

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2022-23 Examination

Semester: 4

Date: 24/03/2023

Subject Code: 203103259

Time: 02:00 pm to 04:30 pm

Subject Name: Material Science

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Each of one mark) (15)

- 1 The behavior of visco-elastic material is time dependent. This behavior is common in _____ materials.
- 2 Shock resisting steels should possess high
a. Toughness b. tensile strength c. wear resistance d. Hardness
- 3 Hammers and railway rails are normally made of _____
- 4 Presence of nickel in steel improves its _____
- 5 Acetylene gas holder is made of steel. (True or False)
- 6 Percentage elongation of a material is a measure of its _____
- 7 What is Dielectric strength of a material? Its capacity to withstand high voltage.
- 8 Aluminium as a material of construction suffers from the disadvantage of _____ low tensile strength.
- 9 Cast iron has very high _____
- 10 Cements are _____ materials.
a. refractory b. reinforced c. abrasive d. fully metallic
- 11 Hollow refractory bricks are made by _____
- 12 Thermal diffusivity of a refractory brick is high, when its _____ is high.
a. density b. specific heat c. thermal conductivity d. mass
- 13 _____ can be any type of material that is biocompatible and used to replace human body parts.
- 14 The _____ is a periodic array of the atoms.
- 15 Define Bravais lattices.

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Briefly describe the Plum pudding model.
- B) Name some common plastics/polymers and their typical uses.
- C) What is Polymerization? Explain its classification.
- D) What is Injection Molding?

**Q.3 A) Mention types and application of Ceramics. (07)
B) Explain Point Defects in detail. (08)****OR**

- B) Write short note on degradation of polymers. (08)**

Q.4 A) Explain Edge dislocation with proper diagram. (07)**OR**

- A) Explain Screw dislocation with proper diagram. (07)
B) Briefly describe the classification materials. (08)**