000623

PRN:	

Course Code :	U22PC301

Second Year **B. Sc.** End Semester Examination Winter 2024

Physics - III

Day and Date: Fri 22 Nov 2024 Max Marks: **50**

Time : 10:30AM To 12:30PM Duration: **02** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	What is Zeroth law of Thermodynamics?	02	L1	CO1
	b)	Explain Unattainability of absolute zero.	02	L1	CO2
	c)	Write postulates of kinetic theory.	02	L2	CO3
	d)	Explain Ferry's black body.	02	L2	CO4
	e)	Discuss Constraints and accessible micro state.	02	L2	CO5
Q.2		**Attempt any two from the following**			
	a)	Derive Work done for Adiabatic Process.	05	L3	CO1
	b)	Give the relation between C_p and C_v for ideal gas.	05	L3	CO1
	c)	Write note on reversible and irreversible processes.	05	L3	CO1
Q.3		**Attempt any two from the following**			
	a)	Derive an expression for efficiency of Carnot's heat engine.	05	L4	CO2
	b)	A Carnot's engine whose temperature of the source is 400K takes 200 calories of heat at this temperature and rejects 150 calories of heat to the sink. What is the temperature of the sink? Also calculate the efficiency of the engine.	05	L4	CO2
	c)	Discuss T-S Diagram and Derive the expression for efficiency of an engine.	05	L3	CO2
Q.4		**Attempt any two from the following**			
	a)	State law of Equipartition of energy and Give its application to specific heat of gases.	05	L3	CO3
	b)	Write a note on Viscosity of gases.	05	L2	CO3
	c)	Explain Fermi-Dirac Statistics.	05	L2	CO5
Q.5		**Attempt any two from the following**			
	a)	Derive Wein's Displacement law from Plank's law.	05	L4	CO4
	b)	Explain Rayleigh-Jeans Law.	05	L2	CO4
	c)	Derive Stefan-Boltzman Law.	05	L3	CO5

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