**Sample Paper – 2013**

**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.What is the difference between ionic solid and metallic solid ?

2. Why does conductivity decrease with dilution ?

3.What do you mean by sol.

4.Why nitrogen gas is inert at room temperature?

5.Write IUPAC name of the following compound:

CH3CH=C(CH3)CH(Br)CH3

6. What are ambident nucleophiles? Explain with an example.

7.Define isoelectric point ?

8.Discuss vulcanisation of rubber.

9. What type of deviation is observed when acetone is added to chloroform?Explain ?

10.Explain a method to prevent corrosion ?

11. Calculate the potential of hydrogen electrode in contact with a dilute HCl (10-8 M)solution .

12. Answer the following:i) Sulphur in vapour state exhibit paramagnetic behavior. Explain.

ii) Write the isoelectronic neutral species of ClO-1 .

13 .Are Ag and Cu transition metal are not ?Explain?

14 (i) Allyl chloride follow SN1 mechanism or SN2.Explain.

(II) Why anhydrous AlCl3 use as catalyst?

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

(ii) Methyl bromide → Propan -1-ol

16. Explain

(i) Why cannot aromatic primary amines be prepared by Gabriel phthalimide

synthesis?

(ii). Aniline does not undergo Friedel-Crafts reaction

17. Explain with one example

(i)Hofmann’s bromamide reaction (ii)Gattermann reaction

18. What is a biodegradable polymer ? Give an example of a biodegradable aliphatic

polyester.

19. Silver crystallizes in F.c.c. ,if edge length is 4.07 x10-8 cm and density is 10.5 g/cm3 calculate the Atomic mass of silver.

20. Vapour pressure of chloroform (CHCl3) and dichloromethane (CH2Cl2) 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

CHCl3 and 40 g of CH2Cl2 at 298 K and, (ii) mole fractions of each component in vapour phase.

OR

0.6 mL of acetic acid (CH3COOH), having density 1.06 g mL–1, is dissolved in 1 litre of water. The depression in freezing point observed for this strength of acid was 0.0205°C. Calculate the van’t Hoff factor and the dissociation constant of acid.

21.(i Why does physisorption decrease with the increase of temperature?

ii)Why are powdered substances more effective adsorbents than their

crystalline forms?

(iii) Describe some features of catalysis by zeolites.

22. Explain-:

(i) Describe a method for refining Ti?

(ii) What do you mean by depressants.

(iii) What is the role of cryolite in the extraction of aluminium.

23.How would you account for the following:

(i) Of the d4species, Cr2+ is strongly reducing while manganese(III) is strongly oxidising.

(ii) Cobalt(II) is stable in aqueous solution but in the presence of complexing reagents it is easily oxidised.

(iii) The d1 configuration is very unstable in ion

24. (i) Why [Ti(CN)4]2– is paramagnetic or diamagnetic?

(ii) Why aqueous copper sulphate solution (blue in colour) gives a green precipitate

with aqueous potassium fluoride.

(iii) Show the octaahedral splitting of d subshell .And state how pairing energy is related with Δ°t in a metal ion (M+n) having d4 configuration.

25.. (a) What is glycogen? How is it different from starch?

(b) What do you understand by the term glycosidic linkage?

(c )Wha do you mean by mutarotation.

26. Describe the following:

(i) Hell-Volhard Zelinsky reaction (ii) Cannizzaro reaction

(iii) Decarboxylation

27. Explain the following terms with suitable examples

(i) cationic detergents (ii) Antihistamines (iii) non-ionic detergents

28(a) The decomposition of N2O5 in CCl4 at 318K has been studied . Initially the pressure of N2O5 is 0.5bar and after 180 minutes, it becomes0.65 bar. The reaction takes place according to the equation

2 N2O5 (g) → 4 NO2 (g) + O2 (g)

Calculate the average rateand rate constant and partial pressure of N2O5 (g)during this reaction at 200 minutes?

(b) The rate constant for a first order reaction is 60 s–1. How much time will it take to reduce the initial concentration of the reactant to its 1/32th value? (2)

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29.Assign reason for the following: 1x5

(i) Why does O3 act as a powerful oxidising agent?

(ii) Which form of sulphur shows paramagnetic behaviour and why ?

(iii) What happens when sulphur dioxide is passed through an aqueous solution of Fe(III) salt?

(iv) Why does ICl is more reactive than I2 ?

(v) What inspired N. Bartlett for carrying out reaction between Xe and PtF6?

30.(a) An organic compound (A) with molecular formula C8H8O forms an orange-red precipitate with 2,4-DNP reagent and does not give yellow precipitate on heating with iodine in the presence of sodium

hydroxide. It reduces Tollens’ or Fehlings’ reagent, nor does it decolourise bromine water or Baeyer’s reagent. On drastic oxidation with chromic acid, it gives a carboxylic acid (B) having molecular

formula C8H6O4. Identify the compounds (A) and (B) and explain the reactions involved.

(b) Give simple chemical tests to distinguish between the Phenol and benzyl alcohol ? (1)

(c ) Write the mechanism of dehydration of ethanol. (1)

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