

END SEMESTER EXAMINATION : NOVEMBER-
DECEMBER, 2023

MATERIAL SCIENCE

Time : 2 Hrs.

Maximum Marks : 60

Note: *Attempt questions from all sections as directed.*

SECTION – A (24 Marks)

*Attempt any **four** questions out of **five**.*

*Each question carries **06** marks.*

1. Write the importance of materials in engineering applications. Also classify the materials.
- ✓ 2. Define Atomic Packing Factor (APF). Calculate the APF for BCC crystal structure.
- ✓ 3. Discuss the various point defects in crystal structure with the help of diagram.
- ✓ 4. Draw and explain Stress - Strain Diagram for Ductile and Brittle material?

P.T.O.

5. Explain the difference between :-
- (a) Creep and Fatigue
 - (b) Ductility and malleability

SECTION – B (20 Marks)

Attempt any two questions out of three.

Each question carries 10 marks.

6. Write short notes on :-
- (a) Liquid Penetrant Testing
 - (b) Ultrasonic Testing
7. Define the term “heat treatment”. Illustrate the different types of heat treatment processes.
8. Draw the Iron-Carbon equilibrium diagram and explain it.

SECTION – C (16 Marks)
(Compulsory)

9. (a) What are “Ceramics”? Explain its structure types, properties and uses? (8)
- (b) Differentiate between conductors, semiconductors and insulators on the basis of energy band theory. (8)