CHEMISTRY - 2012

Time : 3 Hours] **Class : 12th** **[M. M. : 75**

Note- **(i) All questions are compulsory.**

(ii) There are two Sections-Section A and Section B in the question paper.

(iii) In Section-A Question Nos. 1 to 4 are objective type questions Each question carries 5 marks.

(iv) Internal choices are given in Q. Nos. 5 to 17 of Section-B.

(v) Q. Nos. 5 to 14 carry 4 marks each.

(vi) Q. Nos. 15 to 17 carry 5 marks each.

Section - A (Objective Type Questions) (5 marks each

Q. 1. Choose the correct option- 5

(A) Number of Na atoms present in the unit cell of NaCl crystal is:

(i) 1 (ii) 2

(iii) 3 (iv) 4

(B) Fe, Co, Ni are magnetic substance of which type?

(i) Paramagnetic (ii) Ferromagnetic

(iii) Diamagnetic (iv) Anti -ferromagnetic

(C) Dry Ice (Solid CO_2) is a/an:

(i) Ionic crystal (ii) Covalent crystal

(iii) Molecular crystal (iv) Metallic crystal

(D) The correct example of "Frenkel Defect" is:

(i) Nacl (ii) CsCl

(iii) KCl (iv) AgCl

(E) No. of moles of solute present in 1000 gm of solvent is known as:

(i) Normality (ii) Molality

(iii) Molarity (iv) Mole fraction

Q. 2. Match of pairs (choose the correct answer from Section 'B' for Section 'A'): 5

Section 'A'	Section 'B'
(K) Gold Sol	(i) Hardy-Schulze Rule
(L) Gold No.	(ii) van der Waals Force

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(M) Coagulation Power
(N) Physical Adsorption
(O) Corrosion

(iii) Electro-chemical phenomenon
(iv) Lyophilic colloid
(v) Lyophobic colloid
(vi) Tyndall effect

Q. 3. Fill in the blanks: 5

(A) .....is used as a Refrigerant.

(B) ..... is a Radioactive inert gas.

(C) General electronic configuration of inner transition element is.....

(D) Correct formula of calomel is.....

(E) Arrhenius equation is represented by.....

Q. 4. Write answer in one word of each : 5

(i) Write the name of reaction:

(1) $C_6H_5NH_2 + CHCl_3 + 2KOH \xrightarrow[\text{Solution}]{\text{Alcoholic}} C_6H_5NC + 3KCl + 3H_2O$

(ii) Write the name of reaction.

$$C_6H_5N_2Cl \xrightarrow{CuCl/HCl} C_6H_5Cl + N_2$$

(iii) $C_6H_5NO_2 + 6[H] \xrightarrow{Sn/HCl} .....x..... + 2H_2O$

Write the formula of X.

(iv) Write one example of Monosaccharide Carbohydrate.

(v) Write chemical name of one Antifertility Drug.

(Section-B)(Very Short Answer Type Questions)(4 marks each)

Q. 5. What is order of reaction? Write unit of rate constant K for the zero order, first order and second order reaction. 4

(Or) What is half life period? Derive its derivation.

Q. 6. Draw the labelled diagram of vertical retort method used in extraction of zinc and write only equation of chemical reaction in the extraction of zinc from zinc blende. 3 + 1 = 4

(Or) What happens when (give equation):

(i) Copper sulphate is heated upto 230°C temperature?

(ii) Copper sulphate react with ammonium hydroxide?

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(iii) Silver nitrate react with hydrochloric acid?

(iv) Mercuric chloride react with potassium iodide?

Q.7. Draw labelled diagram of Haber process for the manufacture of Ammonia and write chemical equation. 2+1=4

(Or) Draw labelled diagram of Laboratory method of phosphine and give chemical equation. 3+1=4

Q.8. Bleaching action of chlorine is permanent while bleaching action of sulphur dioxide is temporary, why? 4

(Or) Fluorine shows only +1, -1 oxidation state while other halogen element shows +3, +5 and +7 oxidation states in addition to +1, -1, why?

Q.9. Write IUPAC name of the following co-ordinate compounds:

(i) $K[Ag(CN)_2]$

(ii) $K_4[Fe(CN)_6]$

(iii) $[Ag(NH_3)_2]Cl$

(iv) $[Cr(NH_3)_6]Cl_3$

(Or) Explain Werner's theory of co-ordination compounds.

Q.10. Explain the following reactions of chloroform: 2+2=4

(A) Effect of Air and Sunlight

(B) Reimer-Tiemann Reaction.

(Or) Explain the following reactions of chlorobenzene:

(A) Reaction with chlorine in the presence of $FeCl_3$ in dark 2

(B) Fittig reaction. 2

Q.11. How will you obtain the following from Phenol (give equation): 1+1+1+1=4

(i) 2, 4, 6 Trinitrophenol

(ii) 2, 4, 6 Tribromophenol

(iii) Benzene

(iv) Ortho and Para-Cresol.

(Or) Give chemical equations of the following conversions: 1+1+1+1=4

(i) Diethyl ether from Ethanol

(ii) Ethanol from Diethyl ether

(iii) Ethyl acetate from Ethanol

(iv) Ethanol from Glucose.

Q.12. Explain the chemical reactions of the following: 1+1+1+1=4

(i) Rosenmund Reducation

(ii) Cannizzaro Reaction

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(iii) Gattermann aldehyde synthesis

(iv) Perkin's Reaction.

(Or) Explain the Quick Vinegar Process of the manufacture of Acetic Acid under the following headings:

(A) Principle and Equation 2

(B) Labelled diagram. 2

Q. 13. Write two differences each in the following:

(A) DNA and RNA 2

(B) α–Amino acid and protein. 2

(Or) Explain in brief:

(A) Any two names of enzymes and their functions. 2

(B) Name of two water soluble vitamins and deficiency diseases. 2

Q. 14. Write the names of active ingredients and the medicinal uses of the following medicinal plants: 1+1+1+1=4

(A) Amla

(B) Haldi

(C) Tulsi

(D) Neem.

Explain each with example:

(A) Antibiotic 2

(B) Analgesic. 2

(Short Answer Type Questions) (5 marks each)

Q. 15. What is Raoult's Law? 1

Derive Raoult's Law for solution which contain non-volatile solute. 4

(Or) What is molal depression constant? 1

An aqueous solution freezes at - 0.385°C if

$K_f = 3.85$ K kg mol^{-1}

and $K_b = 0.712$ K kg mol^{-1}

then determine the elevation in its boiling point? 4

Q. 16. Define the following and write the formula and unit of each:

(A) Specific conductivity $2\frac{1}{2}$

(B) Molar conductivity. $2\frac{1}{2}$

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(Or) Explain (Definition and Formula):

(A) Kohlrausch's Law $2\frac{1}{2}$

(B) Faraday's first law of electrolysis. $2\frac{1}{2}$

Q.17 Give reasons:

(i) Why do transition elements form Alloys? $2\frac{1}{2}$

(ii) What is the cause of Lanthanide contraction? $2\frac{1}{2}$

(Or) Explain:

(A) Why do transition elements show variable oxidation state? 3

(B) Give two differences between Lanthanide and Actinide. 2