Physics Assignment Questions
UNIT – 1
Chapter – Crystal Structure
1. Write short note on Atomic properties & Electronic properties of Solids.
2. Write short note on Lattice.
3. Explain primitive & non primitive translation vectors.
4. Define symmetry. And explain different types of symmetry operations.
5. Write short note on Miller indices.
6. Write short note on (a) Simple cubic structure (b) Body centered cubic structure
   (c) Face centered cubic structure.
UNIT - 2
Chapter-1: Basic Characteristics of the Transistor.
Q: Explain CE transistor circuit with its input and output characteristics. Define I_{CEO} and β.
Q: Explain CB transistor circuit with its input and output characteristics. Define I_{CBO} and α.
Q: Explain Saturation Region, Cut-off Region and Active Region from the output characteristic curves of transistor circuit.
Q: Prove that $I_C = \beta I_B + (\beta+1) I_{CO}$
Q: Derive mutual relationship between α and β.
Unit – 3
01) Derive the schrodinger wave equation for a free moving particle in one dimensional space.
02) Derive the schrodinger wave equation for a free moving particle in three dimensional space.
03) Explain energy and linear momentum operator.
04) Derive the schrodinger wave equation a particle moving in force field.
05) Derive the schrodinger wave equation for H – atoms.
06) Derive the schrodinger wave equation for simple harmonic oscillator.
07) Obtain the Schrodinger wave equation for a charged particle moving in electromagnetic field.
Answer the following questions in short (Each question carries 1 mark).
1. Give physical interpretation of wave function.
2. Wave function of particle is $\psi(x) = 4x^2 + 2$, find the linear momentum of
   Particles at point x = 2.
3. What is mean by velocity-dependent potential ?
Unit – 4
1. Explain the Fresnel half period zones. Show that the area of the nth zone is $\pi\lambda b$.
2. Write short note on zone plate.
3. Distinguish between interference and diffraction.
4. Explain in detail Fraunhofer diffraction by double slit.
5. Explain in detail Fraunhofer diffraction by N slit.