# FACULTY OF ENGINEERING

### B.E. I – Semester (AICTE) (Main & Backlog) Examination, December 2019
### Subject: Physics

**Time: 3 Hours** **Max.Marks: 70**

**Note: Answer all questions from Part-A and any five questions from Part-B**

### PART – A (10x2 = 20 Marks)

1 What is Frankel defect?

2 What are Miller Indices? Give their significance?

3 What is the significance of Kronig Penny model?

4 What is polarization? Mention different types of polarizations?

5 Mention the applications of Ferroelectrics.

6 Write de-Broglie concept of matter waves

7 Write Maxwell's equations in differential form.

8 Draw the hysterisis curve. Locate reminant and coercive field on the curve.

9 What is population inversion? Explain.

10 Give account of applications of lasers.

### PART – B (5x10 = 50 Marks)

11 Deduce an expression for equilibrium concentration of Schottky defects.

12 What is crystal? Describe types of crystal systems in detail.

13 Explain the formation of depletion region in P.N. junction diode also discuss in terms of forward and reverse biasing.

14 What is displacement current? Obtain relation between D, E and P vectors.

15 Explain Weiss molecular field theory of ferromagnetism.

16 What are the characteristics of Laser? Describe the construction and working of any one laser.

17 What is optical fibre? Discuss types of optical fibers and refractive index profile.

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