

No. of Printed Pages : 4

121532/031532

Roll No. ....

**3rd Sem / Elx, EI, Med Elx, Comp,**

**Power Elx. Elect & Elx**

**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 Germanium is \_\_\_\_\_ material

- a) Conductor                      b) Semiconductor
- c) Insulator                      d) None of these

Q.2 Unit of resistivity is \_\_\_\_\_

- a) Ohms                              b) Ohms-m
- c) Ohms/m                        d) Ohms/m<sup>2</sup>

Q.3 FeS<sub>2</sub> is \_\_\_\_\_

- a) Iron sulphite                  b) Iron sulphate
- c) Pyrite                            d) Pyrate

Q.4 Moisture \_\_\_\_\_ the insulation resistance of material.

- a) Increases                      b) Reduces
- c) Doesn't affect

(1)

121532/031532

Q.5 The process of adding sulphur in rubber is known as \_\_\_\_\_

- a) Impregnation                  b) Vulcanisation
- c) Doping                          d) None of these

Q.6 Hysteresis loss is proportional to the square of \_\_\_\_\_

- a) Voltage                          b) current
- c) frequency                      d) power

Q.7 A 10 ohm resistance is connected in parallel to 10 ohm resistance. The resultant resistance will be \_\_\_\_\_ ohms.

- a) 5                                      b) 10
- c) 15                                   d) 20

Q.8 1  $\mu$ F = \_\_\_\_\_

- a) 10<sup>-3</sup> F                              b) 10<sup>-6</sup> F
- c) 10<sup>-9</sup> F                              d) 10<sup>-12</sup> F

Q.9 Push button switch is \_\_\_\_\_

- a) Electrical
- b) Electronic
- c) Mechanical

Q.10 The break down voltage of connectors is \_\_\_\_\_ times the normal voltage.

- a) 2                                      b) 3
- c) 4                                      d) 5

(2)

121532/031532

### SECTION-B

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

- Q.11 There is no single free electron in \_\_\_\_\_ (Insulator / Conductor).
- Q.12 Gold is \_\_\_\_\_ resistivity material (low/high)
- Q.13 List any two applications of aluminum.
- Q.14 Define ferromagnetism.
- Q.15 MICA is conducting material. (True/False)
- Q.16 Write full form of SMD.
- Q.17 Honey has \_\_\_\_\_ viscosity (low/high)
- Q.18 Define Permeability.
- Q.19 Define capacitance.
- Q.20 Draw symbol of SCR.

### SECTION-C

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

- Q.21 Define alloying, how it affects the material?
- Q.22 Write five properties of copper.
- Q.23 What are the factors which affect resistivity?
- Q.24 Explain in brief the concept of hysteresis.
- Q.25 What is impregnation, how it is useful in insulating technology?

(3)

121532/031532

- Q.26 Differentiate between hard & soft magnetic materials.
- Q.27 What should be the properties of materials to be used in fuse?
- Q.28 Explain the concept of "energy stored in capacitor".
- Q.29 What is time constant? how it affects the performance of R-C circuit?
- Q.30 What is function of relays, write their characteristics.
- Q.31 Show how transistors are tested.
- Q.32 Write different specifications of SMDs.
- Q.33 Explain in brief the need of shielding.
- Q.34 Explain in brief different types of resistors.
- Q.35 What are different types of connectors?

### SECTION-D

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

- Q.36 What is superconductivity, explain in detail.
- Q.37 Explain the principle of operation of thermocouple.
- Q.38 With the help of neat diagram, explain various processes in manufacturing of ICs.

(700)

(4)

121532/031532