

(Following Paper ID and Roll No. to be filled in your
Answer Books)

Paper ID : 2295038

Roll No.

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B.TECH.

Regular Theory Examination (Odd Sem - VII), 2016-17

MATERIAL TECHNOLOGY

Time : 3 Hours

Max. Marks : 100

Section - A

- 1. Attempt all parts. Part carry equal marks. Write answer of each part in short. (10×2=20)**
- Explain the Braggs Law.
 - What is Tacticity?
 - Explain the concept of phase Rule.
 - What do you understand by 'Creep resistance'?
 - Explain the term "Nodular cast iron".
 - What do you mean by "Alloy"?
 - Explain the term 'Carbon Steel'.
 - Define copper and also write name of its alloys.
 - What are composite materials?
 - Explain the concept of corrosion charts.

Section - B

2. **Attempt any five questions from this section.**

(5×10=50)

- a) Draw and explain Iron-carbon equilibrium phase diagram.
- b) Write a note on Metallic and non-metallic materials of construction with examples.
- c) What is work hardening? Explain the various stages of work hardening in details.
- d) Discuss plain carbon steel. Write its classification, properties and application.
- e) Explain the term corrosion and discuss its types and mechanism and write also fine methods of prevention and control of corrosion.
- f) Discuss the factors affecting the selection of materials for engineering purposes.
- g) Define fractures and also explain the different types of fractures.
- h) What do you mean by atom? Explain the structure of atom.

Section - C

Note: Attempt any two questions from this section.

(2×15=30)

3. Explain slip mechanism of plastic deformation. What is critical resolved shear stress? Derive its expression for deformation of slip.
4. What is diffusion coating? Discuss principle, process, chemical reactions, metallization process, advantages, disadvantages and application of colorizing.
5. Explain the general principle of heat treatment and discuss the method Annealing, Normalizing, Quenching, Nitriding and Tempering.

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