristics.	Electronics devices & circuits lab,1

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50	Measure relevant quantities and parameters in electronic circuits using oscilloscopes, multimeters, function generators and power supplies dealing.	Electronics devices & circuits lab.1
51	Describe an experimental procedure involving circuits with semiconductor devices.	Electronics devices & circuits lab.1
52	Analyze circuits with nonlinear elements using semiconductor characteristics.	Electronics devices & circuits lab.1
53	Diode testing&characteristic curve	Electronics devices & circuits lab.1
54	Half-wave Rectifier	Electronics devices & circuits lab.1
55	Full-wave Rectifier	Electronics devices & circuits lab.1
56	)centertapped&bridge(	Electronics devices & circuits lab.1
57	Diode Clippers	Electronics devices & circuits lab.1
58	Clampers Circuits	Electronics devices & circuits lab.1
59	Zener Diode	Electronics devices & circuits lab.1
60	LED Characteristics	Electronics devices & circuits lab.1
61	Testing Bi-polar Transistor NPN &PNP types	Electronics devices & circuits lab.1
62	Troubleshooting electronic circuits	Electronics devices & circuits lab.1
63	Common-Emitter amplifier	Electronics devices & circuits lab.2
64	Common-Base amplifier	Electronics devices & circuits lab.2
65	Common-Collector amplifier	Electronics devices & circuits lab.2
66	Operational amplifiers	Electronics devices & circuits lab.2
67	Differential Amplifier	Electronics devices & circuits lab.2

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68	The OP-AMP Comparator	Electronics devices & circuits lab.2
69	Filters	Electronics devices & circuits lab.2
70	Testing and troubleshooting simple digital circuits	Digital fundamentals laboratory
71	Logic gates	Digital fundamentals laboratory
72	Boolean algebra and Demorgan theorems	Digital fundamentals laboratory
73	Karnaugh maps	Digital fundamentals laboratory
74	Half-adders ( subtractors)	Digital fundamentals laboratory
75	Full adders (subtractors)	Digital fundamentals laboratory
76	Parallel adders	Digital fundamentals laboratory
77	Comparator	Digital fundamentals laboratory
78	Encoders	Digital fundamentals laboratory
79	Decoders and seven-segment display	Digital fundamentals laboratory
80	Multiplexer	Digital fundamentals laboratory
81	De-multiplexer	Digital fundamentals laboratory
82	Flip-flop	Digital fundamentals laboratory
83	Asynchronous counters	Digital fundamentals laboratory
84	Synchronous counters	Digital fundamentals laboratory
85	Registers	Digital fundamentals laboratory
86	Memories	Digital fundamentals laboratory

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87	Arithmetic logic unit	Digital fundamentals laboratory
88	Pitot-static instrument	Aircraft instrumentation systems workshop
89	Temperature instrument	Aircraft instrumentation systems workshop
90	Engine instrument	Aircraft instrumentation systems workshop
91	Gyroscopic instrument	Aircraft instrumentation systems workshop
92	Auxiliary instrument	Aircraft instrumentation systems workshop
93	Heading indicating instrument	Aircraft instrumentation systems workshop
94	Pressure instrument	Aircraft instrumentation systems workshop
95	Explain the principal operation of air speed indicator.	Aircraft instrumentation systems workshop
96	Explain the principal operation of altimeter indicator.	Aircraft instrumentation systems workshop
97	Explain the principal operation of vertical speed indicator.	Aircraft instrumentation systems workshop
98	Explain the principal operation of machmeter .	Aircraft instrumentation systems workshop
99	Explain the principal operation of exhaust gas temperature.	Aircraft instrumentation systems workshop

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100	Explain the principal operation of oil pressure indicator.	Aircraft instrumentation systems workshop
101	Explain the principal operation of fuel quantity indicator.	Aircraft instrumentation systems workshop

