Roll No.....

P–18–C

Total No. of Questions : 21] [Total No. of Printed Pages : 4

XIIBAKJ17
13918–C
CHEMISTRY

Time : 3 Hours] [Maximum Marks : 70

(Long Answer Type Questions) 5 each

1. What is Nernst equation ? How can it be applied in calculating the equilibrium constant for the cell $Zn(s)/ZnSO_4$ aq || $CuSO_4(aq)/Cu(s)$?

Or

Predict the products of electrolysis in each of the following :

(i) An aquous solution of sodium chloride

(ii) An aquous solution of copper sulphate with copper platinum electrodes

(iii) An aquous solution of copper sulphate with copper electrodes

2. What are interhalogen compounds ? Why are these named so ? Give structure of ClF_3 and ClF_5.

Or

How is phosphine prepared from white phosphorous ? Describe briefly its properties and uses.

3. Why do transition metals exhibit variable oxidation states and do form coloured compounds ?

Or

How is $K_2Cr_2O_7$ prepared from chromite ore ? Give its oxidising properties in acidic medium with :

(i) Potassium iodide

(ii) Sodium sulphide

(iii) Potassium chloride with conc. H_2SO_4

4. Discuss briefly the mechanism of nucleophilic addition reactions. Explain the relative reactivities of aldehydes and ketones towards these reactions.

Or

Write the short notes on the following :

(i) Aldol condensation

(ii) Reimer-Tiemann's reaction

(iii) Cannizzaro's reaction

(Short Answer Type Questions) 3 each

5. What are impurity defects ? Explain with examples.

6. 40 gm of NaOH are present in one decilitre of solution. Calculate the mole fraction of NaOH.

7. Define rate of a reaction and the rate constant.

8. Explain the purification process of Bauxite ore.
9. Name the oxides of sulphur and give their structure.
10. Give the uses and environmental effects of trichloromethane.
11. What happens when primary, secondary and tertiary alcohols are heated with copper metal at 570 K ?
12. What are Nucleic acids ? How are these classified ?

(Very Short Answer Type Questions) 2 each

13. Define Electrophoresis.
14. How will you differentiate between multimolecular and macromolecular colloids ?

15. What is meant by saying that molality of solution is 0.1 ?
16. Why cyanides are generally water soluble while isocyanides are not ?
17. Explain with suitable examples the hydrate isomerism in co-ordination compound.
18. What happens when :
    (i) Aniline is heated with conc. H_2SO_4
    (ii) Nitrobenzene is reduced with zinc dust and Ammonium chloride solution
19. How is Nylon-06 synthesised ?
20. What are Antibiotic ? Give examples.

(Objective Type Questions) 1 each

21. (i) The co-ordination number of hcp structure is ..... .

(ii) The unit of the rate constant for the reaction is mol $L^{-1}s^{-1}$. The order of reaction is .....

(iii) Lipids are nucleic acid occurring in plants. (True/False)

(iv) Nylon-66 is not a condensation polymer. (True/False)

(v) Give the IUPAC name of $Na_3[Co(NO_2)_6]$.

(vi) What is a Detergent ?

(vii) For the following homogeneous reaction $A + B \xrightarrow{K} C$ the unit of rate constant is :

(a) sec^{-1} (b) $sec^{-1}mol^{-1}$

(c) sec^{-1} mol (d) sec

(viii) D.D.T. is formed from :

(a) Benzene and chlorobenzene

(b) Chloral and chlorobenzene

(c) Chloral and benzene

(d) Chlorobenzene and chlorine

(ix) The alcohol manufactured from water gas is :

(a) Butanol (b) Ethanol

(c) Methanol (d) Isobutanol

(x) Methyl magnesium chloride on reaction with acetyls chloride gives :

(a) Acetone (b) Ethanol

(c) Ether (d) Methanol