PRN:		Course Code :	U21PC301

Sy.BSc End Semester Examination Summer 2024

000625

Chemistry III

Day and Date: Mon E 2 DEC 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)	Define Components and degree of freedom.	02	L1	CO1
	b)	Define Real gas and Ideal gas.	02	L1	CO2
	c)	Define Collision diameter, Collision number.	02	L1	CO3
	d)	Define types of solid's.	02	L1	CO4
	e)	Explain what is surface tension and surface energy.	02	L2	CO5
Q.2		**Attempt any two from the following**			
	a)	Explain Phase diagram of water system.	05	L2	CO1
	b)	Calculate the enthalpy of vaporization per mole of water if normal boiling point of water is 100°C and its vapor pressure at 80°C is 0.4672 atmosphere. ($R=8.314 JK^{-1}mol^{-1}$).	05	L3	CO1
	c)	Calculate the number of components in Na_2SO_4-H_2O, KCl-NaCl-H_2O assuming dissociation no dissociation.	05	L3	CO1
Q.3		**Attempt any two from the following**			
	a)	Give the Postulate's of kinetic theory of gases.	05	L1	CO2
	b)	Explain Boyle's Temperature.	05	L2	CO2
	c)	Explain Critical temperature, Critical Pressure, Critical Volume, Critical Phenomenon and give Critical constant of CO_2.	05	L2	CO2
Q.4		**Attempt any two from the following**			

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	a)	Derive the expression for a) Most probable velocity b) Average velocity c) Root mean Square velocity.	05	L3	CO3
	b)	Calculate the room mean square velocity of chloride molecules at 17°C and 800 mm pressure. [Given – V_1=22400 cm^3].	05	L3	CO3
	c)	Draw a neat and clear diagram of Stalgmometer and Determine the surface tension of liquid.	05	L3	CO5
Q.5		**Attempt any two from the following**			
	a)	Explain fundamental law of crystallography.	05	L2	CO4
	b)	Explain and Draw the structure of simple unit cell, Face centered unit and Body centered unit cell.	05	L3	CO4
	c)	Explain in detail Ostwald's Viscometer.	05	L2	CO5

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