

**KUMAR CLASSES**

INSPIRE · INNOVATE · EXCEL

ICSE Class 10 · Chemistry (Science Paper – 2)

Sample Question Paper — Set 2 | Session 2026

Time : 2 Hours**Reading time : 15 min****Max. Marks : 80**

Name : _____ Roll No. : _____ Date : _____

General Instructions

1. Answers to this paper must be written on the paper provided separately.
2. **Section A is compulsory.** Attempt **any four** questions from **Section B**.
3. The intended marks for questions are given in brackets [].
4. Atomic masses: H=1, C=12, N=14, O=16, Na=23, Mg=24, S=32, Cl=35.5, Ca=40, Zn=65.

SECTION A — 40 Marks*(Attempt **all** questions from this Section)***Question 1.****[15]***Choose the correct answers to the questions from the given options.***(i) The most electronegative element in the periodic table is:**

- | | |
|--------------|--------------|
| (a) Fluorine | (b) Chlorine |
| (c) Oxygen | (d) Nitrogen |

(ii) On moving down a group, the atomic size:

- | | |
|--------------------|------------------|
| (a) increases | (b) decreases |
| (c) stays constant | (d) becomes zero |

(iii) The number of shared electron pairs in an oxygen molecule (O_2) is:

- | | |
|-------|-------|
| (a) 1 | (b) 2 |
| (c) 3 | (d) 0 |

(iv) Which of the following is a covalent compound?

- | | |
|-------------|--------------|
| (a) NaCl | (b) MgO |
| (c) CCl_4 | (d) $CaCl_2$ |

(v) Which base is not an alkali (insoluble in water)?

(a) NaOH

(b) KOH

(c) $\text{Cu}(\text{OH})_2$

(d) NH_4OH

(vi) Phenolphthalein added to sodium hydroxide solution turns:

(a) colourless

(b) pink

(c) orange

(d) blue

(vii) The molar volume of any gas at STP is:

(a) 11.2 L

(b) 22.4 L

(c) 24 L

(d) 6 L

(viii) The number of moles in 9.8 g of H_2SO_4 is:

(a) 0.1

(b) 0.2

(c) 1.0

(d) 0.05

(ix) The vapour density of sulphur dioxide (SO_2) is:

(a) 16

(b) 32

(c) 64

(d) 48

(x) An element with configuration 2, 8, 8 is:

(a) a metal

(b) a non-metal

(c) a noble gas

(d) an alkali metal

(xi) The ion most readily formed by a chlorine atom is:

(a) Cl^+

(b) Cl^{2-}

(c) Cl^-

(d) Cl^{2+}

(xii) An ionic bond is also known as:

(a) a metallic bond

(b) a covalent bond

(c) an electrovalent bond

(d) a co-ordinate bond

(xiii) The gas that turns lime water milky is:

(a) O_2

(b) H_2

(c) CO_2

(d) Cl_2

(xiv) The acid used in a lead storage (car) battery is:

(a) HCl

(b) HNO_3

(c) H_2SO_4

(d) CH_3COOH

(xv) The percentage of sulphur in H_2SO_4 is:

(a) 16.3%

(b) 32.7%

(c) 65.3%

(d) 2%

Question 2.

[25]

(i) The table shows a part of the Periodic Table (letters are **not** actual symbols). Answer the questions that follow. **[5]**

Group →	I	II	III	IV	V	VI	VII	0
Period 2		P				Q		R
Period 3	S			T			U	V

1. Name an alkali metal. 2. Which element is a noble gas? 3. Which element of Period 3 is the most electronegative? 4. Which element has 2 electrons in its valence shell? 5. Which two elements will combine to form an ionic compound?

(ii) Name the following: **[5]** 1. The energy released when an electron is added to a neutral gaseous atom. 2. A covalent compound that ionises in water and conducts electricity. 3. A salt formed by complete replacement of the replaceable hydrogen of an acid. 4. The number of atoms in one mole of helium gas. 5. The bond formed by sharing three pairs of electrons.

(iii) Match Column A with Column B: **[5]**

Column A	Column B
1. H_2O	(P) strong alkali
2. NaOH	(Q) atomic size increases
3. Down a group	(R) a cation
4. Na^+	(S) polar covalent compound
5. O_2	(T) a double covalent bond

(iv) Fill in the blanks: **[5]** 1. The vapour density of SO_2 is _____. 2. Down a group, ionisation energy _____. 3. A _____ bond is formed by the sharing of electron

pairs. 4. An aqueous solution of an alkali has pH _____. 7. 5. The number of moles in 9.8 g of H_2SO_4 is _____.

(v) [5] 1. Balance: $Na + H_2O \rightarrow NaOH + H_2$. 2. Write the equation for zinc reacting with dilute sulphuric acid. 3. Calculate the percentage of sulphur in H_2SO_4 . 4. Find the number of moles in 9.8 g of sulphuric acid. 5. Draw the electron-dot structure of ammonia (NH_3).

SECTION B — 40 Marks

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

Question 3. [Periodic Table]

[10]

- (a) Define: (i) electronegativity (ii) atomic radius. [2]
- (b) Arrange in **decreasing** order of ionisation energy and give a reason: Li, Na, K. [3]
- (c) Why does the atomic size increase on moving down a group? [2]
- (d) An element has atomic number 12. (i) State its group and period. (ii) Is it a metal or non-metal? (iii) Write the formula of its chloride. [3]

Question 4. [Chemical Bonding]

[10]

- (a) Draw the electron-dot structures of: (i) ammonia (NH_3) (ii) magnesium oxide (MgO). [4]
- (b) Explain the formation of sodium chloride ($NaCl$) by transfer of electrons. ($Na = 2,8,1$; $Cl = 2,8,7$) [3]
- (c) State **three** physical properties of ionic (electrovalent) compounds. [3]

Question 5. [Acids, Bases and Salts]

[10]

- (a) Define: (i) an alkali (ii) neutralisation. [3]
- (b) State what you observe when: (i) red litmus is dipped in NH_4OH (ii) dilute HCl is added to marble chips ($CaCO_3$). [2]
- (c) State the pH range of (i) acids (ii) alkalis. [2]
- (d) Name the method of preparation and one example salt for: (i) neutralisation (ii) precipitation. [3]

Question 6. [Mole Concept and Stoichiometry]

[10]

- (a) State: (i) Avogadro's Law (ii) Gay-Lussac's Law of gaseous volumes. [2]

(b) Calculate the percentage of sulphur in sulphuric acid (H_2SO_4). [2]

(c) $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$. Calculate the mass of zinc required to liberate 2.24 L of hydrogen at STP. ($\text{Zn} = 65$) [3]

(d) A hydrocarbon contains 80% carbon and 20% hydrogen. If its relative molecular mass is 30, find its empirical and molecular formulae. [3]

Question 7. [Mixed]

[10]

(a) In Period 3, name (i) the most reactive metal (ii) the most reactive non-metal. [2]

(b) Name the type of bond in: (i) CaO (ii) Cl_2 . [2]

(c) Give one word: (i) a salt of a strong base and a strong acid (ii) the acid present in vinegar. [2]

(d) Calculate the volume occupied by 3.011×10^{23} molecules of CO_2 at STP. [2]

(e) Balance: $\text{Fe} + \text{Cl}_2 \rightarrow \text{FeCl}_3$. [2]

ANSWER KEY & MARKING SCHEME – Set 2

Question 1 (MCQ)

(i) a (ii) a (iii) b (iv) c (v) c (vi) b (vii) b (viii) a (ix) b (x) c (xi) c (xii) c
(xiii) c (xiv) c (xv) b

Question 2

(i) 1. S 2. R (or V) 3. U 4. P 5. S and U.

(ii) 1. electron affinity 2. hydrogen chloride (HCl) 3. normal salt 4. 6.02×10^{23} 5. triple covalent bond.

(iii) 1 → S, 2 → P, 3 → Q, 4 → R, 5 → T.

(iv) 1. 32 2. decreases 3. covalent 4. greater than 5. 0.1 mole.

(v) 1. $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$ 2. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$ 3. 32.7% 4. 0.1 mol 5. N with three shared pairs (to 3 H) and one lone pair.

Section B (key points)

3. (b) $\text{Li} > \text{Na} > \text{K}$ (ionisation energy decreases down a group). (c) new electron shells are added, so size increases. (d) Group II, Period 3; metal; XCl_2 (MgCl_2 -type).

4. (b) Na loses $1e^-$ to $\text{Cl} \rightarrow \text{Na}^+ + \text{Cl}^-$. (c) high m.p./b.p., conduct in molten/aqueous state, hard crystalline solids, soluble in water.

5. (a) alkali = water-soluble base; neutralisation = acid + base → salt + water. (b) red litmus → blue; CO_2 with effervescence. (c) acids pH 0–7, alkalis pH 7–14. (d) neutralisation e.g. NaCl; precipitation e.g. AgCl / PbSO_4 .

6. (b) 32.7% (c) 6.5 g of zinc (d) empirical CH_3 , molecular C_2H_6 .

7. (a) Na; Cl. (b) CaO ionic, Cl_2 covalent. (c) neutral salt (NaCl); acetic acid. (d) 11.2 L. (e) $2\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$.