Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023

Semester : Semester III - 2021
Course Code : MEC2016
Course Name : Sem III - MEC2016 - Material Science and Metallurgy
Program : B.Tech. Mechanical Engineering

Date : 13-JAN-2023
Time : 1.00PM - 4.00PM
Max Marks : 100
Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.

PART A

ANSWER ALL THE FIVE QUESTIONS **5 X 2 = 10M**

1. What is edge & screw Dislocation.

(CO1) [Knowledge]

2. Clasiffy phase diagram and explain any two.

(CO2) [Knowledge]

3. Define phase and solubility Limit.

(CO2) [Knowledge]

4. List any 4 objectives of Heat Treatment.

(CO3) [Knowledge]

5. Differentiate between Thermoplastics and Thermosets.

(CO4) [Knowledge]

PART B

ANSWER ALL THE SIX QUESTIONS **6 X 10 = 60M**

6. The atomic radius of silver is 144 pm and its density is 10.5 g cm-3 . Is the structure face-centered cubic (fcc; close packed) or body-centered cubic (bcc)?

(CO1) [Comprehension]

7. Microstructure evolution during cooling of Cu- Ni Alloy.

(CO2) [Comprehension]

8. With a neat sketch Explain Binary Isomorphous Phase diagram.

(CO2) [Comprehension]

9. With neat sketch explain the TTT Diagram for 0.8% C Eutectiod steel.

(CO3) [Comprehension]

10. Explain in details types of Annealing Processes performed on the components.

(CO3) [Comprehension]

11. Write short notes on the following
a. Brass
b. Bronze

(CO4) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS **2 X 15 = 30M**

12. With a neat sketch Explain Fe-Fe3C Phase diagram.

(CO2) [Application]

13. Explain in detail the reason of alloying and effects of these alloying elements on steel.

(CO4) [Application]

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