

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Physical Chemistry - III**Subject Code: 4SC05PCH1****Branch: B.Sc. (Chemistry)****Semester: 5****Date: 03/12/2018****Time: 10:30 To 01:30****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) Define: Activity	1
	b) What is degree of freedom?	1
	c) Write the statement of 2 nd law of thermodynamics given by Lord Kelvin.	1
	d) Give the definition of saturated solution.	1
	e) Define the term colloids.	1
	f) What is Phase diagram?	1
	g) Write the Nernst equation for determination of EMF.	1
	h) What is spontaneous process?	1
	i) Give the definition of fugacity.	1
	j) What is meant by components?	1
	k) Define: Ultra filtration	1
	l) What is concentration cell?	1
	m) What is system in thermodynamics?	1
	n) Define: Work function	1

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

Q-2	Attempt all questions	(14)
	a) Write any six characteristics of lyophobic and lyophilic sols.	6
	b) Explain concentration cell with transference.	4
	c) Describe the operation methods of Carnot cycle.	4
Q-3	Attempt all questions	(14)
	a) Determine EMF by dissociation constant of weak acid.	7
	b) Discuss solubility of partially miscible liquid by phenol-water system with graphical representation.	7
Q-4	Attempt all questions	(14)
	a) Give the explanation of phase diagram of water system.	7
	b) Derive the equation of Gibb's Helmholtz equation.	7



Q-5	Attempt all questions	(14)
	a) Explain liquid junction potential.	6
	b) Write any two optical properties of sols.	4
	c) Write a short note on Rault's law.	4
Q-6	Attempt all questions	(14)
	a) Give brief explanation on fractional distillation.	7
	b) Write a note on derivation of phase rule.	7
Q-7	Attempt all questions	(14)
	a) Explain free energy and work function in thermodynamics.	6
	b) Explain Brownian method of colloid.	4
	c) Describe EMF by P^H measurements.	4
Q-8	Attempt all questions	(14)
	a) Write a note on steam distillation.	7
	b) Explain vapour pressure curve for liquid-liquid solutions.	7

