

Elements, Compounds, Symbols and Formulae.

I. Define the following:

- a. Pure substance
- b. Impure substance
- c. Elements
- d. Compounds
- e. Electrolysis
- f. Atom
- g. Molecule
- h. formula
- i. Atomicity
- j. Metalloid
- k. Noble gases.
- l. Symbol

Ans:

- a. A substance of a definite composition which has consistent properties throughout is called a pure substance.
- b. A substance in which some other substances are also present in smaller amounts is called as an impure substance
- c. An element is defined as a pure substance made up of only one kind of atoms that cannot be converted into anything simpler than itself by any physical or chemical process.
- d. Compounds are pure substances formed by the chemical combination of two or more elements in a definite proportion by mass.
- e. Electrolysis is a chemical process in which electric current is passed through a compound in liquid state to separate its constituent elements.

- f. An atom is defined as the smallest indivisible unit of an element which exhibits all the properties of that element and may or may not have independent existence.
- g. A molecule can be defined as the smallest unit of an element or a compound which exhibits all the properties of that element or compound and has independent existence. They are divisible into atoms.
- h. A formula is a short way of representing the molecule of an element or a compound.
- i. The number of atoms in a molecule of an element is called its atomicity.
- j. Metalloids are elements which possess some properties of metals and some properties of non metals.
- k. Non metal: Gaseous elements that do not react chemically with other elements are termed as Non metals.
- l. A symbol is a short form that also represents an atom of a specific element.

II. Name the following :

- i. a soft metal: sodium
- ii. a liquid metal: Mercury.
- iii. a brittle metal: Zinc
- iv. a metal which is a poor conductor of electricity: Tungsten
- v. a shiny non metal: Iodine/ diamond
- vi. a liquid non metal: Bromine
- vii. a non metal which is a good conductor of electricity:
Graphite
- viii. Any four metalloids: Boron, Silicon, arsenic and germanium

ix. Any four noble gases: Helium, Neon, Argon, Krypton.

III. Answer the following questions:

i. State 4 properties shown by pure substances.

Ans: Characteristics shown by pure substances are as follows:

- They are homogeneous.
- They have a definite set of physical and chemical properties.
- They have fixed melting and boiling points.
- They cannot be broken down into simpler substances by any physical means.

ii. State 4 characteristics of metals.

Ans: Characteristics of metals are as follows:

- Metals are ductile.
- They are malleable.
- They are good conductors of heat and electricity.
- They have a high melting and boiling point.

iii. State 4 characteristics of non metals.

Ans: Characteristics of non metals are as follows:

- Metals are not ductile.
- They are not malleable.
- They are bad conductors of heat and electricity.
- They have a low melting and boiling point.

iv. Write in brief about the Periodic Table.

Ans: The periodic table is a systematic arrangement of elements in a tabular format. The horizontal rows are called periods and vertical columns are called groups.

v. State 4 characteristics of a compound.

Ans: Characteristics of compounds are as follows:

- It consists of two or more elements.
- The constituent elements are combined in a definite proportion.
- The physical and chemical characteristics of a compound differ from those of its constituent element.
- The components of a compound cannot be separated by simple physical means.

vi. State the information obtained from a chemical formulae?

Ans: a formula gives us the following information:

- Types of elements present in the compound.
- Number of each kind of atoms in one molecule of the compound.
- Ratio of different types of atoms present in the molecules.
- Mass of one molecule of the compound.

vii. Give two uses of the following:

- a. Diamond: Used in jewellery items, used to cut glass.
- b. Graphite: Used to make pencil leads, used as a lubricant.