



Continuous Assessment Test (CAT) – I AUGUST 2025

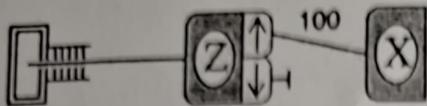
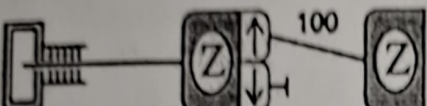
Programme	: B. Tech	Semester	: Fall Semester 2025-2026
Course Code & Course Title	: BAPHY105 & Engineering Physics	Class Number	: CH2025260103724 CH2025260103720 CH2025260103714 CH2025260103748 CH2025260103738 CH2025260103730 CH2025260103736 CH2025260103734 CH2025260103740 CH2025260103743 CH2025260103914 CH2025260103726 CH2025260103755 CH2025260103912
Faculty	: Dr. B.Ajitha Dr. Rajasekarakumar Vadapoo Dr. Ramkumar M C Dr. Jitendra Narayan Dash Dr. Karthikeyan S Dr. Parasuraman E Dr. Ranjani Seshadri Dr. Gopinath Mudhana Dr. Dayasindhu Dey Dr. Shalini MG Dr. Rajesh Goswami Prof. Srinivasan T Prof. Dipthi. S Prof. Rishab Antosh	Slot	: D2+TD2
Duration	: 1½ Hours	Max. Marks	: 50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted

Answer all questions
Section A (2 x 10 = 20 marks)

Q. No	Sub Sec.	Description	Marks	CO	BT Level
1		Describe Young's double slit experiment and derive the expression for the fringe width with neat diagram.	10	1	K1

2		What is the probability of a specific outcome after the second magnet in sequential Stern-Gerlach experiment with two apparatus as shown in figures? (i)  (ii) 	5+5	1	K2
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Section B (2 x 15 = 30 marks)

3	(i)	Describe the experimental observations of blackbody radiation and explain the failure of classical theory.	5+5+5	1	K3
	(ii)	If the de-Broglie wavelength of a proton is three times the de-Broglie wavelength of alpha particle. Compare the ratio of velocities of proton and alpha particle.			
	(iii)	A 430 nm violet light is incident on calcium photoelectrode with a work function of 2.7 eV. Find the energy of the incident photons and the maximum kinetic energy of ejected electrons.			
4		Using assumptions, derive Schrodinger time independent and time dependent wave equation.	15	1	K1

*****All the best *****