

**FACULTY OF ENGINEERING**

**B.E. I Semester (AICTE) (Backlog) Examination, July 2021**

**Subject: Physics**

**Time: 2 Hours**

**Max.Marks: 70**

**Note: Missing data, if any, may be suitably assumed**

**PART – A**

**Answer any five questions.**

**(5x2=10 Marks)**

- 1 Explain Bragg's law.
- 2 Define schottky defect.
- 3 Distinguish between spontaneous and stimulated emission
- 4 What is meissner effect?
- 5 Define acceptance angle and numerical aperture.
- 6 Explain Ferro electricity.
- 7 State and explain debroglie hypothesis.
- 8 What is displacement current?
- 9 Show the saturation magnetization, remanent induction and coercive field in a Hysteresis curve of Ferro magnetic material.
- 10 What are the characteristics of lasers?

**PART – B**

**Answer any four questions.**

**(4x15=60 Marks)**

- 11 Derive the expression for inter planar distance for a cubic crystal system.
- 12 Explain Hall Effect and calculate the hall coefficient. Mention few applications of hall effect.
- 13 Derive an expression for 1-D Schrodinger time independent wave equation. Give the physical significance of ' $\psi$ '.
- 14 Explain the construction and working of He-Ne laser with neat diagram.
- 15 Obtain an equation of a plane wave in free space.
- 16 Mention important parts of an optical fiber and explain the classification of optical fibers in detail.
- 17 What are super conductors? Distinguish between type-I and type-II superconductors. Give few applications.

**FACULTY OF ENGINEERING****B.E. I-Semester (AICTE) (New) (Main) Examination, July 2021****Subject: Engineering Physics****Time: 2 hours****Max. Marks: 70**

- Note: (i) First question is compulsory and answer any three questions from the remaining six questions.**  
**(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.**  
**(iii) Missing data, if any, may suitably assumed.**

**1 Answer any four questions from the following:**

**(4x4=16 Marks)**

- (a) Define the term of 'Space lattice' and Unit cell.
- (b) What are the applications of Hall effect?
- (c) Define ionic polarization of a dielectric material.
- (d) State the relationship between D, E, P.
- (e) Give few applications of Super conductors.
- (f) What are the applications of Lasers?
- (g) Define Numerical Aperture.

**(3x18=54 Marks)**

- 2 (a) Classify Crystal Imperfections.  
(b) Obtain an expression for concentration of Schottky defects in the case of ionic crystals.
- 3 (a) What are salient features of Kronig – Penney model?  
(b) Explain the formation of allowed and forbidden energy bands based on Kronig-Penney model.
- 4 (a) Deduce an expression for Electronic Polarizability.  
(b) Describe the experimental determination of dielectric constant of dielectric material by Schering Bridge method.
- 5 (a) Give the basic laws of Electricity and Magnetism.  
(b) Deduce Maxwell's Equations in differential form.
- 6 (a) Give an account of Weiss Molecular field theory of Ferro Magnetism.  
(b) Explain Type-I and Type-II super conductors.
- 7 (a) Explain construction and working of Ruby Laser.  
(b) Discuss the Fibre drawing process (double crucible method).

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