

## Question Bank (G scheme)

Name of subject: APPLIED PHYSICS

Unit Test :II

Subject code:17210

Course : CM/IF

Semester: II

### CHAPTER 2: SEMI CONDUCTOR PHYSICS[10 marks]

Questions for 2 Marks.

1. Define Intrinsic and Extrinsic semiconductors.
2. Name any two trivalent and pentavalent impurities.

Questions for 3 Marks.

1. Explain working of PN junction diode in Forward bias.
2. Explain working of PN junction diode in Reverse bias.

Questions for 4 Marks.

1. Distinguish between Conductors, Semiconductors and insulators on basis of Band Theory.
2. State any four applications of Photodiode.

### CHAPTER 3: MODERN PHYSICS[18 marks]

Questions for 2 Marks.

1. Define Threshold frequency and photoelectric work function.
2. State any two applications of photoelectric cell.
3. State the formula for Minimum wavelength and maximum frequency for X-ray.
4. An X-ray tube works on 30KV. What will be the wavelength of X-rays emitted by it?
5. State any two properties of photon.
6. State Planck's Quantum theory.
7. State characteristics of LASER.
8. Define Stopping potential and Threshold wavelength.
9. Define metastable excited state and Ordinary excited state
10. Give any two applications of X-rays.
11. Distinguish between Spontaneous emission and Stimulated emission.
12. Define stimulated absorption and population inversion.
13. State any two applications of LDR.

Questions for 3marks

1. State properties of X-rays.
2. The threshold frequency of a metal is  $2.11 \times 10^{15}$  Hz. If a light of frequency  $2.49 \times 10^{15}$  Hz is made incident on metal plate, calculate the maximum Kinetic energy of ejected photoelectron.
3. Define pumping and explain its types.
4. Derive an equation for Einstein's photoelectric equation.

5. Find maximum K.E of photoelectrons ejected from surface of metal of light of frequency  $2 \times 10^{15} \text{ Hz}$  (given threshold wavelength for metal = 5200 Å)
6. Explain the Construction and working of photoelectric cell.

Questions for 4 Marks

1. State Characteristics of Photoelectric effect.
2. Describe construction of He-Ne LASER with suitable diagram.
3. Explain production of X-ray using Coolidge X- ray tube.
4. State any four applications of LASER.