

--	--	--	--	--

Time : 2 Hours

**ELECTRONIC MATERIALS &
WORKSHOP PRACTICE**

Subject Code

V	4	3	3	2
---	---	---	---	---

Total No. of Questions : 23

(Printed Pages : 4)

Maximum Marks : 50

- INSTRUCTIONS :** (i) There are *four* sections in the question paper (A, B, C and D) consisting of **23** questions.
- (ii) In Section 'A' there are *eight* questions of which question Nos. **1** to **4** are multiple choice questions, Q. Nos. **5** and **6** are to be answered in one word, phrase or number and Q. Nos. **7** and **8** are to be answered in *one* sentence each.
- (iii) Attempt all the questions, however, internal choice is given for question numbers **20** and **23**.
- (iv) Write the number of each question clearly on the answer-book.
- (v) Figures to the right indicate marks allotted to each question.
- (vi) Draw diagrams wherever necessary.

Section A

Select and write the correct alternatives from those given below :

1. The high resistivity material whose conductivity varies with the intensity of light falling on it is 1
- Carbon
 - Eureka
 - Selenium
 - Tungsten

2. The relay used for counting and logic control system is 1
 - Bimetallic relay
 - Dry reed relay
 - General purpose relay
 - Mercury wetted relay
3. The insulating material obtained by combination of Acetylene and Hydrogen chloride in presence of catalyst at 50°C is 1
 - Mica
 - Porcelain
 - Polyvinyl chloride
 - Varnish
4. Band gap of Silicon material is 1
 - 0.3 eV
 - 0.7 eV
 - 1.21 eV
 - 2.6 eV
5. Name the device used for measuring higher temperature above 357°C at remote places. 1
6. State the percentage composition of Eureka. 1
7. Define Insulation resistance. 1
8. Draw a neat labelled energy level diagram for semiconductor. 1

Section B

9. What is Mass soldering technique ? Name any *two* methods of mass soldering. 2

10. Distinguish between Soft magnetic materials and Hard magnetic materials (Mention *two* points). 2
11. Draw neat labelled diagrams for the following : 2
- (a) Open circuit fault by series test lamp
- (b) Resistance measurement using Voltmeter Ammeter method.
12. State any *four* advantages of PCB. 2
13. What is lubrication ? State any *two* methods of lubrication. 2
14. What is short circuit fault ? State any *two* causes of short circuit. 2

Section C

15. Write any *four* properties and two applications of Silicon steel. 3
16. State any *two* applications of the following Insulating materials : 3
- (a) Mica
- (b) Porcelain
- (c) Varnish.
17. State any *four* properties and *two* applications of Germanium. 3
18. State any *one* application of each of the following tools : 3
- (a) Adjustable wrench
- (b) Bench vice
- (c) Claw hammer
- (d) Long nose plier
- (e) Test lamp
- (f) Triangular file.

19. Draw a neat flowchart of manufacturing process of PCB. 3
20. State any *six* points of upkeeping arrangements to be taken while working in an Assembly Workshop. 3

Or

Write any *six* points of personal safety precautions to be taken in an Assembly Workshop.

Section D

21. With a neat labelled diagram, explain Zone refining method of semiconductor crystal growth. 4
22. State any *two* applications of the following Conducting materials : 4
- (a) Aluminium
 - (b) Carbon
 - (c) Eureka
 - (d) Tungsten.
23. With the help of a neat labelled diagram, explain the construction of Bimetallic relay. 4

Or

With the help of a neat labelled diagram, explain the construction of General purpose relay.