St. JOSEPH'S COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 620 002

SEMESTER EXAMINATIONS – APRIL 2015

TIME: 3 Hrs.   MAXIMUM MARKS: 100

SEM	SET	PAPER CODE	TITLE OF THE PAPER
IV	2013	11UPH430404A	CHEMISTRY – II

SECTION – A

Answer all the questions: 20 x 1 = 20

Choose the correct answer:

1. Which among the following is a polyhydroxy ketone?
   a) glucose   b) fructose
   c) sucrose   d) starch

2. The EAN of copper in $[Cu(SCN)_4]^{2-}$ is _____.
   a) 34   b) 35
   c) 36   d) 37

3. The number of moles of component present in one kilogram of the solvent is called _____.
   a) molality   b) molarity
   c) molmality   d) molefraction

4. The point at which there is no rise in temperature and pressure until the whole of the solid component changed into a liquid is called _____.
   a) sublimation point   b) triple point
   c) metastable state   d) melting point

5. Solubility of a sparingly soluble salt can be determined by using _____.
   a) Nernst equation   b) Debye – Huckel equation
   c) Kohlrausch law   d) Ostwald's dilution law

Fill in the blanks:

6. _____ are the building blocks of proteins and polypeptides.

7. The point above which an antifernomagnetic substance behave as a normal paramagnetic substance is called _____.

8. Noble gas atoms have so little tendency to donate, accept or share electrons, that the elements are _____.

9. The phenomenon of higher concentration of any molecular species at the surface than in the bulk is known as _____.

10. The unit of specific conductance is _____.

State True or False:

11. At the isoelectric point of amino acids, the concentrations of the oppositely charged ions present will be equal.

12. A square planar complex does not exhibit optical activity.

13. Noble gases that are known to react, form compounds in only one oxidation state.

14. Zn – Mg system is a two component system which form compounds with incongruent melting point.

15. Ostwald's dilution law is not applicable for strong electrolytes.

Match the following:

16. Amino acid   - a) Chelate
17. DMG   - b) square pyramidal
18. $XeOF_4$ - c) Adsorbent
19. Silica gel   - d) Electrolytic dissociation
20. Arrhenius   - e) Zwitter ions

SECTION – B

Answer all the questions: **5 x 4 = 20**

21. a. What is muta rotation? Explain the muta rotation of glucose.

OR

   b. Starting from Benzene, how will you prepare
       (i) Toluene   (ii) Acetophenone

22. a. Name the following complexes according to IUPAC
       (a) $[Ni(CN)_4]^{2-}$ (b) $[Co(NH_3)_5Cl]^{2+}$ (c) $K_3[Al(C_2O_4)_3]$

OR

   b. What are various isomerisms exhibited by Inorganic complexes?

23. a. Write short notes on the different types of glasses.

OR

   b. What are silicones? How are they obtained? Mention its uses.

24. a. Construct a phase diagram for Pb – Ag system.

OR

   b. Write short notes on Langmuir and Freund lick adsorption isotherms. Give their mathematical expressions.

25. a. Write a brief note on the following
       (i) Cell constant   (ii) Solubility product

OR

   b. What are conductometric titrations? How are conductometric titrations useful in determining the end point of precipitation titrations?

SECTION – C

Answer any FOUR questions: **4 x 15 = 60**

26. Discuss the primary, secondary and tertiary structure of proteins.

27. i. State the postulates of valence bond theory of complexes. Mention its limitations. (10)

    ii. Define Magnetic susceptibility. Write a note on Ferromagnetism and Anti-ferromagnetism on the basis of magnetic susceptibility. (5)

28. Explain the raw materials and the processes involved in the manufacture of cement.

29. Explain the principle and applications of column chromatography. How are the components of a mixture separated using column chromatography?

30. i. State and explain Kohlrausch's law. How would you measure the conductance at infinite dilution of acetic acid? (8)

    ii. Discuss Ostwald's dilution law and its limitations. (7)

****