D. K. M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1
SEMESTER EXAMINATIONS
JUNE - 2022   19CCH4A
GENERAL CHEMISTRY – III

Time: 3 Hours   Max. Marks: 75

SECTION – A (10 x 2 = 20)

Answer ALL the questions.

1. What do you know about allotropes? Give an example.

2. Which has more electron affinity nitrogen or oxygen?

3. What is the hybridization of chlorine in ClF_5? Draw its structure.

4. Write the preparation and structure of XeO_3.

5. Which one of the following undergoes aldol condensation? Give reason.

   i) Formaldehyde   ii) Acetaldehyde

6. How will you prepare Grignard reagents?

7. Define mole fraction.

8. What are ideal solutions? Give an example.

9. State Nernst distribution law.

10. Define osmotic pressure.

SECTION – B (5 x 5 = 25)

Answer ALL the questions.

11. (a) Write the preparation and properties of hydroxylamine.

(Or)

   (b) Explain why SO_2 is a more powerful reducing agent in alkaline medium than in acidic medium?

12. (a) State the important industrial uses of noble gases.

(Or)

   (b) Write the preparation and structure of $XeOF_2$ and $XeOF_4$.

13. (a) Explain Perkin's reaction with mechanism.

(Or)

   (b) Write the preparation, properties and uses of acetoacetic ester.

14. (a) State and explain Raoult's law for vapour pressure of binary solution.

(Or)

   (b) How will you determine molecular mass from lowering of vapour pressure?

15. (a) Derive the relation between osmotic pressure and lowering of vapour pressure of an ideal solutions.

(Or)

   (b) Drive the relation between Van't Hoff factor and degree of dissociation.

SECTION – C (3 x 10 = 30)

Answer any THREE of the following questions.

16. Write the preparation, properties and uses of $POCl_3$ and PH_3.

17. Write notes on the hybridization and geometrical shape of XeF_2, XeF_4 and XeF_6.

18. Write the reaction and mechanism of Wittig and Reformatsky reactions.

19. Derive volume change, enthalpy change and entropy change of mixing of an ideal solutions.

20. (a) Explain CST in Phenol-water system.
    (b) Derive an expression for Nernst distribution coefficient.

* * * * *