



परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
Answer Key (2025 -2026)

कक्षा / **Class** : VIII

विषय / **Subject** : SCIENCE

Worksheet of chapter 8 - Nature of Matter (Elements, Compounds, and Mixtures
School - AECS KUDANKULAM

1. c) Water
2. a) Atom
3. b) Water
4. c) uniform mixture
5. (b) Sodium
6. (b) Its components can be separated by a physical method.
7. b) Compounds
8. (c) Substances physically combined
9. (c) Two or more elements combine chemically
10. b) Mixture

II. Assertion–Reason Questions

1. (c) A is true, R is false.
(Elements are made of same kind of atoms, not different kinds.)
2. (a) Both A and R are true, and R explains A.
3. (c) A is true, R is false
4. (d) A is false, R is true.
(Air is a mixture, not a compound.)

III. Case-Based Question

- a) Chemical change
- b) Iron sulfide (FeS)
- c) Use of magnet (magnetic separation)
- d) Because a new compound is formed with properties different from its components.

IV. Short Answer Type – I

1. Element: Made of one kind of atom (e.g., Oxygen).

Compound: Formed by chemical combination of elements (e.g., Water).

2. Air has various gases like nitrogen, oxygen, carbon dioxide, etc., mixed physically.

3. Homogeneous mixture: Uniform composition (e.g., sugar solution).

Heterogeneous mixture: Non-uniform composition (e.g., sand and water).

4. A mineral is a naturally occurring, inorganic substance with a definite chemical composition and a crystalline structure. In contrast, a rock is a solid material made up of one or more minerals.

5. (a) Metals – Gold and Silver

(b) Non-metals – Oxygen and Sulphur

V. Short Answer Type – II

1. Differences between mixtures and compounds:

Mixtures can be separated physically; compounds cannot.

Components retain properties in mixtures; not in compounds.

Composition in mixtures is variable; in compounds it's fixed.

2. Compounds: Carbon dioxide, Iron sulphide, Water.

Mixtures: Air, Milk, Fruit Juice.

3. Pure Substances

Pure substances have a definite chemical composition and definite physical and chemical properties.

Pure substances are all uniform, i.e., their composition is uniform throughout the bulk.

Examples are gold, silver, water, sodium chloride, etc.

Impure Substances

Impure substances may be non-uniform or uniform i.e., their composition is not uniform throughout the bulk.

Impure substances are made up of two or more pure substances mixed in any proportion. They do not have a definite set of properties.

Examples are air, seawater, a solution of sugar in water, etc..

4. Compounds are pure substances because they are made up of only one type of molecule and have a uniform and definite composition throughout. For example, every molecule of water (H_2O) is identical, consisting of two hydrogen atoms and one oxygen

atom chemically bonded together. This fixed composition results in consistent physical and chemical properties, like a specific boiling point and density.

Mixtures are not pure substances because they consist of two or more substances that are physically blended, not chemically bonded. The components of a mixture retain their individual properties and can be present in varying proportions. For example, air is a mixture of nitrogen, oxygen, and other gases, and the amount of each gas can vary.