



Solution: 31

Hydrogen and oxygen cannot be split up into two or more simpler substances by applying heat, light or electric energy.

Whereas, water can be split up into hydrogen and oxygen by applying electric energy, so it is not an element.

Solution: 32

All the elements can be divided into following three groups-

- (i) Metals ; Iron and copper
- (ii) Non-metals ; Carbon and sulphur
- (iii) Metalloids ; Boron and silicon

Solution: 33

Metals are malleable and ductile whereas non-metals are not.

Solution: 34

(i) Malleability - Metals show this property but non-metals don't.

(ii) Ductility - Metals show this property but non-metals don't.

(iii) Electrical conductivity - Metals are good conductors of electricity whereas non-metals are bad conductors except graphite.

Solution: 35

Aluminium is malleable, ductile and sonorous, so it is a metal.

Solution: 36

(a) Copper is ductile so it is used for making wires.

(b) Graphite is the only non-metal which conducts electricity so it can be used to make electrodes.

Solution: 37

We can check this by evaporating the given colourless liquid.

If nothing is left behind then the colourless liquid is pure water.

Solution: 38

Sea-water and Soda-water.

Solution: 39

Air is a mixture because-

(i) Air can be separated into its constituents like oxygen, nitrogen, etc. by physical process of fractional distillation.

(ii) Air shows the properties of all the gases present in it.

(iii) Liquid air does not have a fixed boiling point.

Solution: 40

Water is a compound because -

(i) Water cannot be separated into its constituents, hydrogen and oxygen by physical methods.

(ii) Heat and light are given out when water is prepared by burning hydrogen in oxygen.

Solution: 41

A compound is a substance made up of two or more elements chemically combined in a fixed proportion by mass.

NaCl cannot be separated into its constituents by physical process and the properties of NaCl is completely different from that of Na and Cl, so NaCl is a compound and not a mixture.

Solution: 42

A mixture is a substance which consists of two or more elements or compounds not chemically combined together.

As energy is neither evolved nor absorbed during the formation of sugar Solution: and a sugar Solution: shows properties of both sugar and water so sugar Solution: is a mixture not a compound.

Solution: 43

Brass is a mixture because-

(i) It shows the properties of its constituents, copper and zinc.

(ii) It has a variable composition.

Solution: 44

MIXTURES	COMPOUNDS
1. A mixture can be separated into constituents by the physical processes.	1. A compound cannot be separated into its constituents by the physical processes.
2. A mixture shows the properties of its constituents.	2. The properties of a compound are entirely different from those of its constituents.
3. Energy is usually neither given out nor absorbed in the preparation of a mixture.	3. Energy is usually given out or absorbed during the preparation of a compound.
4. The composition of a mixture is variable.	4. The composition of a compound is fixed.
5. A mixture does not have a fixed melting point, boiling point, etc.	5. A compound has a fixed melting, boiling point, etc.

Solution: 45

As energy is neither evolved nor absorbed during the formation of salt solution and a salt solution shows properties of both salt and water so salt solution is a mixture not a compound.

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Solution: 46

Similarity: In both the cases, the mixture can be separated into their constituents by physical methods.

Difference: No separation is visible in the mixture of sugar and water whereas separation is visible in mixture of sand and sand.

Solution: 47

Evaporate both the liquids separately.

A pure compound will evaporate completely, leaving no residue whereas Solution will not be evaporated completely, i.e. some residue will be left behind.

Solution: 48

(a) Iodine is a lustrous non-metal.

(b) Oxygen is a non-metal required for combustion.

(c) Allotrope of carbon forms good conductor of electricity. That allotrope is graphite.

(d) Silicon

(e) Carbon

Solution: 49

(a) Sodium

(b) Mercury

(c) Mercury

(d) Sodium

(e) Gold

Solution: 50

Chlorine gas, Aluminium foil, Iodine vapour, Graphite, Sulphur powder, Diamond are not compounds.

Solution: 51

(a) Those mixtures in which the substances are completely mixed together and are indistinguishable from one another, are called homogeneous mixtures. They have a uniform composition throughout its mass. All the homogeneous mixtures are called Solutions.

Examples- Sugar solution, salt solution, copper sulphate Solution, etc.

Those mixtures in which the substances remain separate and one substance is spread throughout the other substance as small particles, droplets or bubbles, are called heterogeneous mixtures. Heterogeneous mixture does not have a uniform composition throughout its mass.

Example- Starch Solution, soap Solution.

(b) Homogeneous mixtures - Soda water, air, vinegar, alcohol and

water mixture, sugar and water mixture, Copper sulphate solution.
Heterogeneous mixture - Wood, petrol and water mixture, chalk and water mixture.

Solution: 52

(a) (i) Elements - An element is a substance which cannot be split up into two or more simpler substances by the usual chemical methods of applying heat, light or electricity.

Ex. Hydrogen, Oxygen

(ii) Compounds - A compound is a substance made up of two or more elements chemically combined in a fixed proportion by mass.

Ex. Sodium chloride, calcium carbonate

(iii) Mixtures - A mixture is a substance which consists of two or more elements or compounds not chemically combined together.

(b) Elements - Gold, Diamond, Graphite

Compounds - Common salt, Sea water, Marble

Mixtures - Brass, Sand, Petroleum, Chalk, Air

Solution: 53

(i) METALS - A metal is an element that is malleable, ductile and conducts electricity.

Example - Iron, Copper

(ii) NON-METALS - A non metal is an element that is neither malleable, nor ductile and does not conduct electricity.

Example - Carbon, Sulphur

(iii) METALLOIDS - The elements which show some properties of metals and some other properties of non-metals are called metalloids.

Example - Boron, Silicon, Helium, Magnesium, Copper

(b) Metals - Mercury, Sodium,

Non-metals - Diamond, Sulphur, Iodine, Carbon, Boron

Metalloids - Silicon, Germanium

Solution: 54

(a) Mixtures - A mixture is a substance which consists of two or more elements or compounds not chemically combined together.

Examples - Air, gun powder.

(b) Homogeneous mixtures- Those mixtures in which the substance are completely mixed together and are indistinguishable from one another, are called homogeneous mixtures.

Examples- Sugar Solution, copper sulphate Solution.

Those mixtures in which the substances remain separate and one substance is spread throughout the other substance as small particles, droplets or bubbles, are called heterogeneous mixtures.

Example- Starch Solution, soap Solution.

(c) Other name for homogeneous mixtures is Solutions.

Solution: 55

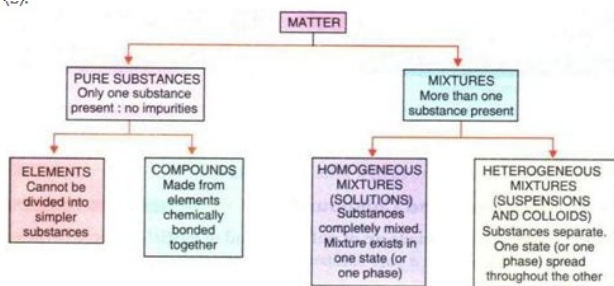
(a) Three general classes of matter are elements, compounds and mixtures.

Element - Hydrogen

Compound - Sodium chloride

Mixtures - Salt Solution

(b)



***** END *****

