



Indian School Al Wadi Al Kabir

Unit Test (2026-2027)

Class: XI

Sub: Chemistry (043)

Max. Marks: 30

Date: 21/05/2026

Set - I

Time: 1 Hour

General Instructions:

Read the following instructions carefully.

- There are 5 sections in this question paper with internal choice in the questions.
- All questions are compulsory.
- Section A consists of Multiple-Choice Questions of 1 mark each.
- Section B consists of Very short answer-type questions of 2 marks each.
- Section C consists of Short-answer type questions of 3 marks each.
- Section D consists of a Case-based question carrying 4 marks
- Section E consists of a Long-answer type question carrying 5 marks.
- Use of calculators and log tables is not permitted.

Q. No	Section A The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark.	Marks
1.	What will be the molarity of a solution that contains 5.85 g of NaCl(s) per 500 mL? (A) 4 mol L ⁻¹ (B) 20 molL ⁻¹ (C) 0.2 molL ⁻¹ (D) 2molL ⁻¹ Atomic mass of Na = 23 u, Cl=35.5 u	1
2.	What will be the molality of the solution containing 18.25 g of HCl gas in 500 g of water? (A) 0.1 m (B) 1 M (C) 0.5 m (D) 1 m Atomic mass of H= 1u, Cl=35.5 u	1
3.	One mole of any substance contains 6.022×10^{23} atoms/molecules. The number of molecules of H ₂ SO ₄ present in 100 mL of 0.02M H ₂ SO ₄ solution is _____. (A) 12.044×10^{20} molecules (B) 6.022×10^{23} molecules (C) 1×10^{23} molecules (D) 12.044×10^{23} molecules	1
4.	What is the mass percentage of carbon in carbon dioxide? (A) 0.034% (B) 27.27% (C) 3.4% (D) 28.7%	1
5.	The empirical formula and molecular mass of a compound are CH ₂ O and 180 g, respectively. What will be the molecular formula of the compound? (A) C ₉ H ₁₈ O ₉ (B) CH ₂ O (C) C ₆ H ₁₂ O ₆ (D) C ₂ H ₄ O	1
6.	Which of the following statements is true about Bohr's atomic model? (A) Electrons move in random paths around the nucleus. (B) Electrons can exist in any energy level around the nucleus. (C) Electrons emit energy continuously as they orbit the nucleus. (D) Electrons move in specific energy levels or orbits.	1

7.	<p>Given below are two statements labelled as Assertion (A) and Reason (R). Assertion (A): Combustion of 16 g of methane gives 18 g of water. Reason (R): In the combustion of methane, water is one of the products.</p> <p>A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, but R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true.</p>	1
8.	<p>Given below are two statements labelled as Assertion (A) and Reason (R). Assertion(A): The angular momentum of an electron in a hydrogen atom is quantized. Reason(R): According to Bohr's model, the angular momentum of an electron is an integral multiple of $nh/2\pi$.</p> <p>A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, but R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true.</p>	1
Section B This section contains 2 questions with an internal choice in one question. The following questions are very short-answer type and carry 2 marks each.		
9.	<p>A. Carbon combines with oxygen to form two compounds, carbon monoxide (CO) and carbon dioxide (CO₂). If 12g of carbon combines with 16g of oxygen in CO and 32g of oxygen in CO₂, calculate the ratio of masses of oxygen that combine with a fixed mass of carbon in these two compounds. (Atomic mass of C = 12u, O=16u) B. A gas occupies a volume of 5.6 L at standard temperature and pressure (STP). Calculate the number of moles of the gas (At STP, 1 mol occupies 22.4 L)</p>	2
	OR How many grams of Chlorine gas are required to completely react with 0.4 g of Hydrogen gas to yield HCl? Also, calculate the amount of HCl formed. (Atomic mass of H=1u, Cl=35.5u) $\text{H}_2 + \text{Cl}_2 \longrightarrow 2 \text{HCl}$	2
10.	Write any two limitations of the Bohr model of the atom.	2
Section C This section contains 3 questions with an internal choice in one question. The following questions are short-answer type and carry 3 marks each.		
11.	<p>12 g of Mg is mixed with 4 g of O₂ to form MgO. Identify the limiting reagent and calculate the mass of MgO formed. (Atomic mass of Mg=24 u, O=16 u) $2 \text{Mg} + \text{O}_2 \longrightarrow 2\text{MgO}$</p> <p style="text-align: center;">OR</p> <p>A. Define the term 'mole'. B. Calculate the number of Hydrogen atoms present in 18 g of H₂O. (Atomic mass of H= 1u, O=16u)</p>	3
12.	<p>A. Write the expression for the Bohr frequency rule and explain the terms. B. What would be the energy of a photon emitted during a transition from n=4 to n=2 state in the Hydrogen atom?</p>	3

