

Q.2 a. Discuss Bragg's law of X-ray diffraction.

Answer: Page Number 38 of text book I

- b. Explain the following:**
(i) Production of Ions of opposite sign.
(ii) The coulomb attraction

Answer: Page Number 66 of text book I

Q.3 a. Discuss Ethylene based long chain polymers and write their uses.

Answer: Page Number 109 of text book I

- b. What is Burgers vector? Show that Burgers vector is perpendicular to the edge dislocation line.**

Answer: Page Number 128 of text book I

Q.4 a. Explain the Kirkendall effect.

Answer: Page Number 190 of text book I

- b. Discuss superconductivity and explain change in critical magnetic field H_C with variation in temperature.**

Answer: Page Number 112 of text book I

Q.5 a. Explain the following:

- (i) Ionic polarisation**
(ii) Dipolar polarisation

Answer: Page Number 143 of text book II

- b. Discuss breakdown phenomenon in gaseous and liquid dielectrics.**

Answer: Page Number 172-173 of text book II

Q.6 a. Discuss paramagnetism and curie law for a paramagnetic materials.

Answer: Page Number 202 of text book II

- b. Discuss the following:**
(i) Magnetostriction
(ii) Factors affecting permeability and hysteresis loss.

Answer: Page Number 215 of text book II

Q.7 a. Discuss various types of lattice defects in a semiconductor.

Answer: Page Number 250 of text book II

b. Explain the following:

- (i) Thermal conductivity of semi conductors**
- (ii) Electrical conductivity of doped materials**

Answer: Page Number 258-259 of text book II

Q.8 a. Compare properties and applications of Thermistors and Varistors.

Answer: Page Number 290 of text book II

b. Write properties and applications of the following:

- (i) Variable resistors**
- (ii) Electrolytic capacitors**

Answer: Page Number 360, 364 of text book II

Q.9 Discuss the following:

- (i) Alloyed junction process**
- (ii) Linear operation of JFET**

Answer: Page Number 392-402 of text book II

Text books

- 1. Materials Science & Engineering-A first Course by V. Raghavan, 5th Edition, 39th Print, June 2010 Edition, Prentice-Hall of India Pvt. Ltd.**
- 2. An introduction to Electrical Engineering materials by C.S. Indulkar & S. Thiruvengadam, 6th Edition, Reprint 2012, S.Chand & Company Ltd.**