

# C.U.SHAH UNIVERSITY

## Summer Examination-2020

**Subject Name: Physical chemistry-III**

**Subject Code: 4SC05PCH1**

**Branch: B.Sc. (Chemistry)**

**Semester: 5**

**Date: 02/03/2020**

**Time: 10:30 To 01:30**

**Marks: 70**

**Instructions:**

- (1) Use of Programmable calculator and 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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<b>Q-1</b>	<b>Attempt the following questions:</b>	<b>(14)</b>
<b>A)</b>	What is known as work function?	<b>01</b>
<b>B)</b>	What do you mean by fugacity?	<b>01</b>
<b>C)</b>	Define molarity and give its equation.	<b>01</b>
<b>D)</b>	What is called Spontaneous process?	<b>01</b>
<b>E)</b>	What is known as electrophoresis?	<b>01</b>
<b>F)</b>	Define the term degree of freedom	<b>01</b>
<b>G)</b>	What is called azeotropic mixture?	<b>01</b>
<b>H)</b>	What do you mean by phase and components in phase rule?	<b>01</b>
<b>I)</b>	Give any two applications of colloids.	<b>01</b>
<b>J)</b>	Define solution	<b>01</b>
<b>K)</b>	Write the definition of concentration cell	<b>01</b>
<b>L)</b>	What is known as liquid junction potential?	<b>01</b>
<b>M)</b>	Define electrochemical cell	<b>01</b>
<b>N)</b>	What is called ionic product of water?	<b>01</b>



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

- Q-2                    Attempt all questions                    (14)**
- A) Explain the optical and kinetic properties of sols.                    **07**
  - B) Write a note on electrolyte concentration cell with transference.                    **07**
- Q-3                    Attempt all questions                    (14)**
- A) Explain the Phenol-water system in detail.                    **07**
  - B) Write a note on Fractional distillation.                    **07**
- Q-4                    Attempt all questions                    (14)**
- A) Discuss the aggregation method for the preparation of colloids.                    **07**
  - B) Explain the Carnot cycle in detail.                    **07**
- Q-5                    Attempt all questions                    (14)**
- A) Discuss the degree of hydrolysis in detail.                    **07**
  - B) Explain Sodium Sulphate-water System with phase diagram.                    **07**
- Q-6                    Attempt all questions                    (14)**
- A) Discuss the determination of pH using Glass electrode.                    **07**
  - B) Explain Zn-Cd System with appropriate phase diagram.                    **07**
- Q-7                    Attempt all questions                    (14)**
- A) Explain the Van't hof Isotherm in detail.                    **07**
  - B) Write a note on the determination of dissociation constant of weak acid.                    **07**
- Q-8                    Attempt all questions                    (14)**
- A) Derive the Clausius Clapeyron Equation.                    **05**
  - B) Give any five differences between lyophilic and lyophobic sols.                    **05**
  - C) Discuss Henrys law.                    **04**

