**Sample Paper – 2013
Class – XII
Subject – Chemistry**

**GENERAL INSTRUCTIONS:**

**\* Answer all the questions:**

**\* Questions 1 to 8 carry one mark each. Answer them in one word or a sentence.**

**\* Questions 9 to 18 carry 2 marks each. Answer them in 20 to 30 words.**

**\* Questions 19 to 27 carry 3 marks each. Answer them in 40 to 50 words.**

**\* Questions 28 to 30 carry 5 marks each. Answer them in 70 words.**

**\* There is no overall choice. However there is internal choice in one question each of two mark and three**

 **marks questions. All 5 marks questions have internal choice.**

**\* Calculator or any other electronic items are not allowed. However logarithm book may be used for**

 **calculations.**

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 **1. What is the number of atoms per unit cell in a body centered cubic structure ?(1)**

 **2. Two liquid A and B boils at 145°C and 190°C respectively. Which of them has a higher vapour**

 **pressure at 80°C. (1)**

**3. Define molar conductivity. Write the unit of molar conductivity. (1)**

**4. What is meant by elementary reaction ? (1)**

**5. Give the IUPAC name of the compound CHF2CBrClF. (1)**

**6. Give one chemical test to distinguish the following compounds. ethanol and phenol. (1)**

**7. Convert Benzene to m-nitroacetophenone. (1)**

**8. Mention a chemical property in which methanoic acid differs from acetic acid.(1)**

**9. State Henry’s law of solubility of a gas in a liquid. Give the significance of Henry’s law constant. (1+1)**

**10. A 5% solution (by mass) of cane sugar in water has freezing point of 271K.Calculate the freezing**

 **point of a 5% glucose in water if freezing point of pure water is 273.15K. (2)**

**11. How does molar conductivity vary with concentration for i)weak electrolyte and for**

 **ii) strong electrolyte. Give reason for these variation. ( 1+1)**

**12. Calculate the emf of the cell**

 **Mg(s)/Mg2+(0.01M) // Cu2+(1 x10-3M)/ Cu(s)**

 **Given :E° Cu2+/ Cu(s) = + 0.34 V, E° Mg(s)/Mg2+ = -2.36 V. (2)**

**13. What are pseudo unimolecular reaction ? Give an example. (1+1)**

**14. A reaction is first order in A and second order in B :**

 **i) Write differential rate equation.**

 **ii) How is the rate affected on increasing the concentration of B three times?(1+1)**

**15. Explain the following terms :**

 **i) Hardy-schulze rule.**

 **ii)Electrophoresis. (1+1)**

**16. Explain what is observed when,**

 **i)The path of the light becomes visible when it is passed through As2O3 sol in water.**

 **ii)an electrolyte NaCl is added to ferric hydroxide sol. (1+1)**

**17. What are essential and non-essential amino acids? Give two examples of each type ?**

 **OR**

 **What is the difference between a nucleoside and a nucleotide? (1+1)**

**18. What is isoelectric point of aminoacid ? How does it help in the separation of amino acid? (1+1)**

**19. Calculate the density of silver which crystallizes in the face-centered cubic structure. The distance**

 **between the nearest silver atoms in this structure is 287 pm.(Molar mass of Ag =107.87 g mol -1,**

 **NA =6.02 x 10 23  mol-1) (3)**

 **OR**

 **Analysis shows that nickel oxide has formula Ni 0.98O1.00. What fractions of the nickel exist as Ni2+**

 **and Ni3+ ions? (3)**

**20. The choice of a reducing agent in a particular case depends on thermodynamic factor. How far do**

 **you agree with this statement ?Support your opinion with two examples. (1+2)**

**21. Give reason for each of the following :**

 **i) Bond dissociation energy of F2 is less than that of Cl2.**

 **ii) Interhalogen compounds are strong oxidizing agents.**

 **iii) Suphur disappears when boiled with an aqueous solution of Na2SO3.(1+1+1)**

**22. What is crystal field splitting energy ? How does the magnitude of ∆º decide the actual configuration**

 **of d- orbitals in a co-ordination entity ? (1+2)**

**23. Primary alkyl halide(A) C4H9Br reacted with alcoholic KOH to give compound (B).Compound (B) is**

 **reacted with HBr to give(C) which is a isomer of (A).When (A) was reacted with sodium metal it gave**

 **a compound (D)C8H18 that was different than the compound when n-butyl bromide was reacted with**

 **sodium.Give the structural formula of (A) and write the equations for all the reactions.(3)**

**24 . i) Write the mechanism of acid dehydration of ethanol to yield ethene.**

 **ii)Explain why o-nitro phenol more steam volatile than p-nitro phenol. (1+2)**

**25. Give reason for the following :**

 **i) Primary amines are higher boiling point than tertiary amines .**

 **ii) Aliphatic amines are stronger bases than aromatic amines.**

 **iii)Amines are basic substances while amides are neutral. (1+1+1)**

**26. i) What is meant by co-polymerisation ?Give an example.**

 **ii) Write the names and structures of monomer for getting the following polymers:**

 **a) PVC b) PMMA (2+1)**

**27. i)How are antiseptics distinguished from disinfectants ?Give two examples of each.**

 **ii)Which forces are involved in holding the drugs to the active site of enzyme? (1+2)**

**28.a) Assign reasons for the following:**

 **i) In solid state PCl5 behaves as an ionic species.**

 **ii) The acid strength of acids increases in the order**

 **HF < HCl < HBr < HI**

 **iii) SiF6 2- is known but SiCl6 2- is not known.**

 **b) i) Draw the structure of XeF2 molecule.**

 **ii) Write the outer electronic configuration of Cr atom. (z=24). (3+2)**

 **(OR)**

 **a) Account for the followimg**

 **i) PH3 has lower boiling point than NH3.**

 **ii) Sulphur is a solid but oxygen is a gas at room temperature.**

 **iii) Phosphinic acid behaves as a monoprotic acid.**

 **b) Draw the structure of the following**

 **i) XeO3 ii) XeOF4 (3+2)**

**29. a) Assign reasons for the following:**

 **i) Transition metal ions are usually coloured**

 **ii) Transition elements and their compounds exhibit paramagnetic behaviour**

 **iii) Transition metals form an interstitial compounds**

 **b) What is the effect of increasing pH of a solution of potassium dichromate? (3+2)**

 **(OR)**

 **a) Account for the following:**

 **i) Transition elements exhibit higher enthalpies of atomization.**

 **ii) Of the d4 species, Cr 2+ is strongly reducing while Manganese (III) is strongly oxidizing.**

 **iii) Cobalt(III) is stable in aqueous solution but in the presence of complexing reagents, it is easily**

 **oxidized.**

 **b) Write chemical equations for the reactions involved in the manufacture of potassium permanganate**

 **from pyrolusite ore. (3+2)**

**30. a) Describe the following reactions:**

 **i) Cannizaro reaction.**

 **ii) HVZ reaction**

 **iii) Rosenmunds reduction**

 **b) Give chemical test to distinguish between:**

 **i) Acetaldehyde and benzaldehyde**

 **ii) Benzaldehyde and benzoic acid. (3+2)**

 **(OR)**

 **a) Write notes on:**

 **i) Aldol condensation**

 **ii) Clemmenson’s reduction**

 **iii) Decarboxylation.**

 **b) How will you bring about the following conversions?**

 **i) Benzene to Acetophenone.**

 **ii) Propene to Acetone. (3+2)**

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 **TEST SERIES - {CHEMISTRY: XII (CBSE)} CHEMISTRY**