

## Chemistry - 11th Class Chemistry Short Questions Chapter 1 Preparation

Q1.

**Ans 1:**

Q2. 180 grams of glucose and 342 grams of sucrose have same number of molecules, but different number of atoms present in them. Justify it.

**Ans 1:** 180 grams of glucose ( $C_6H_{12}O_6$ ) and 342 grams of sucrose ( $C_{12}H_{22}O_{11}$ ) are one mole of each. One mole of various substances contain equal number of molecules i.e.,  $6.02 \times 10^{23}$ . One molecule of  $C_6H_{12}O_6$  has 24 atoms. The total number of atoms of glucose in one mole is  $24 \times 6.02 \times 10^{23}$ . One molecule of  $C_{12}H_{22}O_{11}$  has 45 atoms and the number of atom in 1 mole is  $45 \times 6.022 \times 10^{23}$ . It means that one mole of both glucose and sucrose will have different number of atoms.

Q3. What the experimental yield is mostly less than the theoretical yield?

**Ans 1:**

. Experimental yield is mostly less than theoretical yield due to the following reasons.

(1) Mechanical loss of products due to:

- (a) . Filtration
- (b) Separation by distillation
- (c) Separating by separating funnel
- (d) Washing
- (e) Drying
- (f) Crystallization

(2) Side reaction.

(3) Reversibility of reaction.

Q4. What is atomic mass unit? Give its values in grams.

**Ans 1:** It is a unit of mass used for atoms and molecules and is equal to the  $1/12$  of the mass of an atom of carbon—12. It is obtained by dividing the unity by Avogadro's number ( $6.02 \times 10^{23}$ ).

Q5. Define Avogadro's number. How does it relate to the masses of chemical substances?

**Ans 1:** It is the number of atoms, molecules or ions in one gram mole of an element, compound and ion. One gram mole of the substance is the atomic mass, molar mass or ionic mass taken in grams. It means that the number of the species is related with the masses of the species.

Q6.

Ans 1:

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Q7. Define empirical formula and how it is related to molecular formula?

Ans 1:

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Q8.

Molecular formula is multiple of empirical formula. Give an example.

**Ans 1:** The empirical formula is the simplest whole number ratio of atoms of different elements present in a compound. Molecular formula tells us the actual number of atoms of each element in a molecule. Hence the empirical formula has to be multiplied with a suitable digit to get the molecular formula.

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Q9. How can the efficiency of a chemical reaction be expressed?

Ans 1:

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Q10. Define Solubility product and write down its application?

**Ans 1:** Solubility product: The product of molar concentration of oppositely charged ions, in equilibrium with its solid salt in its saturated solution at a given temperature is called solubility product. Its is denoted by  $K_{SP}$

Application of  $K_{SP}$ :

- Determination of  $K_{SP}$  From solubility.
  - Effect of common ion on solubility.
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