

B.Tech I Year II Semester (R15) Regular & Supplementary Examinations May/June 2019

ENGINEERING PHYSICS

(Common to IT, ECE, EIE & ME)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- (a) Define interference of a light.
- (b) State the working principle of an optical fiber.
- (c) What is space lattice?
- (d) State Bragg's diffraction condition.
- (e) Define matter waves.
- (f) Write any two drawbacks of classical free electron theory.
- (g) Distinguish intrinsic Vs extrinsic semiconductors.
- (h) What is Bohr magnetron?
- (i) What is Meissner effect?
- (j) Write any four applications of nanomaterials.

PART – B

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

UNIT – I

2 Explain the theory and experiment of Newton's rings.

OR

3 Explain the spontaneous and stimulated emission of radiation and Einstein coefficient.

UNIT – II

4 Classify and explain the seven crystal systems.

OR

5 What are ultrasonics? What are its properties? Also explain few applications of ultrasonics in non-destructive testing.

UNIT – III

6 Derive the Schrodinger time dependent wave equation. Discuss the significance of wave function.

OR

7 Deduce the energy of a particle in a one dimensional infinite potential well.

UNIT – IV

8 Explain the theory, experimental setup and applications of Hall measurements.

OR

9 Discuss the hysteresis curve of various magnetic materials. Justify the nature of curves.

UNIT – V

10 Explain the BCS theory and its associated phenomena.

OR

11 Classify and explain the top-down synthesis methods.
