ACE Engineering College
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An AUTONOMOUS Institution

Question Paper Code: PH102BS

ACE-R20

Semester End Examination
I B. Tech- I Semester Regular/ Supply - JUNE-2022
APPLIED PHYSICS
(Common to ECE, CSM , CSO)

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

H. T. No										

Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks
1. a)	Describe the experiment of Davisson and Germer's for the study of electron diffraction.	10
b)	Calculate the wavelength associated with an electron with energy 2000eV.	4
2. a)	Derive Schrodinger's time independent wave equation.	10
b)	Explain the significance of wave function.	4
3. a)	Derive an expression for density of electrons in intrinsic semiconductor.	10
b)	Explain the variation of Fermi level with temperature in intrinsic semiconductor.	4
4. a)	Explain how a PN junction is formed?	4
b)	Draw and explain I-V characteristics curves of a PN junction diode in both forward and reverse bias.	10
5. a)	Give a brief note on the principle, construction and working of LED. What are advantages and disadvantages?	10
b)	Calculate the responsivity of photo sensitive material with a quantum efficiency of 1% at 500nm.	4
6. a)	Explain the characteristics of a laser beam.	4
b)	Explain the principle, construction and working of He-Ne laser.	10
7. a)	Define acceptance angle and derive an expression for it.	10
b)	Calculate the acceptance angle and numerical aperture of an optical fiber, if the refractive indices of the core and cladding are 1.563 and 1.498 respectively.	4
8. a)	Derive Clausius- Mosotti equation.	8
b)	Write a short note on Ferro and Piezoelectricity.	6