R10

SET - 1

I B. Tech I Semester Supplementary Examinations, Oct/Nov - 2018
ENGINEERING PHYSICS-I
(Com. to All Branches)

Time: 3 hours   Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) What is interference of light? Describe Young's experiment for demonstration of interference of light. (8M)

   b) Discuss the phenomena of interference of light due to thin films and find the conditions of maxima and minima. (7M)

2. a) Describe and explain the nature of fringes obtained with the help of a single slit placed in front of a parallel beam of monochromatic light. (8M)

   b) A single slit of width 0.14 mm is illuminated normally by monochromatic light and diffraction bands are observed on a screen 2 m away. If the centre of the second dark band is 1.6 cm from the middle of the central bright band, calculate the wavelength of light. (7M)

3. a) Describe the construction of Nicol prism and show how it can be used as polarizer and analyzer. (8M)

   b) Write a short note on Half Wave Plate. (7M)

4. a) How you distinguish between coordination number and number of atoms per unit cell? Explain with help of an example. (8M)

   b) Write a note on Bravais lattices. (7M)

5. a) What are miller indices? Draw the following planes in a cubic unit cell: (110), (311) and (011). (8M)

   b) Explain the determination of lattice constant of cubic crystals by powder diffraction method. (7M)

6. a) What are the essential conditions for semiconductor laser? Discuss its operation with neat diagram. (8M)

   b) Discuss any four scientific applications of laser. (7M)

7. a) Describe different types of fibres and explain the propagation of light through a step index fiber. (8M)

   b) Discuss the optical fibre transmission system with a suitable diagram. (7M)

8. a) What is the principle of pulse echo testing? Discuss the procedure of this inspection method. (8M)

   b) Discuss basic principle of transducer. (7M)