INDIAN SCHOOL AL WADI AL KABIR

UNIT TEST 2025-2026

Date: 25/05/2025 Max. Marks: 30

Class: XI Subject: **CHEMISTRY** Time: 1 hour

ANSWER KEY

1.	(C) 9.09 %	**1**
2.	(A) 32 g of oxygen gas	**1**
3.	(C) unity	**1**
4.	(A) C_3H_8	**1**
5.	(B) 9.033×10^{23}	**1**
6.	(B) The energy of an electron in the orbit does not change with time.	**1**
7.	(A) Both A and R are true and R is the correct explanation of A.	**1**
8.	(D) A is false but R is true.	**1**
9.	Equations for Molarity and Molality (or any other relevant point) Molarity depends upon temperature as volume changes with temperature. Molality does not depend on temperature as mass is independent of temperature.	**1** **1**
10.	$E_n = -2.18\times10^{-18}\left(\frac{Z^2}{n^2}\right)$ J $Z = 3$ Ion is Li^{2+} (Note: If Li is written, award max. 1 mark)	½ ½ **1**

11.	Substituting all the correct values Molality = 1 $molkg^{-1}$ **OR** a) 120.44 x 10^{23} atoms b) 5 atoms c) 30.11 x 10^{23} atoms	**1** **2** **1** **1** **1**
12.	Radius = 423.2 pm Energy = - 0.545 x 10^{-18} J	**1½** **1½**
13.	$\Delta E = 2.18 \times 10^{-18} \text{J} \left(\frac{1}{n_i^2} - \frac{1}{n_f^2}\right)$ ΔE = - 0.408 x 10^{-18} J	**1** **2**
14.	a) 0.3 M b) Mole fraction c) $\text{Molarity (M)} = \frac{\text{No. of moles of solute}}{\text{Volume of solution in litres}}$ $0.2\ molL^{-1} = \frac{\text{No. of moles of NaCl}}{0.5\ \text{L}}$ Mass of NaCl = 5.85 g **OR** c) $\text{Molality (m)} = \frac{\text{No. of moles of solute}}{\text{Mass of solvent in kg}}$ $= \frac{0.04\ \text{mol}}{0.8\ \text{kg}}$ $= 0.05\ molkg^{-1}$	**1** **1** ½ ½ **1** ½ ½ **1**

15.	a) If two elements can combine to form more than one compound, the masses of one element that combine with a fixed mass of the other element, are in the ratio of small whole numbers.	**1**
	b) The reactant which gets consumed first and limits the amount of product formed is called limiting reagent.	**1**
	Limiting reagent is oxygen.	**1**
	Mass of water = 108 g	**1**
	c) 27.27 %	**1**
	OR	
	a) When gases combine or are produced in a chemical reaction they do so in a simple ratio by volume, provided all gases are at the same temperature and pressure.	**1**
	b) Empirical formula is C_2H_5	**2**
	Molecular formula is C_4H_{10}	**1**
	c) 0.1	**1**