Code No. 2957/AICTE/M

FACULTY OF ENGINEERING

B.E. (CE/EE/IOSL/ECE/CSE/CME) (AICTE) II-Semester (Main & Backlog) Examination, December 2020

Subject: Physics

Time : 2 Hours **Max. Marks: 70**

Note: Answer any five questions from Part-A & any four questions from Part-B.

PART – A (5 X 2 = 10 Marks)

1 Draw a plane in cubic crystal which have miller Indices < 101 >.
2 What is Burgers vector?
3 Explain the concept of a hole.
4 What is a ferroelectric materials, and mention their two applications?
5 Write the physical significance of wave function.
6 What are D,E and P and write the relation between them?
7 Distinguish between soft and hard magnetic materials.
8 Prove that superconductor is a diamagnetic material.
9 What is population Inversion? Explain.
10 Define Acceptance angle and Numerical aperture in fiber optics.

PART – B (4 X 15 = 60 Marks)

11 Derive an equation for concentration of Frenkel defects in an Ionic crystal.

12 Define Hall effect and derive an equation for Hall coefficient.

13 Apply Schrodinger equation to particle in 1-dimensional box, and find its energy.

14 Explain Weiss molecular field theory of ferromagnetism.

15 Explain general properties of superconductors and discuss BCS theory.

16 Explain construction and production mechanism of Ruby Laser.

17 Derive an equation for Electromagnetic wave in a free space and explain poyinting theorem.

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