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Time : 2 Hours**Electronics Materials & Workshop Parctice****Subject Code**

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Total No. of Questions : 5**(Printed Pages : 4)****Maximum Marks : 50**

INSTRUCTIONS :

- (i) Answer each question on a fresh page.
- (ii) Write the number of the questions and sub-questions clearly.
- (iii) All questions are compulsory.
- (iv) Figures to the right indicate full marks.
- (v) Draw neat labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

2

- (i) The low resistivity conducting material used for manufacturing ACSR conductor is
- (ii) The break in path of an electric current in a winding or coil is known as circuit fault.

(B) Answer the following :

6

- (i) State any *three* applications of the following conducting materials :
 - (a) Tungsten
 - (b) Selenium.
- (ii) Draw neat flow chart for manufacturing process of PCB.

- (C) Answer the following : 2
- What is a thermocouple ? Draw a neat labelled diagram of a thermocouple.
2. (A) Define the following terms : 2
- (i) Thermo e.m.f.
- (ii) Thermoelectric current.
- (B) Answer the following : 6
- (i) Draw neat labelled energy band diagrams for conductors, semiconductors and Insulators clearly showing the values of band gap energies.
- (ii) State any *one* application of each of the following file :
- (a) Flat file
- (b) Test lamp
- (c) Standard screw driver
- (d) Single and open jaw spanner
- (e) Bench vice
- (f) Flat cold chisel.
- (C) Answer the following : 2
- With the help of a neat labelled diagram briefly explain the dip soldering technique.
3. (A) Fill in the blanks : 2
- (i) The relay used for counting, selection and logic control system is
- (ii) The magnetic material which has Curie temperature of 430°C and used for manufacturing current transformer is

- (B) Answer the following : 3
State any *three* applications of the following semiconductor materials :
- (i) Germanium
 - (ii) Silicon
- (C) Answer any *one* of the following in detail : 5
- (i) State any *ten* points of machine safety precautions to be taken in the Assembly shop.
- Or*
- (ii) Write any *five* rules and methods of each of the following :
 - (a) Sequential steps for dismantling of appliances.
 - (b) Sequential steps for assembling of appliances.
4. (A) Answer the following in brief : 2
- (i) Name any *two* types of winding wires used in winding shop.
 - (ii) State any *two* applications of Bimetallic Relay.
- (B) Answer the following : 3
Write any *three* applications of the following insulating materials :
- (i) Mica
 - (ii) Porcelain.
- (C) Answer any *one* the following in detail : 5
- (i) With the help of a neat labelled diagram explain the Horizontal Bridgman method of Semiconductor crystal growth.
- Or*
- (ii) With the help of a neat labelled diagram explain the Czochralski method of growth and purification of semiconductor crystal.

5. Answer the following :

5×2=10

- (i) List any *four* advantages of printed circuit boards over conventional wired boards.
- (ii) Write any *two* applications of each of the following magnetic materials :
 - (a) Mild steel
 - (b) Silicon steel.
- (iii) Name and explain any *two* types of varnishes.
- (iv) What is lubrication ? Name any *two* methods of lubrication used in electrical domestic appliances.
- (v) State any *four* properties of Alnico.