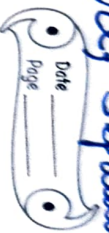


⑤

Pure substances & Mixtures; Separation  
of mixture



1. Select homogeneous and heterogeneous mixtures, from the following:

Ans → Homogeneous mixture → Salt solution, brass, or air dissolved in water, air; alcohol and water.

Heterogeneous mixture - petrol and water, sand and charcoal, sea water, fruit juice, mist

a - D, c) Pure substance → Pure substances  
substances are either elements or compounds. They contain the same kind of atoms and molecules

and have a definite set of physical and chemical properties.

Ex - ~~Atom~~ Gold, is an element which contains the same kind of ~~atom~~ atoms and molecules and have a definite which contains the same kind of atoms. Sugar is a ~~comp~~ compound which contains the same kind of molecules and has the same properties through out.

(b) Impure substance

Ans → A substance in which some

other substances are also present in smaller or larger amount is called a mixture or impure substance. Ex - Air

c) Alloy: "A homogeneous solid mixture of two or more ~~metals~~ a metal and a non-metal is called an alloy."

Ex - Bronze, Brass

d) Solution: "The homogeneous mixture of water and a substance soluble in it is called an ~~alloy~~ a solution."

e) Heterogeneous mixture: "A mixture in which the components are not ~~uniformly~~ uniformly distributed through its volume and can be easily seen separately is called a heterogeneous mixture"

Ex → Sand and charcoal, Sand in water, Mist

b) Homogeneous mixture

Ans → "A mixture in which its constituents are uniformly distributed throughout its volume and cannot be seen"

separately is called a homogeneous mixture."

Ex - Brass, Sugar solution

3. The lower characteristics of a mixture are as follows:

- ▶ In mixtures, components are loosely held together and they retain their individual properties.
- ▶ Mixtures don't have any fixed composition.
- ▶ Mixtures don't have any specific set of properties.
- ▶ It can be heterogeneous or homogeneous which can be separated by physical methods.

4.a) A sugar solution is a mixture and mixtures has not any specific set of properties. They show the properties of the individual components from which they are formed.

b) Petrol and water forms a heterogeneous mixture as its constituents can be seen separately and ~~not~~ are not uniformly distributed throughout its volume.

c) Sulphur has ~~to~~ the property

to dissolve in carbon disulphide whereas iron does not dissolve and retains its individual property. However, on heating Iron and sulphur, they chemically combined forming Iron sulphide. In this Iron and sulphur particles do not exist separately as such they lose their individual property.

### 5.d) Solids-Solid

- ▶ Sand and sugar
- ▶ Sand and charcoal

▶ Sand and water

▶ Charcoal and water

c) liquid - gas

▶ ~~salt~~ Coca cola

▶ Mist

d) gas - gas

▶ air

▶ helium and hydrogen in air  
balloon

▶ Perlum in air

6- a) Brass  $\Rightarrow$  Copper and zinc

b) Duralumin  $\Rightarrow$  Aluminium + Copper  
with little manganese and  
magnesium.



c) Tap water  $\rightarrow$  air, dissolved salts.

d) Bronze  $\rightarrow$  Copper, Tin and Zinc.

## 7. Water

## Air

▶ Water is a compound. ▶ Air is a mixture.

▶ It is made up of  $H_2O$  and  $O_2$  molecules in a fixed proportion by mass. ▶ It contains  $O_2$ ,  $N_2$ ,  $CO_2$ , water vapour in different proportions. Their amount varies from place to place.

~~It~~

▶ Its molecular formula is  $H_2O$ . ▶ Air can't be represented by any formula.

▶ The properties of water are completely different from those of its elements. ▶ Air retains their properties of its component gases.

## Compound

- ▶ A compound is a pure substance.
- They are always homogeneous.
- ▶ A compound has a fixed composition.
- ▶ They can be separated only by chemical methods.

## Mixture

- ▶ A mixture is an impure substance.
- ▶ They may be homogeneous or heterogeneous.
- ▶ A mixture has no fixed composition.
- ▶ They can be separated by simple physical methods.