24U213 (Pages: 2) Name : .....

Reg. No : .....

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2025

(FYUGP)

CC24UCHE2MN105 - SOLUTIONS AND SURFACE CHEMISTRY

(Chemistry - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. State and explain Boyle -van't Hoff low for solution. [Level:2] [CO3]
2. Explain nematic liquid crystals. Give one example. [Level:2] [CO3]
3. Explain surface tension of a liquid. How does it vary with temperature? [Level:2] [CO1]
4. Explain the term dialysis. [Level:2] [CO2]
5. Discuss what is meant by a lyophilic colloid? Give an example. [Level:2] [CO2]
6. How is the gold number of a protective colloid related to its protective action? [Level:2] [CO1]
7. Infer an application of adsorption. [Level:2] [CO3]
8. Express Freundlich adsorption equation and specify the terms. [Level:2] [CO2]
9. Mention two applications of TLC. [Level:2] [CO4]
10. Explain the basic principle behind solvent extraction. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

11. Calculate the osmotic pressure of an aqueous 5% solution of urea (molar mass 60g mol-1) at 298K. [Level:3] [CO3]
12. What is meant by an ideal solution? Draw and explain variation of vapour presure with mole fractions of component for an ideal binary miscible liquid system. [Level:2] [CO3]
13. What is meant by coagulation of sols? Describe how it can be brought about. [Level:1] [CO2]
14. How are emulsions prepared? [Level:2] [CO2]

15. Distinguish between homogeneous catalysis and heterogeneous catalysis. Give an example for each. [Level:2] [CO1]

16. Mention three important characteristics of enzyme catalysis. [Level:2] [CO3]

17. Mention three applications of adsorption. [Level:2] [CO1]

18. Explain the principle of TLC. [Level:2] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

19. Discuss the classification of liquid crystals on the basis of structure and explain applications liquid crystals. [Level:2] [CO1]

20. Explain the basic principle of chromatography. How are the various chromatographic processes classified on the basis of the types phases involved? [Level:2] [CO4]

(1 × 10 = 10 Marks)

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