

(31)

Q.P. Code : 5458

(3 Hours)

[ Total Marks : 80

- N.B. :
- (1) Question No.1 is compulsory
  - (2) Attempt any three questions from remaining five questions
  - (3) Figures to right indicates full marks
  - (4) Illustrate answers with neat sketches wherever required
  - (5) Assume suitable data wherever required and state it clearly

1. Write short notes on 20
  - (a) Hescinberg's uncertainty principle
  - (b) Point defects
  - (c) Structure of graphite
  - (d) Translucent materials
2. Explain in detail about : 20
  - (i) ferroelectricity and piezoelectricity
  - (ii) Magnetic storage
3. (a) Explain in detail about Fatigue fracture with respect to following points: 10
  - (i) Definition
  - (ii) Mechanism of fatigue fracture
  - (iii) Factors affecting fatigue strength of material
  - (iv) Methods to increase fatigue life of material
- (b) Explain in detail about plastic deformation 10
  - (i) by slip
  - (ii) by twinning
4. (a) Which types of plastic are used for packaging of 10
  - (i) soft drinks
  - (ii) food products like curd
  - (iii) vanspati oil
  - (iv) pesticides
  - (v) detergents
- (b) What are polymer blends? Give their types. Mention any three examples and explain their applications. 10
5. Explain in detail about different types of corrosion and mechanism of corrosion that occurs in metals. 20
6. (a) Explain in detail about factors considered for selection of materials used in chemical plants. 10
- (b) Explain in detail about materials used to store and transport chlorine gas and HCl acid. 10