

JAMIA HAMDARD
Department of Computer Science & Engineering
School of Engineering Sciences & Technology
New Delhi – 110062

Even Semester Examination 2023 (Backlog)

Paper Name: Applied Physics-II Paper Code: BTCSE-201/BTCSE-AI-201/BTECE-201
Time: 3 Hours
Maximum Marks: 75

Section A

Attempt ALL Questions

(7 × 5 = 35)

Q.No.	Questions	CO	BL
1	Deduce the Gauss's law in differential form.		
2	Discuss the Born interpretation of a wave function in quantum mechanics. What are the necessary conditions of physically acceptable wave function?	2	3
3	Find the expression for total mechanical energy of a simple harmonic motion.	3	2
4	Explain the terms phase velocity, group velocity and wave packet in quantum mechanics.	4	4
5	Write down the properties of X-rays.	3	2
6	Discuss the avalanche breakdown and zener breakdown.	5	2
7	What is the expression for Poynting vector and what does it physically signify. Explain.	1	2
		2	2

Section B

Attempt any FOUR Questions

(4 × 10 = 40)

Q.No.	Questions	CO	BL
8	Explain the construction and working of a solar cell. Draw and explain its V-I characteristic.	1	3
9	Solve the time-independent Schrodinger equation for particle in a box of length L to find its allowed energy levels and wave function.	3	3
10	Write short notes on (i) LED and (ii) photodetector.	1	3
11	State Poynting's theorem. Derive the mathematical expression of energy density of electromagnetic field.	2	3
12	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	2,4
13	Solve the differential equation of forced harmonic oscillator. Discuss its solution and the concept of resonance.	4	3

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