

	b)	Derive the expression connecting C_p and C_v .	04
	c)	Differentiate the terms “Microstate” and “Macrostate” of a thermodynamic system, based on their definition.	03
Q-5		Attempt all questions	(14)
	a)	Explain in detail the transport phenomena for kinetic theory of gases.	07
	b)	Elaborate on the TdS equation.	04
	c)	While stating the First law of thermodynamics, explain each of its terms.	03
Q-6		Attempt all questions	(14)
	a)	Explain the temperature- entropy diagram of a Carnot’s cycle.	05
	b)	Write a note discussing in detail the concept of phase space.	05
	c)	Mentioning the Clausius-Clapeyron’s first latent heat equation, discuss the effect of pressure on the boiling point of a liquid.	04
Q-7		Attempt all questions	(14)
	a)	Point out the differences among Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.	07
	b)	Derive an expression for the work-done during an isothermal process.	04
	c)	Briefly explain the law of Equipartition of energy.	03
Q-8		Attempt all questions	(14)
	a)	Derive the expression for Maxwell’s velocity distribution law, stating the necessary assumptions.	07
	b)	Write a short note on reversible and irreversible processes.	04
	c)	In a concise manner, explain the term “mean free path” of a gas molecule.	03

