Register Number | | | | | | | | | | |

Code: 20ME11T

I Semester Diploma Examination, Nov/Dec 2024

MATERIALS FOR ENGINEERING

TIME: **3 HOURS** MAX MARKS: **100**

Instructions:
(1) Answer one full questions from each section
(2) One full question carries 20 marks
(3) Answer to be specific and precise.

SECTION - I

1. (a) List and explain any five mechanical properties of materials 10

   (b) Explain BCC and FCC crystal structure with a neat sketch 10

2. (a) Explain scanning electron microscope with neat sketch 10

   (b) Select and explain the ferrous materials used for surgical and dental instrument 10

SECTION - II

3. (a) List the properties and applications of cast iron 10

   (b) Indicate the meaning of the following material designation
   (i) Fe250 ii) 65C4 (iii) Fe 200 6

   (c) Explain the effect of various elements used for alloying 4

4. (a) What are the alloys of copper, Explain the properties of any one copper alloy 10

   (b) Write the Properties and applications of copper. 10

SECTION - III

5. (a) Compare brass and bronze. 10

   (b) Write the Properties and applications of Aluminum. 10

6. (a) Mention the types of bearing materials. List any six properties 10

   (b) Compare thermosetting and thermoplastics 10

SECTION - IV

7. (a) List any four applications of smart materials 4

   (b) Suggest an advanced material for medical application, justify 6

   (c) Write the properties and applications of composite materials 10

8. (a) Define heat treatment. List the purpose of heat treatment 10

   (b) Draw and label Iron-carbon equilibrium diagram for mild steel 10

SECTION - V

9. (a) Explain corrosion with example. List the reasons for corrosion and how corrosion is prevented 10

   (b) With a neat sketch Explain Electro chemical cell 10

10. (a) With neat sketch explain electroplating process 8

    (b) List are the methods of surface treatment. 6

    (c) What are electrolytes? And mention different types of electrolytes 6

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