

B.Tech I Year (R13) Regular & Supplementary Examinations May/June 2015

ENGINEERING PHYSICS

(Common to all branches)

Time: 3 hours

Max. Marks: 70

Part – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Abbreviate LASER. State one example.
 - (b) Write the relation between numerical aperture and acceptance angle of an optical fiber.
 - (c) What is primitive lattice?
 - (d) What is the frequency of ultrasonic waves?
 - (e) What are matter waves?
 - (f) What is the energy gap between valence band and conduction band in an insulator?
 - (g) Define intrinsic and extrinsic semiconductors.
 - (h) Write susceptibility value of a diamagnetic material.
 - (i) Explain Meissner effect.
 - (j) What is the size of water molecule?

Part – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 What is diffraction? Write about Fraunhofer diffraction due to double slit.
- OR
- 3 Explain He-Ne laser working principle with a neat diagram. Write few advantages.

UNIT - II

- 4 Calculate atomic packing fractions of SC, BCC and FCC. Which is more closely packed?
- OR
- 5 Explain production of ultrasonics by piezoelectric method.

UNIT - III

- 6 Derive Schrodinger's time independent wave equation.
- OR
- 7 Write in detail about sources of electrical resistance.

UNIT - IV

- 8 Give detailed explanation on Hall effect.
- OR
- 9 What is hysteresis? Explain B-H curve.

UNIT - V

- 10 What is SQUID? Write about DC and AC Josephson effects.
- OR
- 11 What are the techniques available for synthesizing nanomaterials? Explain ball milling technique.
