BACHELOR OF TECHNOLOGY (CBCS - 2023)

B. Tech. Sem-I Computer Science & Business Systems : WINTER: 2025

SUBJECT: PHYSICS FOR COMPUTING SCIENCE

Day : Thursday
Date : 18/12/2025

W-27625-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :
1. All questions are COMPULSORY.
2. Figures to the right indicate FULL marks for the question.
3. Draw neat labelled diagrams WHEREVER necessary.
4. Assume suitable data, if necessary.

Q. 1	What is forced oscillations? Derive the formula for oscillation.	(10)
	OR	
Q. 1	Explain under damped oscillation. What is quality factor? What is the significance of quality factor?	(10)
Q. 2	Explain the interference starting from principle of superposition. Derive the formula for fringe width in Young's double slit experiment.	(10)
	OR	
Q. 2	What is diffraction? What are types of diffraction? Give any five difference between them. State and explain Brewster's law.	(10)
Q. 3	Derive the formula for wave function for particle trapped in potential well of infinite depth.	(10)
	OR	
Q. 3	Give the significance of wave function and probability density.	(10)
Q. 4	What is Miller's plane? Derive the formula for inter planar spacing. Show the band structures of insulator, semiconductor and conductor.	(10)
	OR	
Q. 4	What is packing factor? Derive packing factor for (i) FCC and (ii) BCC	(10)
Q. 5	With energy level diagram, explain the construction and working of Nd-YAG laser.	(10)
	OR	
Q. 5	Define Einstein's A and B coefficients. Derive a relation between them.	(10)
Q. 6	Give Maxwell's equations in vacuum and non-conducting medium.	(10)
	OR	
Q. 6	What is entropy? Give entropy in reversible and irreversible processes?	(10)

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