AM/CS/CYS/DS 112 (R-22)

Total No. of Questions : 10] [Total No.of Pages : 02

I/IV B. Tech. DEGREE EXAMINATIONS, MARCH - 2023

First Semester

AM / CS / CYS / DS

ENGINEERING PHYSICS

Time : **Three Hours** Maximum : **70** Marks

Answer All Questions

Answer ONE question from each Unit. 5x14=70 M

UNIT - I

1. Derive the single slit diffraction using Fraunhofer principle ? Explain how it is different to the diffraction by grating.

(OR)

2. Explain the formation of interference fringes in an air-wedge shaped film. How is the thickness of the wire determined by this method.

UNIT - II

3. What are the basic requirements of laser ? Describe about the principle of He-Ne laser operation and list applications.

(OR)

4. a) Explain what is numerical aperture.

   b) Describe and derive an acceptance angle.

UNIT - III

5. Explain the following with example (i) Induced absorption (ii) Population Inversion (iii) Ferromagnetic materials.

(OR)

6. a) What is polarization ? Describe about types of polarization.

   b) Explain the classification of Magnetic materials.

P.T.O.

UNIT - IV

7. What is the doping ? Explain how P type semiconductor obtained and derive its Fermi-level with suitable example.

(OR)

8. Derive the carrier concentration in n-type semiconductor with help of energy band diagram ? Give the differences between n-type and p-type semiconductors.

UNIT - V

9. a) What is the superconductor first experiment and describe its critical parameters ?

   b) Discuss the physical significance of the wave function.

(OR)

10. Derive Schrodinger's wave equation for a particle in a rectangular three dimensional infinite well. Solve it to obtain Eigen function and also explain probability density.