2019 VI 07 **1430** **Seat No.** | | | | | |

Time : 2 Hours **Electronic Materials & Workshop Practice**

Subject Code

V	3	3	2

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 each question and sub-question clearly.

(*iii*) *All* questions are compulsory.

(*iv*) Figures to the right indicate full marks.

(*v*) Draw neat labeled diagrams wherever necessary.

1. (A) Fill in the blanks : 2

(*i*) The high resistivity conducting material used as contact brush in electrical machines is ..... .

(*ii*) The low resistivity lightweight, silver-colored conducting material used for manufacturing ACSR conductor is ..... .

(B) Answer the following in brief : 3+3=6

(*i*) Draw neat labeled energy band diagrams for Conductors, Semi-conductors and Insulators.

(*ii*) State any *three* applications of each of the following magnetic materials :

(*a*) Mild Steel

(*b*) Silicon Steel.

(C) Answer the following : 2

Write any *four* applications of Bimetallic Relay.

2. (A) Define the following terms : 2

(*i*) Magnetostriction

(*ii*) Thermo-electric Current.

(B) Answer the following : 3+3=6

(*i*) State any *six* properties of Mica.

(*ii*) Draw a neat flowchart for manufacturing process of P.C.B.

(C) Answer the following : 2

State any *two* applications of each of the following Insulating Materials :

(*a*) Paper

(*b*) Porcelain.

3. (A) Fill in the blanks : 2

(*i*) The instrument used for measuring higher temperature above 357°C at remote place is .....

(*ii*) The break in path of an electric current in a winding or coil is known as ..... circuit fault.

(B) Answer the following : 3

Mention any *one* application of each of the following tools used in various workshops :

(*a*) Long Nose Plier

(*b*) Cross Cut Screw Driver

(*c*) Firmer Chisel

(*d*) Double End Open Jaw Spanner

(*e*) Claw Hammer

(*f*) Solid Base Vice.

(C) Answer any *one* of the following in detail : 5

(*i*) With the help of a neat labeled diagram, explain the Czochralski Method of growth and purification of Semi-conductor crystal.

Or

(*ii*) With the help of a neat labeled diagram, explain Zone Refining or Zone Melting method for growing single semiconductor crystal.

4. (A) Answer the following in brief : 2

(*i*) Mention any *two* causes of Short Circuit.

(*ii*) State any *two* ways to minimize (reduce) the hysteresis loss in magnetic materials.

(B) Answer the following in brief : 3

State any *three* applications of each of the following Semiconductor Material :

(*i*) Silicon

(*ii*) Germanium.

(C) Answer any *one* of the following in detail : 5

(*i*) Write any *ten* points on 'Workplace Safety' precautions to be taken in an Assembly Shop.

Or

(*ii*) Briefly explain the necessity of Overhauling and Servicing of a motor or an appliance. State any *six* steps of Overhauling of a Motor or an appliance.

5. Answer the following : 5×2=10

(*i*) Define the term 'Lubrication'. Name any *two* methods of lubrication used in electrical domestic appliances.

(*ii*) State any *four* advantages of P.C.B.

(*iii*) What is 'Mass Soldering' ? Name any *two* types of Mass soldering techniques.

(*iv*) State any *two* applications of each of the following Conducting Materials :

(*a*) Selenium

(*b*) Nichrome.

(*v*) Draw a neat labeled diagram of a General Purpose Relay.