Grade- X
Time: 2 Hours

ASSESSMENT- I

CHEMISTRY
M.M. 80

Answers to this Paper must be written on the paper provided separately. You will not be allowed to write during the first 15 minutes. This time is to be spent in reading the question paper. The time given at the head of this Paper is the time allowed for writing the answers.

Section A is compulsory. Attempt any four questions from Section B. The intended marks for questions or parts of questions are given in brackets.

SECTION A (40 Marks)

(Attempt **all** questions from this section)

Question 1. Choose the correct answers from the given options: [15]

1. On the basis of electron configuration of valence shell, which one is odd
   (a) argon (b) krypton
   (c) helium (d) neon
2. Elements P, Q, R and S have 2, 3, 6 and 7 electrons in their valence shell respectively. Which one is a pair of metals?
   (a) P and Q (b) Q and S
   (c) P and R (d) R and S
3. A particular solution contains molecules and ions of a solute, so it is a
   (a) strong acid (b) strong base
   (c) weak acid (d) sodium chloride solution
4. When ammonia solution is added in excess to copper sulphate solution, the final colour of reaction is :
   (a) light green (b) deep blue
   (c) deep green (d) white
5. The relative molecular mass of $CHCl_3$:
   (a) 119.5 (b) 120.5
   (c) 118.5 (d) 117.5
6. A metallic oxide which cannot be reduced by normal reducing agents:
   (a) zinc oxide (b) magnesium oxide
   (c) silver oxide (d) iron oxide
7. The I.U.P.A.C name of acetylene is :
   (a) propane (b) propyne
   (c) ethene (d) ethyne
8. Sodium and chlorine are in the same period. The atomic size of chlorine will be:
   (a) more than sodium (b) less than sodium
   (c) same as sodium (d) none of these
9. The gas evolved when dil. sulphuric acid reacts with iron sulphide :
   (a) hydrogen sulphide (b) sulphur dioxide
   (c) sulphur trioxide (d) vapour of sulphuric acid
10. Which is not a property of covalent compounds?
    (a) bad conductor of conductor of electric current
    (b) insoluble in water
    (c) consists of charged ions
    (d) low M.P. and B.P.
11. A tribasic acid is :
    (a) H_2SO_3 (b) H_3PO_4
    (c) HNO_3 (d) CH_3COOH
12. The metallic electrode which does not take part in an electrolytic reaction is:
    (a) Cu (b) Ag
    (c) Ni (d) Pt

13. Cold and dilute HNO_3 reacts with Cu to give:

(a) NO_2 (b) NO

(c) N_2 (d) O_2

14. Ammonia can be obtained by adding water to :

(a) NH_4Cl (b) Mg_3N_2

(c) $Mg(NO_3)_2$ (d) $(NH_4)_2SO_4$

15. A hydrocarbon of the general formula C_nH_{2n} is:

(a) $C_{15}H_{30}$ (b) $C_{12}H_{26}$

(c) C_8H_{20} (d) C_6H_{14}

Question 2

(i) Fill in the blanks: **[5]**

1. Succeeding members of a homologous series differ by _____. (CH/ CH_2 CH_3)
2. Ammonia reacts with excess chlorine to form _____. (nitrogen/ nitrogen trichloride ammonium chloride)
3. Froth floatation process is generally used to concentrate _____ ores.(sulphide carbonate)
4. _____ electrolyte allows a bulb to glow brightly.(strong/ weak)
5. $Ca(H_2PO_4)_2$ is an example of a compound called _____ salt.(acid/ basic/ normal)

(ii) Identify the following: - **[5]**

1. The property by virtue of which the compound has the same molecular formula but different structural formulae.
2. An acid which produces sugar charcoal from sugar.
3. A bond formed between two atoms by sharing of a pair of electrons, with both electrons being provided by the same atom.
4. A reaction in which the hydrogen of an alkane is replaced by a halogen.
5. An indicator which turns pink in alkaline solution and colourless in an acid solution.

(iii) Match the following: - **[5]**

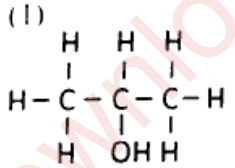
1. Calcination	a) Contact Process
2. Period 2, group 15	b) Hall Heroult's process
3. Sulphuric acid	c) Silicon
4. Aluminium	d) Nitrogen
5. Period 3, group 14	e) Carbonate ore

(iv) (a) Draw the structural diagram for the following compounds: **[5]**

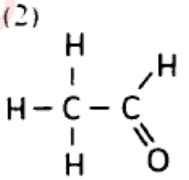
1. 1- propanal
2. 1, 2 dichloro ethane
3. But-2-ene

(b) Give the IUPAC name of the following organic compounds:

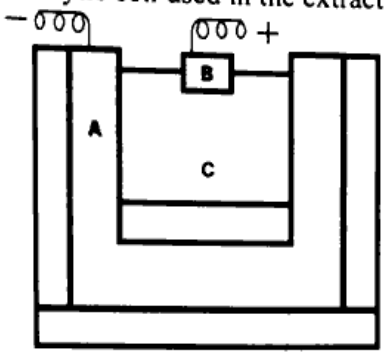
(1)



(2)



(v) The following is a sketch of an electrolytic cell used in the extraction of aluminium: **[5]**



1. What is the substance of which the electrodes A and B are made?
2. At which electrode (A or B) is the aluminium formed?
3. Name the constituents present in the electrolytic mixture C?
4. Why is it necessary for electrode B to be continuously replaced?
5. What is used to enhance conductivity.

SECTION B (40 Marks)

(Attempt any **four** questions from this section)

Question 3

1. An element has atomic number 19. Write its electronic configuration Where would you expect this element in the periodic table and why? **[3]**
2. What is a substitution reaction? Give the reaction of chlorine with ethane and name the product formed? **[3]**
3. With respect to the manufacture of ammonia, answer the following: **[4]**
   (i) Name the process involved.
   (ii) State the ratio of the reactants taken.
   (iii) State the catalyst used.
   (iv) Give the equation for the manufacture of the gas – ammonia.

Question 4

1. What property of conc. H_2SO_4: **[2]**
   (i) is used in the action when sugar turns black in its presence
   (ii) allows it to be used in the preparation of HCl and HNO_3 acids.
2. Name the alloy which is made up of: **[2]**
   (i) Copper, Zinc, Tin
   (ii) Lead and Tin
3. An element P has electronic configuration 2, 8, 18, 8, 1. Without identifying P: **[3]**
   (i) Predict the sign and charge on simple ion of P.
   (ii) Is it a metal or non-metal.
   (iii) Write the formula of P with chlorine.
4. A compound has the following percentage composition by mass: **[3]**

Carbon – 54.55%, Hydrogen – 9.09% and Oxygen – 36.26%. Its vapour density is 44. Find the Empirical and molecular formula of the compound. (H = 1; C = 12, O = 16)

Question 5

1. How will you distinguish calcium nitrate and zinc nitrate solution? **[2]**
2. Write balanced chemical equations for the laboratory preparation of HCl gas when the reaction is: **[2]**
   (i) Below 200°C (ii) Above 200°C
3. Arrange the following as per the instruction given in the brackets: **[3]**
   (i) Na, K, Cl, Si, S (increasing order of electronegativity)

(ii) Be, Li, F, C, B, N, O (increasing order of metallic character)

(iii) Br, F, I, Cl (increasing order of atomic size)

4. During the electrolysis of copper (II) sulphate solution using platinum as cathode and carbon as anode: [3]

(i) State what you observe at the cathode and anode.

(ii) State the change in electrolyte.

(iii) Write the reaction at the cathode and anode.

Question 6

1. Draw an electron dot diagram for formation of : (i) Ammonium ion (ii) Hydronium ion [4]

2. What volume of oxygen is required to burn completely 90 dm^3 of butane under similar conditions of temperature and pressure? [3]

$C_4H_{10} + O_2 \rightarrow CO_2 + H_2O$

3. Give balanced equation for each of the following: [3]

(i) Action of nitric acid on copper sulphite

(ii) Catalytic oxidation of ammonia in presence of platinum

(iii) Laboratory preparation of ethanol by using chloroethane and aqueous sodium hydroxide.

Question 7

1. Define: i) Normal salt ii) Gay-Lussac's Law [2]

2. Give reasons: [2]

i) Inert gases do not form ions.

ii) Covalent compounds have a low melting and boiling point.

3. Identify the gas evolved in each of the following reactions: [3]

i) Methane undergoes complete combustion.

ii) Copper carbonate is heated.

iii) MnO_2 reacts with conc. HCl.

4. Complete and balance the following equations: [3]

i) $Al_2O_3 + NaOH \rightarrow$

ii) $C_2H_5Br + NaOH \rightarrow$

iii) $HNO_3 + NaOH \rightarrow$

Question 8

1. Compare roasting and calcination with example. [2]

2. Give the chemical formula of: [2]

(i) Bauxite. (ii) Cryolite

3. Mr. P wants to electroplate his key chain with nickel to prevent rusting. For this electroplating: [3]

(i) Name the electrolyte.

(ii) Give the reaction at the cathode and anode.

4. Copy and complete the following table which refers to the industrial method for the preparation of ammonia and sulphuric acid: [3]

Name of the compound	Name of the process	Catalytic equation (with the catalyst)
Ammonia	(a) _____	(b) _____
Sulphuric acid	(c) _____	(d) _____