

CLASS VI - CHEMISTRY – CHAPTER 3

TICK (✓) THE MOST APPROPRIATE ANSWER

1. The smallest unit of matter is

- (a) An atom ✓
- (b) A molecule
- (c) An Element
- (d) A compound

2. Elements found in the universe are

- (a) Hydrogen and Helium ✓
- (b) Oxygen and Sulphur
- (c) Carbon and Nitrogen
- (d) Hydrogen and Carbon

3. Tin is a:

- (a) Metal ✓
- (b) Non-metals
- (c) Metalloids
- (d) Compounds

4. Triatomic molecule among the following is :

- (a) Ozone ✓
- (b) Phosphorus
- (c) Sulphur
- (d) Carbon

5. Formula of zinc sulphide is

- (a) ZNS
- (b) ZnS ✓
- (c) ZNs
- (d) zNS

6. Symbol of calcium is:

- (a) Ca ✓
- (b) CA
- (c) cA
- (d) None of these

7. Atoms combine to form:

- (a) Elements
- (b) Mixtures
- (c) Compounds
- (d) Molecules ✓

**FILL IN THE BLANKS:**

1. Metals are conductor of heat and electricity.
2. Non-metals are not Sonorous.
3. Silicon is a non-metal.
4. A molecule contains two or more atoms combined chemically.
5. Formula for hydrogen sulphide is H<sub>2</sub>S and carbon dioxide is CO<sub>2</sub>

**WRITE TRUE OR FALSE FOR EACH STATEMENT. REWRITE THE FALSE STATEMENTS CORRECTLY:**

1. Gases which do not react and occur in isolated form are known as inert gases. (T)
2. Properties of a compound are entirely different from those of its constituent elements. (T)
3. Formula of hydrogen sulphide is H<sub>2</sub>S. (T)
4. N<sub>2</sub>, O<sub>2</sub> are the molecules of same kind. (T)
5. S<sub>8</sub> and P<sub>4</sub> are polyatomic molecules. (T)

**FIND THE ODD ONE OUT GIVING REASON**

1. Hydrogen, hydrogen sulphide, nitrogen, oxygen, chlorine  
Hydrogen sulphide is a compound
2. Helium, neon, argon, oxygen, krypton.  
Oxygen is not inert gas
3. Sodium, potassium, calcium, magnesium, carbon.  
Carbon is a non metal

### **GIVE THE REASONS FOR THE FOLLOWING:**

1. FeS is a compound whereas iron and sulphur are elements.

Iron and sulphur are elements whose property are completely different from the properties of Iron sulphide (FeS). iron and sulphur chemically combine together in a fixed ratio of their weight to form a completely new substance known as Iron sulphide (FeS). so, Iron sulphide (FeS) is a compound.

2. Oxygen is diatomic whereas ozone is triatomic

Oxygen molecules are made up of two atoms of oxygen, so it is a diatomic molecule. Whereas ozone is made up of three atoms of oxygen so it is a triatomic molecule.

### **DEFINE THE FOLLOWING**

- i) **Metals:** An element is a metal if it has lustre, is a good conductor of heat and electricity, is malleable and ductile, and also have a high melting point and boiling point.
- ii) **Non-metals:** An element is a non-metal, if it is a soft solid, liquid or gas at room temperature, it has no lustre, is bad conductor of heat and electricity is non-malleable and non-ductile and has low melting point and boiling point.
- iii) **Atom:** The smallest particle of an element, which may or may not have independent existence, but always take the takes part in a chemical reaction.
- iv) **Molecule:** A molecules is a particle with two or more atoms chemically joined together.
- v) **Metalloids:** Metalloids are the elements whose properties are intermediate between metals and non-metals. Example Arsenic, Germanium etc.
- vi) **Compounds:** Compounds are pure substances found by the combination of two or more elements.
- vii) **Elements:** Elements are a pure substance formed by the combination of two or more elements.
- viii) **Radioactive elements:** Elements which are unstable and decompose to give harmful radiation are known as radioactive elements.  
Example: Radium, Polonium.

## ANSWER THE FOLLOWING QUESTIONS

1. Define element and compound

Element is a pure substance which cannot be broken down into two or more pure substances by any chemical means.

Compounds are pure substances formed by the combination of two or more elements.

2. Iron and sulphur both are elements whereas iron sulphide is a compound, explain.

Iron and sulphur are elements whose property are completely different from the properties of Iron sulphide (FeS). iron and sulphur chemically combine together in a fixed ratio of their weight to form a completely new substance known as Iron sulphide (FeS). so, Iron sulphide (FeS) is a compound.

3. Differentiate between symbol and formula

Symbol is the short form to represent an element or atom of an element.

Formula is formed by combining symbols with some numerals.

4. What does the following symbols illustrate?

- (i)  $5O_2$   
5 molecules of oxygen
- (ii)  $3O$   
3 atoms of oxygen
- (iii)  $2O_3$   
2 atoms of ozone
- (iv)  $S_8$   
One molecule of sulphur
- (v)  $Ni$   
Symbol of Nickel
- (vi)  $N_2$   
One molecule of Nitrogen

5. Write down the formulae of the following compounds:

(i) Carbon dioxide =  $\text{CO}_2$

(ii) Water =  $\text{H}_2\text{O}$

(iii) Calcium oxide =  $\text{CaO}$

6. Write down the chemical names of the following compounds:

(i)  $\text{N}_2$  = Nitrogen

(ii)  $\text{CO}_2$  = Carbon dioxide

(iii)  $\text{CaO}$  = Calcium Oxide

(iv)  $\text{H}_2\text{O}$  = Water

7. Give two examples of each of the following

- (i) **Metals:** Sodium (Na), Potassium (K)
- (ii) **Compounds:** Water ( $\text{H}_2\text{O}$ ), Carbon dioxide ( $\text{CO}_2$ )
- (iii) **Natural elements:** Gold (Au), Sulphur (S)
- (iv) **Non-metals:** Carbon (C)
- (v) **Elements:** Oxygen (O), Hydrogen (H)
- (vi) **Radio active elements:** Radium (Ra), Polonium (Po)
- (vii) **Metalloids:** Arsenic (As), Germanium (Ge)
- (viii) **Diatomic gases:** Oxygen ( $\text{O}_2$ ), Nitrogen ( $\text{N}_2$ )
- (ix) **Poly atomic Molecule:** Sulphur ( $\text{S}_8$ ), Phosphorus ( $\text{P}_4$ )

8. GIVE ONE WORD FOR THE FOLLOWING:

- 1. Short form to represent an atom  
Ans: Symbol
- 2. Elements composed of isolated atoms  
Ans: Gases
- 3. When three or more atoms are joined together  
Ans: Triatomic or Polyatomic
- 4. Two or more atoms join chemically to form  
Ans: Compound
- 5. Property by which metals can be beaten into sheets

Ams: Malleability

6. Substance which contains only one kind of atoms

Ans: Elements

7. Elements which emit harmful radiations are called as

Ans: Radio Active solution

## WorkSheet

### I. Give symbols for the following elements:

1. Iron - Fe
2. Sodium- Na
3. Silver - Ag
4. Zinc- Zn

### II. Fill in the blanks with appropriate words:

1. A pure substance always have same composition.
2. Elements which emit harmful radiations are known as radioactive elements.
3. Metals are electropositive elements.
4. Non-Metals do not possess lustre nor they produce any sound when beaten.
5. Gases which do not react are known as Noble gases.

### III. Fill in the blank with appropriate WORDS:

1. A molecule is a particle with two or more atoms chemically joined together
2. A molecule of nitrogen contains two atoms of nitrogen
3. A molecule pf chlorine contains two atoms of chlorine
4. A molecule carbon dioxide contains carbon and oxygen atoms
5. Phosphorus and sulphur exist in free state

### IV Write the information conveyed by the following symbols:

Symbol	Information
O	One oxygen atom
O <sub>2</sub>	One molecule of oxygen
O <sub>3</sub>	One molecule of ozone gas
2O	Two atoms of oxygen
3O <sub>2</sub>	Three molecules of oxygen

V. Give two examples of the following:

1. Monoatomic elements → Na, K
2. Diatomic elements → N<sub>2</sub>, O<sub>2</sub>
3. Triatomic elements → O<sub>3</sub>, H<sub>3</sub>
4. Molecules of same kind → N<sub>2</sub>, O<sub>2</sub>
5. Molecules of different kind → CO<sub>2</sub>, HCl

VI. Write true or false:

1. Formula tells the number of atoms of each element present in a compound. True
2. Elements like nitrogen have molecules of different kind in them. False
3. Symbol is a short form to represent an element. True
4. Ozone is a monoatomic element. False
5. Carbon dioxide contains three atoms in total. True

**Learn:**

1. Charts from page number 40, 42
2. Difference between compounds and mixtures
3. Chart page number 49, 50