

- Q.25 What are different applications of high resistivity materials?
- Q.26 Explain in brief the concept of superconductivity.
- Q.27 What should be the properties of materials to be used in soldering?
- Q.28 How is energy stored in capacitor?
- Q.29 Explain in brief the principle of thermocouples.
- Q.30 What is function of connectors, List different types of connectors.
- Q.31 Show how diodes are tested?
- Q.32 Write the main features of SMDs.
- Q.33 List different materials used for fabrication of motors.
- Q.34 Explain in brief the principle of potentiometer.
- Q.35 What are different types of fuses?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain in detail different types of magnetic materials.
- Q.37 With the help of neat diagram, explain various processes in manufacturing of ICs.
- Q.38 Show how transformers are manufactured and how these are tested?

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Roll No.

3rd Sem / Eltx, EI, IC, Med. Eltx., Comp, Power Eltx, Elect. & Eltx. Engg.

Subject:- Electrical and Electronics Materials and Components / ECM

Time : 3Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Aluminum is _____ material.
- a) Conductor b) Semiconductor
- c) Insulator d) None of these
- Q.2 Moisture _____ the insulation resistance of material.
- a) Increases b) Reduces
- c) Doesn't affect
- Q.3 The semiconductors have exact _____ electrons in last orbit
- a) 2 b) 4
- c) 6 d) 8
- Q.4 Unit of resistivity is _____
- a) Ohms b) Ohms-m
- c) Ohms/m d) Ohms/m²

- Q.5 The break down voltage of connectors is _____ times the normal voltage.
- a) 2 b) 3
c) 4 d) 5
- Q.6 Hysteresis loss is proportional to the square of _____
- a) Voltage b) current
c) frequency d) power
- Q.7 A 1mF Capacitor is connected in parallel to 5 mF Capacitor. The resultant capacitance will be _____ mF.
- a) 1 b) 3
c) 5 d) 6
- Q.8 $1\text{ M}\Omega = \text{_____}\Omega$
- a) 10^3 b) 10^6
c) 10^9 d) 10^{12}
- Q.9 Relay is _____ switch.
- a) Electrical b) Electronic
c) Mechanical
- Q.10 The thermocouple is based on _____ effect.
- a) Piezoelectric b) Magnetism
c) Seeback effect d) Doping

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 The forbidden gap is insulator is very _____ (low/high).
- Q.12 List any two applications of low resistivity materials.
- Q.13 Name any one iron ore.
- Q.14 Gold is _____ resistivity material. (low/high)
- Q.15 Paper is conducting material. (True/False)
- Q.16 Define piezoelectric effect.
- Q.17 Define Permeability
- Q.18 Name any one material used in soldering.
- Q.19 Write full form of SMD.
- Q.20 Draw symbol of FET.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 How mechanical stress affect the resistivity?
- Q.22 Write five properties of Nickel.
- Q.23 What are alloys, how are they formed?
- Q.24 List properties of constantan.