Sample Paper – 2011
Class –XII
Subject – Chemistry

Time-3 hrs   **M.M- 70**

GENERAL INSTRUCTIONS:

 1 All questions are compulsory.

 2.Question number 1 to 8 are very short answerquestions,carry 1 mark each

 3.Question number 9 to 18 are short answer questions,carry 2 marks each

 4 Qquestions number 19 to 27 are also short answer questions,carry 3 marks each.

 5 Question number 28 to 30 are long answer questions carry 5 marks.

1. Why is glass considered a super cooled liquid?

2. Suggest a list of metals that are extracted electrolytically?

3. Why does physisorption decrease with the increase of temperature?

4. Why does NO_2 dimerise ?

5. Write IUPAC name of the following compound:

   $CH_3 - CH(Br) - CH_2 - O - CH(CH_3)2$

6 .Draw structure of 2,2-dimethyl -3-pentananone

7. Define primary structure of protein ?

8 .Write monomer of Buna -S ?

9. Explain negative deviation of non-ideal solution with example ?

                          OR

   Why do we get abnormal molecular mass?Explain with example?

10. Write reactions of mercury cell at anode and cathode ?

11. Represent the cell in which the following reaction takes place

   $Mg(s) + 2Ag+(0.0001M) \longrightarrow Mg^{2+}(0.130M) + 2Ag(s)$
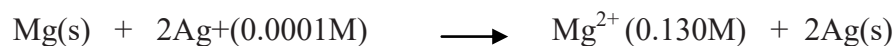
   Calculate its E(cell) if Eo cell = 3.17 V.

12. Answer the following:

(i) oxygen has lower electron gain enthalpy than sulphur ?

(ii) Draw structure of $XeOF_4$ and XeF_4

13. Why yellow solution of potassium chromate becomes orange in acid medium?

14 (i) Why thionyl chloride is preferred to prepare chloro alkane from alcohol ?

(II) What are ambident nucleophiles? Explain with an example?

15. Convert-   (i) Ethanol to but-1-yne
                 (ii) Aniline to phenol

16. Explain (i) Aliphatic amines are more basic than aniline

(ii) Aniline is acylated before nitration to get mono substituted product .

17. Explain with one example (i) Carbylamine Reaction

(ii) Coupling Reaction.

18. Explain the difference between Nylon-6 and Nylon-6,6? *(2)*

19. Silver forms *ccp* lattice and X-ray studies of its crystals show that the edge length of its unit cell is 408.6 pm. Calculate the density of silver (Atomic mass = 107.9 u). (3)

20. Henry's law constant for CO_2 in water is 1.67×10^8 Pa at 298 K. Calculate the quantity of CO_2 in 500 mL of soda water when packed under 2.5 atm CO_2 pressure at 298 K. (3)

OR

Vapour pressure of chloroform ($CHCl_3$) and dichloromethane (CH_2Cl_2) at 298 K are 200 mm Hg and 415 mm Hg respectively. (i) Calculate the vapour pressure of the solution prepared by mixing 25.5 g of $CHCl_3$ and 40 g of CH_2Cl_2 at 298 K and, (ii) mole fractions of each component in vapour phase.(3)

21.(i) What are emulsions? What are their different types? Give example of each type.

(ii) What is demulsification? Name two demulsifiers..?

(iii) Action of soap is due to emulsification and micelle formation. Comment. (3)

22. Outline the principles of refining of metals by the following methods:
    (i) Zone refining
    (ii) Electrolytic refining
    (iii) Vapour phase (3)

23. Explain giving reason-
    (i) On what ground can you say that scandium $(Z = 21)$ is a transition element but zinc $(Z = 30)$ is not?
    (ii). Why do the transition elements exhibit higher enthalpies of atomisation?
    (iii) How would you account for the irregular variation of ionisation enthalpies (first and second) in the first series of the transition elements?

24. Aqueous copper sulphate solution (blue in colour) gives:
    (i) a green precipitate with aqueous potassium fluoride and

    (ii) a bright green solution with aqueous potassium chloride. Explain these

    experimental results. .

25. How will you bring about the following conversions?
    (i) Ethyl chloride to propanoic acid
    (ii) But-1-ene to n-butyliodide
    (iii) 2-Chloropropane to 1-propanol   *(1x3)*

26. What happens when D-glucose is treated with the following reagents?
    (i) HI   (ii) Bromine water   (iii) HNO_3 (3)

27. (I) What is meant by the term 'broad spectrum antibiotics' ? Explain.
    (ii) How do antiseptics differ from disinfectants ? Give one example of each.

28. The rate constants of a reaction at 500K and 700K are $0.02s^{-1}$ and $0.07s^{-1}$ respectively. Calculate the values of E_a and A.

29. Assign reason for the following: 1X5
    (i) Why is H_2O a liquid and H_2S a gas ?
    (ii) How do you account for the reducing behaviour of H_3PO_2 on the basis of its structure ?
    (iii) Sea is the greatest source of some halogens. Comment
    (iv) When HCl reacts with finely powdered iron, it forms ferrous chloride and not ferric chloride. Why?

(v) Why do noble gases have comparatively large atomic sizes?

30.(a) Give simple chemical tests to distinguish betweenPropanal and Propanone (i)

(b) Cyclohexanone forms cyanohydrin in good yield but 2,2,6-trimethylcyclohexanone does not.?(1)

(c) An organic compound with the molecular formula $C_9H_{10}O$ forms 2,4-DNP derivative, reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound. . (3)