**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**