CHEMISTRY 2015

Time : 3 Hours | Class : 12th   **| M. M. : 75**

Instructions– (i) Attempt all the questions. (ii) Question Nos. 1 to 4 are objective types, carries total 20 marks. (iii) Question Nos. 5 to 8, each question carries 2 marks, [Word limit 30 words] (iv) Question Nos. 9 to 13, each question 4 marks [Word limit 75 words] (v) Question Nos. 14 to 16, each question carries 5 marks. [Word limit 120 words] (vi) Question Nos. 17 and 18, each question carries 6 marks. [Word limit 150 words] (vii) Internal choice is given to question Nos. 5 to 18.

1. **Choose the correct option-** (5 × 1 = 5)

   (a) Crystal structure of NaCl is-
   - (i) Face centred cubic
   - (ii) Body centred cubic
   - (iii) Hexagonal
   - (iv) Tetrahedral

   (b) Diamond is a-
   - (i) Solid containing hydrogen bond
   - (ii) Ionic solid
   - (iii) Covalent solid
   - (iv) Metallic solid

   (c) Cell constant is-
   - (i) A/l
   - (ii) l/A
   - (iii) $l.A$
   - (iv) $e.l/A$

   (d) Reaction catalysed by enzyme 'Maltose'.
   - (i) Starch → Maltose
   - (ii) Maltose → Glucose
   - (iii) Sucrose → Glucose
   - (iv) Glucose → Alcohol

   (e) The IUPAC name of $Ni(CO)_4$ is-
   - (i) Tetracarbonyl nickelet (O)
   - (ii) Tetracarbonyl nickelete (II)
   - (iii) Tetracarbonyl nickel (O)
   - (iv) Tetracarbonyl nickel (II)

2. **Fill in the blanks-** (5 × 1 = 5)

   (a) Due to Schottky defect, density of a crystal ....

   (b) Colloidal solution of solid in liquid is called ....

   (c) .... is radioactive inert gas.

   (d) EDTA is .... ligand.

   (e) Methyl amine is .... basic than ammonia.

3. **Match the pairs correctly-** (5 × 1 = 5)

A	B
(a) Ar	(i) Polysaccharide
(b) $C_6H_5SO_2Cl$	(ii) Disaccharide
(c) Sucrose	(iii) Useful in bulbs
(d) Starch	(iv) Hinsberg's Reagent
(e) Vitamin C	(v) Ascorbic acid
	(vi) Retinal

4. **Write answer in one word of each-** (5 × 1 = 5)

   (a) What is the coordination number of Cs^+ and Cl^- in CsCl structure?

(b) Write Arrhenius equation.

(c) Write the formula of Blue Vitriol

(d) Elements of group 17 are generally known as ....

(e) What is Oil of mirbane.

Q.5. What is gold number?   2

(Or) What is Emulsion?

Q.6. Why the elements of group 17 are coloured?   2

(Or) Why are the noble gases chemically inert?

Q.7. What is ionization isomerism? Give one example.   2

(Or) Write the IUPAC name of following compounds-

(A) $K_3[Fe(CN)_6]$

(B) $[Co(NH_3)_6]Cl_3$

Q.8. Write the name of deficiency diseases of Vitamin A, Vitamin B_1, Vitamin C and Vitamin D.   2

(Or) Write any two applications of enzymes.

Q.9. What is rate of reaction? Describe any two factors affecting rate of reaction.   (2 + 2 = 4)

(Or) What is half life period of a reaction? Calculate the half life period of a first order reaction.

Q.10. Draw a labelled diagram of blast furnace for the extraction of Iron. 4

(Or) What happens when (Give Chemical equation only)

(1) KI solution is added to $CuSO_4$ solution.

(2) $CuSO_4$ solution reacts with NaOH.

(3) $AgNO_3$ is heated.

(4) $AgNO_3$ reacts with Ammonium hydroxide

Q.11. Write the equation of following reactions of chlorobenzene-   4

(i) Halogenation

(ii) Nitration

(iii) Sulphonation

(iv) Alkylation

(Or) What happens when (Write equation only)

(i) Ethyl bromide reacts with silver nitrite solution.

(ii)   Methyl bromide reacts with sodium metal in presence of dry ether.

(iii)   Ethyl bromide reacts with sodium ethoxide.

(iv)   Ethyl bromide reacts with magnesium metal.

Q.12.   Write any four differeces between alcohol and phenol.   4

(Or)   (i)   Boiling point of alcohol is higher than its corresponding alkane. Why?

(ii)   Phenols are more acidic than alcohols. Why?

Q.13.   Wirte notes on-   (2 + 2 = 4)

(i)   Canizzaro reaction.

(ii)   Perkin reaction.

(Or)   How will you bring out the following conversion-

(i)   Acetyl chloride to Acetaldehyde

(ii)   Methanal to Ethanal

Q.14.   What is Kohlrausch's law? Explain any two applications of Kohlrausch's law.   (1 + 4 = 5)

(Or)   Explain corrosion on the basis of following points-

(i)   Definition

(ii)   Factors affecting any two

(iii)   Prevention of corrosion any two

Q.15.   Write the name and strucute of any five oxy acids of phosphorus. 5

(Or)   Write the name and structure of any five oxy acids of Sulphur.

Q.16.   Explain the following- $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

(i)   Tranquilizers

(ii)   Analgesics

(Or)   Write notes on-

(i)   Takshshilla University

(ii)   Sushrut

Q.17.   What is Rault's law? Write any four differences between Ideal and nonideal solutions.   (2 + 4 = 6)

(Or)   What is osmotic pressure? Draw a labelled diagram of Barkeley-Hartley method of determination of osmotic pressure.

Q.18.   What are transition elements? Write any four characteristic properties of transition metals.   (2 + 4 = 6)

(Or)   Write any six differences between lanthanides and actinides.