DAYANAND ANGLO VEDIC PUBLIC SCHOOL, AIROLI
QUESTION BANK (2016-17)
SUBJECT - CHEMISTRY
STD-XII

1. State Raoult's law.
2. The transition metals and many of their compounds act as good catalyst. Why?
3. Write the general electronic configuration of lanthanoids and actinoids.
4. What chemical change takes place when pyrolusite is fused with KOH in air?
5. Describe a Daniel cell with special reference to
   (i) the electrodes used and
   (ii) the reactions occurring at the electrodes in the cell.
6. Answer the following
   i. Distinguishing test for Carbontetrachloride and Chloroform.
   ii. Which will have higher boiling point: 1-Chloroethane or 2-Chloro-2-methylbutane? Why?
   iii. p-Chloronitrobenzene undergoes nucleophlic substitution faster than chlorobenzene. Explain with resonating structures.

7. Conductivity of 0.00241 M acetic acid is 7.896×10^{-5} Scm^{-1}. Calculate its molar conductivity, if Λ^0_m for acetic acid is 390.5 Scm^2mol^{-1}, what is its dissociation constant?

8. How will you carry out the following conversions:
   i. Benzene to Benzoic acid
   ii. Chloroethane to butane
   iii. Aniline to Bromobenzene
9. Define: rate of the reaction and order of a reaction
10. The half –life for radioactive decay of ^{14}C is 5730 years. An archaeological artifact contained wood that had only 80% of the ^{14}C found in the living tree. Estimate the age of the sample.
11. What are Pseudo unimolecular reactions? Explain with the help of a suitable example.
12. For the elementary step of a chemical reaction :

    $A_2 + B_2 \rightarrow 2AB$ rate of reaction $= k [A_2] [B_2]$

    What is the (i) molecularity and (ii) order of the reaction
13. A solid is made up of two elements P and Q. Atoms of Q are in ccp arrangement while atoms of P occupy all the tetrahedral sites. What is the formula of the compound?
14. (a) What change occurs when AgCl is doped with $CdCl_2$?
    (b) What type of semiconductor is produced when silicon is doped with Phosphorous?
    (c) Why does LiCl aquire pink colour when heated in Li vapours?
15. An element with density 10 gcm^{-3} forms a cubic unit cell with edge length of 3×10^{-8}cm. What is the nature of the cubic unit cell if the atomic mass of the element is 81 g mol^{-1}?
16. Give chemical tests to distinguish between:
    (i) Pentan-2-one and Pentan-3-one
    (ii) Benzoic acid and Phenol
    (iii) Benzaldehyde and Benzophenone
17. Arrange the following compounds in increasing order
    (i) Bromomethane, Bromoform, Chloromethane, Dibromomethane (boiling point)
    (ii) 2-bromo-2-methylbutane, 1-Bromopentane, 2- Bromopentane (S_N^2 substitution reaction)
    (iii) 1-Chloropropane, Isopropylchloride, 1-Chlorobutane (boiling point)

18.Give reactions for

(i) Clemmensen reduction

(ii) Cannizzaro reaction

(iii) Aldol condensation

19. The standard reduction potential of Cu^{2+} /Cu and Ag^{+} /Ag electrodes are 0.337 V and 0.799V respectively. Construct the galvanic cell using these electrodes so that its standard emf is positive. For what concentration of Ag^{+} will emf of the cell at 25^{0}C will be zero if concentration of Cu^{2+} is 0.01M?

20. Write an equation of Friedel – Craft's alkylation of anisole.

21. Define the term osmotic pressure. Why is osmotic pressure method better than boiling point method for determining molecular mass of solute?

22. A reaction is first order in A and second order in B.

(i) Write differential rate equation.

(ii) How is rate affected on increasing the concentration of B to three times?

(iii)How is rate affected when the concentration of both A and B is doubled?

23. Which compound in each of the following pairs will react faster in S_N^2 reaction with –OH and why?

(i) CH_3Br or CH_3I (ii) $(CH_3)_3C.Cl$ or CH_3Cl

24. How will you bring about the following conversions:

(i) Benzoic acid to benzaldehyde

(ii) Ethanal to but-2-enal

(iii) Propanone to propene

25. How will you bring about the following conversions?

(i) Propan-2-one to 2-methylpropan-2-ol

(ii) Methylbromide to acetic acid

26. Why is ferric chloride preferred over potassium chloride in case of a cut leading to bleeding?

27. Distinguish between chemisorption and physisorption.

28. (a) Give an example in which shape selectivity of the catalyst is exhibited?

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

29. Why is $Cl\text{-}CH_2COOH$ stronger acid than CH_3COOH?

30. What is meant by critical micelle concentration?