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Even Semester Examination 2023 (Backlog)

Paper Name: Applied Physics-II

Time: 3 Hours

Paper Code: BTECE-202

Maximum Marks: 70

Section A

Attempt ALL Questions

(6 × 5 = 30)

Q.No.	Questions	CO	BL
1	Write short notes on intrinsic and extrinsic semiconductors.	3	2
2	Discuss the Born interpretation of a wave function in quantum mechanics. What are the necessary conditions of physically acceptable wave function?	2	2
3	What is the expression for Poynting vector and what does it physically signify. Explain.	1	4
4	Explain the terms phase velocity, group velocity and wave packet in quantum mechanics.	2	2
5	Write down the properties of X-rays.	5	2
6	Discuss the avalanche breakdown and zener breakdown.	3	2

BTECE-202

Section B

Attempt any FOUR Questions

(4 × 10 = 40)

Q.No.	Questions	CO	BL
1	Explain the operation of p - n junction under forward bias and reverse bias. Draw and explain the V-I characteristics of p - n junction.	3	3
2	Solve the time- independent Schrodinger equation for particle in a box of length L to find its allowed energy levels and wave function.	2	3
3	Derive the time dependent Schrodinger equation.	2	3
4	Deduce Maxwell's equations in differential form and explain their physical significance.	1	4
5	What are X- rays and how are they produced? An X-ray tube is operating at 100 kV. Calculate the minimum wavelength of x-rays.	5	2,3
6	(i) Define superconductivity? (3 marks) (ii) Write short notes on Type I superconductors and Type II superconductors. (7 marks)	4	2

BL: Bloom's Taxonomy Level (1-Remembering, 2-Understanding, 3-Applying, 4- Analysing, 5- Evaluating, 6- Creating).