PERL EDUCATION

DPP

DAILY PRACTICE PAPER

MOLE CONCEPT & STOICHIOMETRY

CHEMISTRY

CLASS - X ICSE

1. The ratio of the mass of a certain volume of gas to the mass of an equal volume of hydrogen under the same conditions of temperature and pressure.

2. A formula of a chemical substance which tells the actual number of atoms in one molecule of a substance.

3. A formula which shows the simplest whole number ratio

4. DEFINE: Gay Lussac's law of gaseous volumes

5. Calculate the volume of propane burnt for every 200 cm3 of oxygen used in the reaction.
$$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$$

6. The number of atoms present in one molecule of an element is called its :
   - (a) Molecular number
   - (b) Atomic number
   - (c) Avogadro's number
   - (d) Atomicity

7. The vapour density of carbon dioxide [C = 12, O = 16] is:
   - (a) 12
   - (b) 16
   - (c) 44
   - (d) 22

8. The empirical formula of hexane is :
   - (a) C_2H_7
   - (b) C_5H_8
   - (c) C_3H_7
   - (d) C_4H_7

9. If empirical formula of an organic compound is CH_2O then its molecular formula can be :
   - (a) $C_2H_2O_2$
   - (b) C_2H_4O
   - (c) C_3H_6O
   - (d) $C_6H_{12}O_6$

10. DEFINE limiting reageant

11. Find the total percentage of Magnesium in magnesium nitrate crystals, $Mg(NO_3)_2.6H_2O$. [Mg = 24, N = 14; O = 16 and H = 1]

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1. (i) Determine the empirical formula of the compound whose composition by mass is :
42% nitrogen, 48% oxygen and 9% hydrogen. [H = 1; N = 14; O = 16]
(ii) Determine the empirical formula of a compound containing 47.9% potassium, 5.5% beryllium and 46.6% fluorine by mass.
(Atomic weight of Be = 9; F = 19; K = 39) Work to one decimal place.

2. Calculate the Empirical formula of the compound having 37.6% of sodium, 23.1% of silicon and 39.3% of oxygen. [O = 16, N = 23, Si = 28]
(ii) The Empirical formula of a compound is C_2H_5. It has a vapour density of 29. Determine the relative molecular formula mass of the compound and hence its molecular formula.

3. Calculate the atomicity of oxygen molecule from the following information :
Vapour density of oxygen = 16
Relative atomic mass of oxygen = 16
Show all the calculations

4. 67.2 litres of hydrogen combines with 44.8 litres of nitrogen of form ammonia under specific conditions as :
$$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$$
Calculate the volume of ammonia produced. What is the other substance, if any, thatremains in the resultant mixture ?

5. An organic compound with vapour density = 94 contains.
C = 12.67%, H = 2.13%, and Br = 85.11%. Find the molecular formula.[Atomic mass : C = 12, H = 1, Br = 80]

6. (i) Calculate the percentage of platinum in ammonium chloroplatinate $(NH_4)_2PtCl_6$ (Give your answer correct to the nearest whole number).
(ii) The percentage composition of sodium phosphate as determined by analysis, is 42.1% sodium, 18.9% phosphorus and 39% oxygen. Find the empirical formula of the compound (work to two decimal places).

(H = 1, N = 14, O = 16,Na = 23, P = 31, Cl = 35.5, Pt = 195)
7. A compound contains 87.5% by mass of nitrogen and 12.5% by mass of hydrogen. Determine the empirical formula of this compound.

8. A compound X consists of 4.8% carbon and 95.2% bromine by mass.
(i) Determine the empirical formula of this compound working correct to one decimal place (C = 12; Br = 80).
(ii) If the vapour density of the compound is 252, what is the molecular formula of the compound ?

9. A gaseous organic compound contains 3.6 g of carbon and 0.8 g of hydrogen. The vapour density of this compound is 22.
(i) Calculate the Empirical formula.
(ii) Calculate the molecular formula of the compound.
(iii) If 4.4 g of the above compound are completely burnt in oxygen, calculate the volume of carbon dioxide formed at S.T.P. [C = 12; H = 1; O = 16]