



INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH 1: Some Basic Concepts of Chemistry

Name: _____

Date: 18.04.2025

Class: XI Sec: A

Answer the following

- Calculate the molecular mass of the following
(i) C_2H_5OH (ii) CH_4 (iii) $NaOH$ (iv) NH_3
- Calculate the percentage composition of nitrogen in NH_3 . (Atomic mass of $N=14$, $H=1$)
- Classify the following into elements, compounds and mixtures:
Water, tea, silver, steel, bronze, carbon dioxide and platinum.
- In three moles of ethane (C_2H_6), calculate the following:
(i) Number of moles of carbon atoms
(ii) Number of moles of hydrogen atoms
(iii) Number of molecules of ethane
- What will be the molarity of a solution, which contains 5.85 g of $NaCl$ (s) per 500 mL?
- Which one of the following will have the largest number of atoms?
(i) 1g of Au (ii) 1g of Na (iii) 1g of Li (iv) 1g of Cl_2
- A substance has molecular formula $C_6H_{12}O_6$. What is its empirical formula?
- Calculate the number of molecules present in 2.5 moles of water?
- Calculate the mass percentage of different elements present in sodium carbonate (Na_2CO_3).
- An organic compound contains carbon, hydrogen and oxygen. Its elemental analysis gave C, 38.71% and H, 9.67%. The empirical formula of the compound would be?
- State the difference between molarity and molality.
- 16g of Oxygen (O_2) has the same number of molecules as in
(i) 16g of CO
(ii) 14 g of N_2
(iii) 2 g of H_2
(iv) 28g of N_2
- What will be the mass of one ^{12}C atom in g?

14. Calculate the number of atoms in each of the following
 - (i) 52 moles of Ar
 - (ii) 52 g of He
 - (iii) 115 u of Na
15. State Gay Lussac's Law of Gaseous volumes.
16. How many grams of hydrogen chloride (HCl) are required to prepare 4 litre of 5M HCl in water?
17. How many molecules of SO_2 are present in 11.2 L at STP?
18. If 500 mL of a 5 M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?
19. How many atoms of calcium are there in 2g of Ca? (Atomic mass of Ca = 40u)
20. Calculate the volume of 34g of NH_3 at STP.
21. In a reaction $\text{A} + \text{B}_2 \rightarrow \text{AB}_2$, identify the limiting reagent when 2 moles of 'A' are mixed with 3 moles of ' B_2 '.
22. What is limiting reagent in a reaction?
23. Calculate the mass of sodium acetate (CH_3COONa) required to make 500 mL of 0.375 molar aqueous solution. Molar mass of sodium acetate is 82.0245 g/mol.
24. The empirical formula and molecular mass of a compound are CH_2O and 180g respectively, what will be the molecular formula of the compound?
25. Balance the following equations:
 - (i) $\text{Na}_2\text{CO}_3 (\text{aq}) + \text{NO} (\text{g}) + \text{NO}_2 (\text{g}) \rightarrow \text{NaNO}_2 (\text{aq}) + \text{CO}_2 (\text{g})$
 - (ii) $\text{KMnO}_4 + \text{NH}_3 \rightarrow \text{MnO}_2 + \text{KOH} + \text{H}_2\text{O} + \text{N}_2$
