



Blue Print (As per PU Board)

Topic	1 mark questions	2 marks questions	3 marks questions	5 marks questions	Total Marks
Some Basic Concepts of Chemistry	1	1	-	1	8

One mark questions1. **Define Significant figure**

Answer: Significant figures are meaningful digits which are known with certainty.

2. **What is empirical formula?**

Answer: It is a simplest whole number ratio of various atoms present in a compound.

3. **What is a stoichiometry?**

Answer: The quantitative relationships between the various reactants and products in terms of moles, masses, molecules and volumes is called stoichiometry.

4. **What is limiting reagent?**

Answer: Out of various reactants in a reaction, a reactant that is completely consumed in a chemical reaction is called limiting reagent.

5. **Define normality**

Answer: Normality can be defined as gram equivalent mass of the substance present in one dm³ of the solution.

6. **Define mole**

Answer: Mole can be defined as the amount of a substance that contains as many particles or entities as there are atoms in exactly 12 gms of carbon - 12 isotope.

Two marks questions7. **Define molecule with an example**

Answer: A molecule is the smallest particle of an element or a compound which can exist freely

Ex: Hydrogen molecule (H₂), water molecule (H₂O)

8. **State Law of Multiple proportions**

Answer: Law of multiple proportions can be defined as if two elements can combine to form more than one compound the masses of one element that combines with a fixed mass of the other element are in the ratio of small whole numbers.

9. **State Avogadro Law**

Answer: It can be defined as equal volumes of gases at the same temperature and pressure should contain equal no of molecules

10. **What are isotopes? Mention the isotopes of carbon**

Answer: Atoms having same atomic number with different mass number are called isotopes. Isotopes of carbon are ¹²C, ¹³C, ¹⁴C.

Five marks questions11. **Compound contains 4.07% Hydrogen 24.27% Carbon and 71.65% chlorine. Its molecular mass is 98.96 gm what are its empirical formula and molecular formula?**

Answer:

Element	Symbol	% of element	At mass of element	Moles of the element = %	Simpler molar Mass
Hydrogen	H	4.07	1	$\frac{4.07}{1} = 4.07$	$\frac{4.04}{2.018} = 2.01$
Carbon	C	24.27	12	$\frac{24.27}{12} = 2.022$	$\frac{2.022}{2.018} = 1.0019$



Chlorine	Cl	71.65	35.5	$\frac{71.65}{35.5} = 2.018$	$\frac{2.018}{2.018} = 1$
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Therefore Empirical formula = $H_2C Cl = CH_2Cl$

Empirical formula weight = $1 \times 12 + 2 \times 1 + 35.5 \times 1$
 $= 12 + 2 + 35.5 = 49.5$

Molecular formula = Empirical formula $\times n$

Therefore $n = \frac{98.96}{49.5} = 2$

Therefore molecular formula = $(CH_2Cl)_2 = C_2H_4Cl_2$

12. **Write any four postulates of Daltons atomic theory**

Answer: Dalton published a new system of chemical philosophy in 1808 in which he proposed the following:

- (1) Matter consists of indivisible atoms
- (2) All the atoms of a given element have identical properties including identical mass. Atoms of different elements differ in mass.
- (3) Compounds are formed when Atoms of different elements combine in a fixed ratio.
- (4) Chemical reactions involve reorganization of atoms these are neither created nor destroyed in a chemical reaction.