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BSc-M.Sc. Integrated Program, Chemistry/Semester-III
Paper Title; Phase Equilibria and Chemical Kinetics
Paper Code: BCH-CC06TH

Time 3 hours Maximum Marks 75

Abbreviations Used
CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

Section A

Very Short Type Questions (attempt all) (10x2=20Marks)

Q. No	Question	Marks	BTL	CLO	PLO
1.	What is Chemical equilibrium?	2	2	1	1
2.	What is phase equilibrium?	2	2	2	1
3.	What is Chemical kinetics?	2	2	3	1
4.	What is solution?	2	2	4	1
5.	What is Molarity?	2	2	4	1
6.	What is Molality?	2	2	4	1
7.	What is triple point in phase diagram?	2	2	2	1
8.	What is order of reaction?	2	2	3	1
9.	What is rate of reaction?	2	2	3	1
10.	What is freezing point?	2	2	4	1

Section B

Long Type questions (Attempt **any two** out four) (10x2=20)

Q. No	Question	Marks	BTL	CLO	PLO
1.	Explain Le-Chatelier's Principle.	10	6	1	3
2	Derive Clausius-Clapeyron equation and give its applications.	10	5	2	3
3.	Derive gibbs phase rule and explain its application for three component system.	10	5	2	3
4	Explain Major source of error in determination of Order of reaction.	10	6	3	3

PTO

Section C

Short Type questions. (**Attempt all questions**) (7x5=35)

Q.NO	Questions	Marks	BTL	CLO	PLO
1.	What will be the effect of addition of catalyst on chemical equilibrium? **OR** What will be the effect of addition of Inert gas on chemical equilibrium?	5	3	1	2
2.	Calculate the number of components for decomposition of ammonium chloride? What will be the effect of addition of gaseous Hydrochloric Acid on number of components? **OR** Calculate the number of components for decomposition of Calcium Carbonate? What will be the effect of addition of gaseous Carbon Dioxide on number of components?	5	4	2	2
3	Why reactions with molecularity 3 or more are very rare? **OR** What do you mean by Pseudo Unimolecular?	5	3	3	2
4	Why the boiling point of solution is always higher than pure solvent? **OR** Why the freezing of solution is always lower than pure solvent?	5	3	4	2
5	Which colligative property is best to determine molecular mass of solute and why? **OR** What do you mean by association and dissociation of solute and how it impacts Vant hoff's factor?	5	4	4	2
6	Derive Arrehenius equation. **OR** Derive Lindemann;s equation.	5	3	2	2
7	Out of glucose and common salt which one will have high freezing point and why? **OR** Out of glucose and common salt which one will have high boiling point and why?	5	4	4	3

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