B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
III Year V Semester
Physical Chemistry - I

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. State Henry's law.
2. What is meant by elevation of boiling point?
3. Define the term component.
4. What do you mean by incongruent melting point?
5. Define order.
6. Give the expression for $t_{1/2}$ of first order reaction.
7. What is the unit of second order rate constant?
8. What is reversible reaction? Give example.
9. What is meant by adsorption?
10. Give the uses of adsorption?
11. Mention the importance of distribution law.
12. What is triple point?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain the deviation of binary liquid mixtures from ideal behaviour?
14. Derive Clapeyron-Clausius equation.
15. a) What is phase rule?
    b) Explain reduced phase rule?
16. Derive the rate constant for first order reaction.
17. Explain Langmuir adsorption isotherm?
18. Explain the function of a catalyst in terms of Gibb's free energy of activation?
19. Explain one-component system with neat sketch?

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. a) Explain Duhem Margulas equation for binary mixtures.
    b) A solution containing 2.44g of a solute dissolved in 75g of water boiled at 100.413^oC. Calculate the moleclear weight of the solute $(K_b for water = 0.52k)$
21. Describe with neat sketch for Pb-Ag system?
22. Derive Arrhenius equation and explain concept of energy of activation.
23. Explain the determination of rate constant for the acid catalysed hydrolysis of ester.
24. Explain a) Freundlich adsorption isotherm
    b) Kinetics of uni-molecular surface reaction

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