

Makeup Examination Nov/Dec - 2022
I Semester Diploma Examination
MATERIALS FOR ENGINEERING (20ME11T)

Time: 3 Hours]

[Max. Marks: 100

- Instruction:** i) Answer ONE full question from each section.
ii) One full question carries 20 marks.

SECTION – I

1. (a) List any five applications of Engineering materials. (5)
(b) Explain Face Centre Cubic (FCC) structure. (5)
(c) List any five Mechanical properties of metals. (5)
(d) Show the various parts of Transmission Electron Microscope with the help of diagram. (5)
2. (a) List any five types of corrosion. (5)
(b) Show any two differences between electrolyte and non-electrolyte also list any three types of electrolytes. (5)
(c) Explain the working of electrochemical cell with the help of diagram. (5)
(d) Analyze surface coating through electrolysis with the help of setup diagram. (5)

SECTION-II

3. (a) Mention the classification of Alloy steel. (6)
(b) Indicate the meaning of following designations. (6)
(i) FeE250 (ii) 65C4 (iii) Fe200
(c) Mention the type of Steel used for following applications and justify your answer. (8)
(i) Shaft (ii) Bolts & Nuts

OR

4. (a) List different types of Stainless steel. (4)
(b) Explain Nodular Cast Iron with a sketch showing the graphite appearance. (6)
(c) Suggest a type of tool steel for making following tools. Also mention their properties. (10)
i) Lathe tools & Drill bits ii) Blanking dies

SECTION – III

5. (a) Difference between Ferrous and Non-Ferrous metals. (10)
(b) State any five properties and uses of Brass. (10)
6. (a) List Nickel alloys and explain properties and applications of Nickel. (10)
(b) Mention the types of bearing materials. Explain any six properties. (10)

SECTION – IV

7. a) List any four applications of smart materials (4)
b) Differentiate between thermosetting and thermoplastic materials (10)
c) Suggest an advanced material for medical application, justify (6)
8. a) List any four applications of nano materials (4)
b) Sketch Iron-Carbon equilibrium diagram indicating various phases (10)
c) What are the different types of heat treatment process (6)

SECTION – V

9. (a) State the purpose of heat treatment. (6)
(b) Discuss Annealing and hardening heat treatment processes. (8)
(c) Differentiate between Carburising and Nitriding heat treatment processes (6)
10. (a) List the different types of corrosion. (5)
(b) With neat sketch explain Electroplating process. (10)
(c) What are electrolytes? And mention different types of electrolytes. (5)