

PART-B QUESTIONS**UNIT-I-CRYSTALLOGRAPHY**

1. BCC & FCC
2. HCP
3. Crystal Defects
4. Plastic Deformation mechanism

**UNIT-II-ELECTRICAL & MAGNETIC****PROPERTIES OF MATERIALS**

1. Electrical & Thermal Conductivity
2. Density of Energy States
3. Effective Mass of Electron
4. Classification of Magnetic Materials [Dia, Para & Ferro Magnetic Material]
5. Fermi Distribution Function
6. GMR Device
7. Tight Binding Approximation

**UNIT-III-SEMICONDUCTOR & TRANSPORT****PHYSICS**

1. Intrinsic Carrier Concentration [Density of Electron in a Conduction Band & Density of Holes in a Valence Band]
2. Carrier Concentration of N-type Semiconductor [Density of Electron in a Conduction Band in Extrinsic semiconductor (or) N-type Semiconductor]
3. Carrier Concentration of P-type Semiconductor [Density of Holes in a Valence Band in Extrinsic semiconductor (or) P-type Semiconductor]
4. Hall Effect.
5. Schottky Diode
6. Ohmic Contacts

**UNIT-IV-OPTICAL PROPERTIES OF MATERIALS**

1. Solar Cell
2. LED
3. OLED
4. Light Detector
5. Laser Diodes
6. Electro-optic Modulator
7. Plasmonics
8. Switching Devices

**UNIT-V-NANO ELECTRONIC DEVICES**

1. Quantum Confinement
2. Single Electron Transistor [SET]
3. Carbon Nano Tube [CNT]
4. Zener Bloch Oscillator
5. Spintronics
6. Semiconductor Photonic Structure