

SECTION-A (40 marks)

1. Multiple choice questions- [15]
- i) The chemical formula of Gypsum-
- a. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ b. $\text{CaSO}_4 \cdot 5\text{H}_2\text{O}$
c. $\text{CuSO}_4 \cdot 2\text{H}_2\text{O}$ d. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- ii) $+\Delta T$ indicates an-
- a. Endothermic Reaction b. Oxidation Reaction
c. Redox Reaction d. Exothermic Reaction
- iii) Which scientist proved that water is not an element but a compound.
- a. A. Lavoisier b. W. Ostwald
c. Henry Cavendish d. Louis Pasteur
- iv) Which solute dissolves in Benzene.
- a. Alcohol b. Rubber c. Petrol d. Acetone
- v) On moving across a period in a Modern periodic table, the number of shells-
- a. Remain same b. Increases
c. Decrease d. Decrease then increase
- vi) Which scientist proposed atomic theory-
- a. Democritus b. William Crookes
c. John Dalton d. J.J. Thomson
- vii) The maximum number of electron in any shell is represented by-
- a. $2n^2$ b. $3n^2$ c. $4n^2$ d. $5n^2$
- viii) Which bond is formed due to mutual sharing of an electron between the non-metallic element-
- a. Electrovalent bond b. Covalent bond
c. Ionic bond d. Metallic bond
- ix) Which scientist arranged elements in increasing order of atomic number-
- a. Dobereiner b. Newland c. Mendeleeff d. Moseley
- x) Halogen means-
- a. Water producer b. Base producer
c. Salt producer d. Acid producer

- xi) Alkaline Earth Metal are present in which group.
a. Group 1 b. Group 2 c. Group 3 d. Group 4
- xii) Which scientist recognized hydrogen as an element.
a. Robert Boyle b. Lavoisier
c. John Dalton d. Henry Cavendish
- xiii) The flame is used for welding and cutting of metals.
a. Oxy-hydrogen flame b. Nitro-hydrogen flame
c. Silver-hydrogen flame d. Water-hydrogen flame
- xiv) Absolute Zero temperature-
a. -273°C b. -274°C
d. -275°C d. -276°C
- xv) The gas which in presence of U.V. light gives two atoms of the same gas.
a. Oxygen b. Ozone c. Methane d. L.P.G.
2. Name the following - (05)
- The gas have pungent rotten egg smell.
 - The gas reddish brown in colour.
 - Green House Gases.
 - A metal which cannot be used for the preparation of hydrogen using dilute acids.
 - A covalent molecule having a triple covalent bond.
3. Write down the formula of the following compound- (2.5)
- Lead nitrate ii) Phosphoric acid
 - Potassium dichromate iv) Magnesium nitride
 - Glauber's salt
4. Write down the name of the following compound. (2.5)
- H_2CO_3 ii) NaAlO_2 iii) AlN
 - KMnO_4 v) $\text{Fe}(\text{NO}_3)_2$
5. Differentiate between the following- (05)
- Saturated and Unsaturated solution.
 - Duplet rule and Octet rule.
6. Give reason - (05)
- Noble gases do not form compounds readily.
 - Nitric acid in the dilute form is not used in the laboratory preparation of hydrogen from metals.
 - Gases unlike solids and liquids exert pressure in all directions.
 - Destruction of ozone layer is harmful for both humans and plants.

- v) Efflorescence is minimum during humid conditions.
7. Name the following (05)
- A liquid hygroscopic substance.
 - The linkage or force which acts between two atoms to hold them together.
 - The group to which the element with electronic configuration of 2,8,2 belongs.
 - A reducing agent which is basic in nature.
 - A scale which measures acidity or alkalinity of a solution.

Section -B(40 marks)

Attempt any four

- Calculate the molecular weight of CaSO_4 and Na_2CO_3 . [03]
(Ca=40, Na=23, C=12, S=32, O=16)
 - Draw the atomic structure of each of the following atom showing the number of electron, proton and neutrons in each of them. [03]
a- $_{11}\text{Na}^{23}$ b- $_{15}\text{P}^{31}$ c- $_{19}\text{K}^{39}$
 - Explain the following – Two jars of H_2 are collected – "one burns quietly and the other does not". [02]
 - What do you observe when copper nitrate is heated. [02]
- Explain the unique nature of Zn, Pb, and Al? [02]
 - Explain the laboratory preparation of hydrogen with well-labelled diagram. [03]
 - A gas occupies 700ml at S.T.P. Find the volume occupied by the gas when its pressure is 400mm of Hg and its temperature 15°C ? [03]
 - Why common salt turns moist on exposure to air. [02]
- If an element is in Group 17 or (group 7A) is it likely to be metallic or non-metallic character. Give reason. [02]
 - Give balanced equations for the formation of sulphuric acid and nitric acid in acid rain. [03]
 - State the causes of temporary and permanent hardness of water. Give balanced equation to explain how hardness in temporary hard water is removed by boiling. [03]
 - What is the effect of temperature on solubility of gases. [02]
- Explain the octet rule for formation of – [02]
 - Sodium chloride from a sodium atom and a chlorine atom.

(P.T.O.)

b. Nitrogen molecule from two nitrogen atoms.

ii) Complete the table- [03]

Elements	Atomic Number	Electronic Configuration
Nitrogen		2,5
Sulphur	16	
Chlorine		2,8,7
Calcium		

iii) A certain volume of the gas was found to be at a pressure of 1200mm of mercury. When the pressure was decreased by 500mm the gas occupied a volume of 2400cm³. Calculate the initial volume occupied by the gas if the change was done at a constant temperature. [03]

iv) State why is copper not used to prepare hydrogen by the action of dilute hydrochloric acid or dilute sulphuric acid on the metal. [02]

5. i) Give a balanced equation for a direct combination reaction involving- [02]

a. Two compounds-resulting in formation of a weak acid.

b. Two elements—One of which is a neutral gas and the other a monovalent metal.

ii) Draw the atomic orbit structure diagram for formation of a Water molecule and ammonia. [03]

iii) State the most electronegative element-from the elements chlorine, bromine and iodine in group 17 (VIIA) and the least non-metallic element from carbon, oxygen and fluorine in period 2. [03]

iv) What is the difference between precipitation reaction and neutralization reaction with example. [02]

6. i) Complete the following word equations- [03]

a) Calcium + water = _____ + _____

b) Sodium hydroxide + Zinc = _____ + _____

c) Water gas + steam = _____ + _____

ii) State why water has two lone pairs of electrons in its covalent molecule while ammonia has one lone pair. [03]

iii) What are the salient features of Modern Periodic table? [02]

iv) Give two examples of hydrated and anhydrous salt. [02]
