

- Q.22 Write short note on ionic bond with example.
  - Q.23 Discuss thermal properties of materials
  - Q.24 Explain lever rule
  - Q.25 Explain creep behavior.
  - Q.26 Write short note on edge dislocation.
  - Q.27 Explain solid solution.
  - Q.28 Explain the process of martensitic transformation.
  - Q.29 Explain glass transition.
  - Q.30 Write short note on binary phase diagrams.
  - Q.31 Draw the diagram of water system.
  - Q.32 Explain the relation between unit cell and species lattice.
  - Q.33 Discuss how the nucleation and growth takes place?
  - Q.34 Explain di-electric behavior of materials
  - Q.35 Explain the procedure of using X-ray for determination of cell structure.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain Bragg's law for determining cell structure with example.

Q.37 Write short notes on the following:

  - i) Stage of creep      ii) Structure of silica

Q.38 Explain soda-lime-silica diagram with brief note of all the phases existing.

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3rd Sem / Ceramic Engg  
Subject:- Material Science

Time : 3Hrs.

M.M. : 100

## **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

Q.5 Which is the strongest bond \_\_\_\_\_

- a) Covalent
- b) ionic
- c) metallic
- d) depends on the material

Q.6 \_\_\_\_\_ is the measure of magnetization that a material obtains in response to an applied magnetic field.

- a) conductance      b) inductance
- c) resistance        d) permeability

Q.7 \_\_\_\_\_ is the most hard form of steel crystalline structure

- a) cementite        b) austenite
- c) Sorbite           d) Martensite

Q.8 The failure of material due to reversed /cyclic loading is called \_\_\_\_\_

- a) brittle failure    b) fatigue
- c) creep              d) crushing

Q.9 There are \_\_\_\_\_ stages of creep

- a) 3                  b) 2
- c) 4                  d) 6

Q.10 \_\_\_\_\_ growth is the most common form of solidification in metals

- a) Sprouting        b) neuleation
- c) dendritic        d) none of the above

## SECTION-B

**Note:** Objective type questions. All questions are compulsory.  $(10 \times 1 = 10)$

Q.11 Which crystal structure has one atom occupied at each corner position of a unit cell?

Q.12 Which magnets have higher coercive force value? (soft/hard)

Q.13 Sharing of electrons between two atoms creates a \_\_\_\_\_ bond.

Q.14 Example of line defect is \_\_\_\_\_

Q.15 A material which resists the electric current is known as \_\_\_\_\_

Q.16 The diagrams which show constitution of alloys as a function of temperature are known as \_\_\_\_\_

Q.17 The phenomena of converting solid directly into gas is known as \_\_\_\_\_

Q.18 The fracture which occurs without any appreciable deformation is called \_\_\_\_\_ fracture.

Q.19 In Bragg's diffraction, the minimum interplanar spacing required is \_\_\_\_\_

Q.20 Write the chemical formula for Alumina-silicate.

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.  $(12 \times 5 = 60)$

Q.21 Draw Iron-carbon equilibrium diagram. What is the maximum content of carbon shown on iron-carbon diagram?