Homework
Atoms, molecules and Radicals

i. 1. Atoms are indivisible.

2. Metals have variable valency.

3. The number of atoms present in a molecule of an element is called as atomicity.

4. The combining capacity of an element is known as valency.

5. Sulphur is the element with valency 4.

6. The valency of iron Fe_2O_3 is 3.

ii. 1. An atom is the smallest particles of an element that exhibits all the properties of that element. It may or mayn't exist independently but takes part in every chemical reaction.

2. Molecule: It is the smallest particles of a pure substance (element or compound) which has independent existence.

3. The combining capacity of an element is known as valency.

4. A radical is an atom of an element or a group of atoms of different elements that behaves as a single unit with a positive or negative charge on it.

5. Basic radicals are called cations and have positive charge. All metalic ions and ammonium ion are basic radicals.

2 marks

1. The valency of calcium is 2.
The valency of oxygen in CaO is 2.
The valency of CO_3 is 2.

2.

Acidic radical	Basic radical
• They are called as anions and have negative charge.	• They are called as cations and have positive charge.
• Most of the non-metalic ions and groups of non-metalic atoms with negative charge are acidic radicals.	• All metalic ions and ammonium ions are basic radicals.

3. A molecular formula of a compound is the symbolic representation of its (one) molecule. It shows the number of atoms of each element present in it. These atoms combine in whole numbers to form the molecule. Forex → The molecular formula of the compound sulphur dioxide is SO_2. It indicates that one molecules of SO_2 is formed by 1 atom of sulphur and 2 atoms of oxygen.

4. Name of the compound = calcium chloride.

1. Write the symbols of the element in both side.

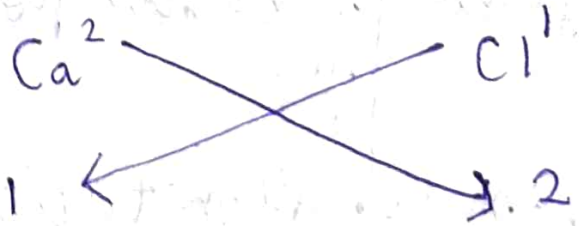
Calcium Chloride

Ca Cl

2. Write the valency of the symbol at the top right corner of the element.

Ca^{2} Cl^{1}

3. Interchange the valency no.



4. Write the interchanged numbers at the base.

Ca_1 Cl_2

4. So, the formula of the compound (ignore base no if it is 1.)

$CaCl_2$

5.

Atoms	Molecules
• Atom is the smallest unit of an element that can or can't exist freely.	• Molecule is a set of atoms that are held together with the help of a bond and is the smallest unit of a compound.
• An atom can or can not exist in a free state.	• Molecules always exist in free state.

6. Some elements possess more than one valence. Such elements are said to possess variable valency. For ex - iron has two electrons etc.

7. Molecules → It is the smallest unit of a compound which always has an independent existence. ~~They are less reactive~~ ex - H_2O, N_2 etc.
Radicals → It is an atom of an element or a group of atoms of different elements that behaves as a

single unit with a positive or negative charge on it.
Ex- H_2O_2, O_3, O_2