

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Winter Examination-2022

Subject Name: Thermal Physics and Statistical Mechanics

Subject Code: 4SC03TPS1

Branch: B.Sc. (Chemistry, Mathematics)

Semester: 3

Date: 25/11/2022

Time: 11:00 To 02:00

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1	Attempt the following questions:	(14)
	a) What is Phase space?	01
	b) Define Internal energy.	01
	c) Give the statement of the First Law of Thermodynamics.	01
	d) Boson particle follows which Statistics?	01
	e) Define Temperature.	01
	f) What is Macroscopic state?	01
	g) Define Entropy.	01
	h) State the Second Law of Thermodynamics based on Entropy.	01
	i) Give classification of Quantum Statistics.	01
	j) Define: Heat energy.	01
	k) Give one comparison of three statistics.	01
	l) Define Microscopic State.	01
	m) What do you mean by thermodynamic probability?	01
	n) Define Gibbs energy.	01

Attempt any four questions from Q-2 to Q-8

Q-2	Attempt all questions	(14)
	a) Derive Mayer's formula.	07
	b) Explain Tds equations.	07
Q-3	Attempt all questions	(14)
	a) Explain in detail: Works-done during an adiabatic process.	07
	b) Explain Temperature-Entropy diagram.	07
Q-4	Attempt all questions	(14)
	a) Explain Bose Einstein Distribution Law.	07
	b) Derive Maxwell's Law of Distribution of velocity and give its experimental verification.	07



