B.Sc. DEGREE EXAMINATION,NOVEMBER 2018
III Year V Semester
Core Major - Paper XI
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. Define depression of freezing point.
3. Give an example for one component system.
4. Define eutectic point.
5. What are zero order reactions?
6. Give the expression for half life period of second order reaction.
7. Differentiate reversible and irreversible reactions.
8. Give an example for Consecutive reaction.
9. Give the mathematical form of Freundlich 's adsorption isotherm.
10. In what way homogeneous catalysis differ from heterogeneous catalysis.
11. Write down Duhem margus equation.
12. Give the mathematical form of BET equation.

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

Answer any **FIVE** questions

13. Explain the causes of deviation of ideal behavior of solutions.
14. Give the phase rule equation and explain the terms involved in it.
15. Derive the expression for the rate constant of second order reaction.
16. Explain collision theory and derive the expression for rate constant on the basis of this theory.
17. Distinguish physical adsorption from chemisorptions.
18. Explain Nernst distribution law.
19. Draw and explain the phase diagram of water system.

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

Answer any **THREE** questions

20. Derive Clausius equation and from this deduce Clapeyron Clausius equation.
21. With neat sketch explain the phase diagram of sulphur system. Indicate all the triple points.
22. Discuss any two methods of determination of order of a reaction.
23. Give the postulates of absolute reaction rate theory and derive the expression for rate constant on its basis.
24. Discuss the kinetics of unimolecular surface reactions.

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