

ICSE Board
Class IX Chemistry
Sample Paper - 9

Time: 2 hrs

Total Marks: 80

General Instructions:

1. Answers to this paper must be written on the paper provided separately.
2. You will **not** be allowed to write during the first **15** minutes.
This time is to be spent in reading the question paper.
3. The time given at the head of the paper is the time allotted for writing the answers.
4. Attempt **all** questions from **Section I** and **any four** questions from **Section II**.
5. The intended marks of questions or parts of questions are given in brackets [].

SECTION I (40 Marks)

Attempt **all** questions from this section.

Question 1

(a) Select the basic and acidic radicals in the following compounds. [5]

- a. MgSO_4
- b. $(\text{NH}_4)_2\text{SO}_4$
- c. $\text{Al}_2(\text{SO}_4)_3$
- d. ZnCO_3
- e. $\text{Mg}(\text{OH})_2$

(b) Write balanced chemical equations: [5]

- i. Decomposition of copper nitrate
- ii. Thermal dissociation of phosphorus pentachloride
- iii. Magnesium burns in oxygen
- iv. Hydrogen burns in air or oxygen
- v. Carbon dioxide passed through lime water

(c) Give the valency and formula of the following radicals: [5]

- i. Nitride
- ii. Phosphide
- iii. Carbide
- iv. Peroxide
- v. Bicarbonate

(d) Write the distribution of electrons in shells and valence electrons for the following elements: [5]

- Fluorine
- Carbon
- Oxygen
- Calcium
- Argon

(e) What is the effect of the following pollutants on living beings (one in each case)? [5]

- Fluorides
- Smoke particles
- Lead
- Mercury compounds
- Smog
- Nitrogen oxide

(f) Complete the following table which refers to the action of heat on three substances named in the first column. [5]

Substances	Colour before heating	Colour of the residue	Name of the gas	Name of the residue
(i) Cupric carbonate	-	-	-	-
(ii) Lead nitrate	-	-	-	-
(iii) Ammonium dichromate	Orange	-	Nitrogen	-

(g) Name the following: [5]

- A salt soluble in hot water but insoluble in cold water.
- A solution which turns brown on coming in contact with oxygen.
- A gas obtained when chlorine water is exposed to sunlight.
- Two gases which cause acid rain.
- A non-metal which is a good conductor of electricity.

(h) State whether the following statements are True or False. [5]

- Sodium chloride is a deliquescent salt.
- Atomic number is the total number of electrons present inside the nucleus of an atom.
- The temperature of absolute zero is -273°C .
- The major gas which causes acid rain is water vapour.
- A photochemical smog is beneficial to human beings.

SECTION II (40 Marks)

*Attempt any **four** questions from this section.*

Question 2

(a) What are the main postulates of the kinetic theory of gases? Explain in brief. [5]

(b) [5]

- i. State Boyle's law.
- ii. State Charles' law.

Question 3

(a) What is a pollutant? Name some particulate pollutants. [2]

(b) Name the natural process by which oxygen is added and carbon dioxide is removed from the atmosphere. [1]

(c) Define: [2]

- i. Exothermic reaction
- ii. Endothermic reaction

(d) An element 'M' has three electrons more than the noble gas. Give the formula of its [5]

- i. Chloride
- ii. Sulphate
- iii. Hydroxide
- iv. Phosphate
- v. Oxide

(Note: Do not identify the element)

Question 4

(a) Gas 'A' is a colourless gas which is produced by the reaction of active metals with dilute HCl. Gas 'B' is produced by the action of heat on potassium chlorate. Gas 'A' undergoes reaction with gas 'B' and forms a colourless liquid 'C'.

- i. Identify A, B and C.
- ii. Give the balanced chemical equation for the formation of liquid 'C' from 'A' and 'B'.
- iii. Give two tests to identify the liquid 'C'.
- iv. Give a balanced chemical equation for the reaction of 'C' with
 - (a) Sulphur dioxide
 - (b) Sodium oxide
 - (c) Ammonia
 - (d) Carbon dioxide

(b) Explain the Rutherford's α -particles scattering experiment with the help of a diagram [5]

Question 5

(a)

1																2	
3	4A											5	6	B7	8	9	C10
11D	12											13	14	15	16E	17	18
19	20	21F	22	23	24	25G	26	27	28	29	30	31	32	33	34	35H	36I

Which of the lettered elements is

- An inert gas
- A transition element
- An alkali metal
- An alkaline earth metal
- A halogen
- Forms a diatomic molecule

(b) How will you incorporate the following information into chemical [2]

- i. equation?
- ii. Temperature and pressure conditions
- iii.** Formation of precipitate

(c) Convert the following temperature (in $^{\circ}\text{C}$) to the Kelvin scale. [5]

- -100°C
- 273°C
- 20°C
- 5°C
- 300°C

Question 6

(a) [5]

Identify metals, non-metals and inert gases from the following elements and give reasons in support of your answer.

Chlorine, magnesium, argon, phosphorus, potassium

(b) The description of atomic particles of two elements X and Y is given below: [5]

	X	Y
Protons	8	8
Neutrons	8	9
Electrons	8	8

- What is the atomic number of Y?
- What is the mass number of X?
- What is the relation between X and Y?
- Which element/elements do they represent?
- Write the electronic configuration of X?

Question 7

(a) Hydrogen gas occupies a volume of 400 cm³ at a temperature of 27°C and normal atmospheric pressure. Find the volume of the gas at 10°C at constant pressure. [3]

(b) 6 dm³ of dry gas is collected at a temperature of 27°C and pressure of 700 mmHg. Find the volume of the gas at STP. [2]

(c) State the law of conservation of mass. Describe its experimental verification. [5]