New Style MODEL TEST PAPER—6

CLASS—XII (H.P.)

CHEMISTRY

Time Allowed : 3 Hours **Maximum Marks : 60**

Special Instructions : Same as in Model Test Paper—1.

1. A solid is made up of two elements X and Z. Atom Z are in ccp arrangement while atoms X occupy all the tetrahedral sites. The formula of the compound is :

(*a*) X_2Z (*b*) XZ_2

(*c*) X_2Z_2 (*d*) XZ.

2. In physical adsorption the forces of association are :

(*a*) Ionic (*b*) Covalent

(*c*) van der Waals (*d*) H-bonding.

3. A match box exhibits :

(*a*) Cubic geometry (*b*) Monoclinic geometry

(*c*) Tetragonal geometry

(*d*) Orthorhombic geometry.

4. How many grams of methanol would have to be added to water to prepare 150 ml of solution which is 2 M CH_3OH :

(*a*) 9.6 (*b*) 2.4

(*c*) 9.6×10^3 (*d*) 4.3×10^2.

5. A current of 9.65 ampere flowing for 10 minutes deposits 3.0 g of the metal which is monovalent. The atomic mass of metal is :

(*a*) 10 (*b*) 50

(*c*) 30 (*d*) 96.5.

6. The oxidation number of Ni in the complex $Ni(CO)_4$ is :

(*a*) 0 (*b*) 1

(*c*) 2 (*d*) 4.

7. Define mutarotation.

8. Define chelating legand.

9. Name the vitamin whose deficiency causes night blindness.

10. Give the Zwitter ion structure of α-amino acid.

11. Crystalline CsBr has a BCC structure. Calculate the edge length of the unit cell if the density of CsBr crystal is 4.24 g cm^{-3}.

Or

Distinguish between calcination and roasting.

12. With the help of suitable example, explain :

(*i*) H.V.Z. reaction

(*ii*) Kolbe's reaction.

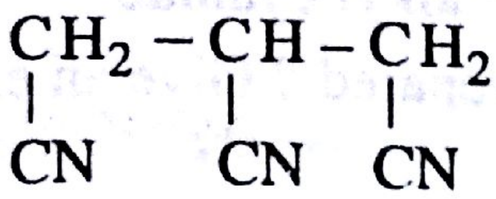
13. How will you convert chlorobenzene into DDT and diphenyl ?

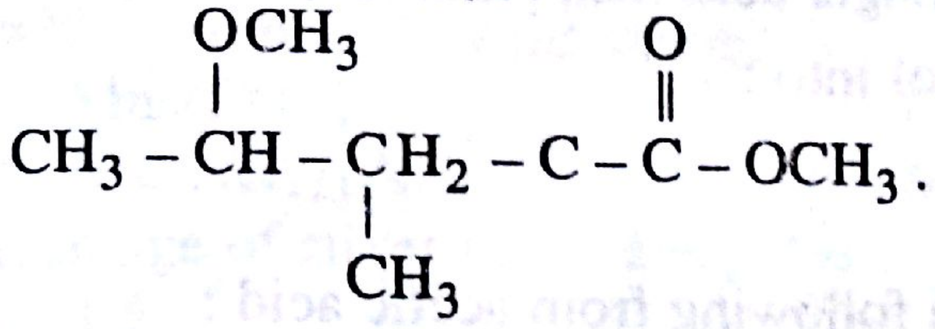
14. How will you bring about the following conversions :

(*i*) Phenol into salicylic acid

(*ii*) Ethyl alcohol into tertiary butyl alcohol ?

15. Give the IUPAC name of the following compounds :

(*i*) 

(*ii*) 

16. EMF of cell corresponding to reaction :
$Zn\ (s) + 2H^+\ (aq) \longrightarrow Zn^{2+}\ (0.1M) + H_2\ (g)\ (1\ atm)$ is 0.28 V at 25°C. Write the half cell reaction and calculate the H^+ ion concentration at the hydrogen electrode.

17. Define conductance. What is the relation between specific conductance and molar conductance ?

18. A reaction which is of first order with respect to the reactant, A has rate constant of 6 min^{-1}. If we start with [A] = 5.0 mol L^{-1}, when would value of [A] reach 0.05 mol L^{-1} ?

19. What concentration of benzoic acid (which forms a dimer in benzene) would be required to decrease the freezing point of benzene by 0.5°C ? K_f(benzene) = 5.10°C kg mol^{-1}, freezing point of pure benzene = 5.5°C.

20. What is Van't Hoff equation for dilute solution ? How does it help in calculating the molar mass of the solute ?

21. (*a*) What is mutation ?

(*b*) Differentiate between DNA and RNA.

22. Give the construction and working of fuel cell.

23. How will you account for the following :

(*i*) Transition metals have tendency to form complex compounds.

(*ii*) It is not proper to regard Zn, Cd and Hg as the transition metals.

(*iii*) The ions of the transition metal atoms are generally coloured ?

24. Name the factors which influence the extent of adsorption of a gas on the surface of solid.

25. (*a*) How will you prepare potassium permanganate from pyrolusite ?

(*b*) Give the structure of $KMnO_4$.

26. (*a*) Ammonolysis of alkyl halides is not a good method for the synthesis of amines. Give reasons for your answer.

(*b*) How will you convert benzene diazonium chloride into

(*i*) Phenol

(*ii*) Chlorobenzene

(*iii*) Benzene ?

Or

(*i*) Why is nitration of aniline not done directly ?

(*ii*) How will you convert alkyl halide into alkyl cyanide ?

(*iii*) How is benzene diazonium chloride prepared ? Give an example of coupling reaction.

27. (*a*) Why is fluoroacetic acid stronger acid than chloroacetic acid ?

(*b*) How will you convent phenol into :

(*i*) Phenolphthalein

(*ii*) Aspirin ?

28. (*a*) How will you synthesise the following from acetic acid :

(*i*) Acetone

(*ii*) Ethyl acetate ?

(*b*) How do you account for the following :

(*i*) Carboxylic acids have higher boiling points than corresponding alcohols ?

(*ii*) $C_2H_5NH_2$ is soluble in water ?