Code No. 2003/BL

FACULTY OF ENGINEERING

B.E. I-Year (Backlog) Examination, October 2020

Subject : Engineering Physics

Time : 2 Hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1 Distinguish between Fresnel and Fraunhofer diffraction.
2 Discuss about half wave plate.
3 Define Rayleigh Jean's and Wein's law of Radiation.
4 Write the principle and applications of Optical fibers.
5 Draw a plane in a cubic system which have miller Indices < 2, 1, 0 >.
6 Define Hall effect.
7 What are different polarizations of Dielectic material?
8 What are high T_c super conductors?
9 Explain CVD method of Thin film preparation.
10 Draw the block diagram of SEM (OR) TEM.

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Explain about Fresnels Biprism.
(b) Discuss production mechanism of ruby Laser.

12 (a) Explain Plancks theory of Block body Radiation.
(b) Find first two energy levels of electron which is confined to 10 $\overset{\circ}{A}$ box. [m_e=9.11x10^{-31} kg , h = 6.625 x 10^{-34} J.S.].

13 (a) Derive an equation for concentration of Schottky defects in an ionic crystal.
(b) Explain about Thermistor.

14 (a) Derive an equation for Electronic polarization of Dielectic material.
(b) Write applications of superconductors.

15 (a) Explain CVD method of Thin film preparation.
(b) Discuss construction of Atomic Force Microscopy (AFM).

16 (a) Derive Bragg's law.
(b) Define Hall effect and derive equation for Hall coefficient.

17 (a) Derive time Independent Schrodinger equation.
(b) Draw P-N Diode I-V characteristics and explain the graph.

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Code No.2504/CBCS/BL

FACULTY OF ENGINEERING

B. E. I – Semester (CBCS) (Backlog) Examination, October 2020

Subject: Engineering Physics - I

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

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

PART – A (5X2 = 10 Marks)

1. What are coherent and non-coherent sources of light?
2. What is the difference between Interference and diffraction?
3. Explain about optical activity.
4. Define Holography and what are its applications?
5. What are different types of optical fibers?
6. Explain the piezoelectric effect.
7. Explain Boltzmannn's theorem on entropy and probability.
8. Discuss about Ensembles in thermo dynamics.
9. Explain de-Broglie's concept of matter waves.
10. State the Poynting theorem.

PART – B (4X15 = 60 Marks)

11. Explain the phenomenon of double slit diffraction and Explain about Nicol's Prism.
12. (a) Explain the Quarter and half wave plate.
    (b) Discuss the production Mechanism of He-Ne Laser.
13. (a) Explain about Numerical aperture. (NA)
    (b) How can you find wave length of Ultrasonics by Debye-Sears Method?
14. (a) Explain about Maxwell's Boltzmann's Statistics.
    (b) Derive Rayleigh Jeans and Wein's Law from Planck's Law.
15. Find wave length of O_2 molecule in your exam hall if Room temperature is 27°C. [1 amu = 1.6×10^{-27} kg. K = 1.38×10^{-23} J/K] [h=6.625×10^{-34} J.S.].
16. (a) Find the energy 1 A° Photon.
    (b) Explain about B.E. Statistics.
17. (a) Write the Maxwell's equation in differential form.
    (b) Solve particle in a box problem with Schrodinger equation.

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