

# Christu Jyoti Convent sr.sec.school

Class 7th chemistry lesson 3

Elements compounds and mixtures

## Short answer questions

1. What is a pure substance?

Ans. A pure substance is one that cannot be split into simpler substances by physical means.

2. What is an element? Name five elements and give their symbols?

Ans. An element is a substance that cannot be split into simpler substances by chemical means example - Hydrogen (H), carbon(C), oxygen(O) nitrogen (N), helium (He).

3. What is a compound? Name five compounds and give their formula.

Ans. A compound is a substance that can be split into simpler substances by chemical means

- Water H<sub>2</sub>O
- Carbon dioxide CO<sub>2</sub>
- Ammonia NH<sub>3</sub>
- Sulphur dioxide SO<sub>2</sub>
- Carbon monoxide CO

4. If you have candle a mixture of 1 gram of hydrogen and 8 gram of Oxygen ,will you obtain a pure substance or mixture?

Ans. We will obtain a pure substance.

5. What is a mixture?

Ans. A mixture is a substance that can be separated into two or more substances by physical means.

6. Classify the following into pure substance and mixtures.

- Air
- Copper
- Silver
- A Sugar solution
- Mud
- Sodium chloride
- carbon dioxide
- water
- Nitrogen
- Iron
- Oxygen
- Ink
- Blood
- Gold

o. Zinc

Ans.a. mixture

b. Pure substance

c. Pure substance

d. Mixture

e. Mixture

f. Mixture

g. Mixture

h. Mixture

l. Pure substance

j. Pure substance

k. Pure substance

l. Mixture

m. Mixture

n. Pure substance

o. Pure substance

7. What are the following called?

a) mixture with the same composition and properties throughout

Ans. Homogeneous mixture

b) A mixture, the different parts of which vary in composition and properties

Ans. Heterogeneous mixture

c) the solid that settles when a heterogeneous solid - liquid mixture is allowed to stand

Ans .sediment

d) the liquid above the solid settling from a heterogeneous solid liquid mixture

Ans. Supernatant

8. Name the method used to separate pure water from a solution of salt.

Ans. Distillation method

9. The components of what kind of a mixture are separated by dissolution and evaporation? Give an example.

Ans. When one component of mixture is soluble as in heterogeneous mixture

Example salt and sand mixture.

10. Define immiscible liquids. Give an example.

Ans. The liquids which do not dissolve in each other are called in miscible liquids. example oil and water mixture.

11. Name three substances that can sublime.

Ans. Camphor, ammonium chloride, Iodine.

12. Name a method to separate pigments of an ink.

Ans. Chromatography

### Long answer questions.

1. Describe how filtration is done to separate water from sand.

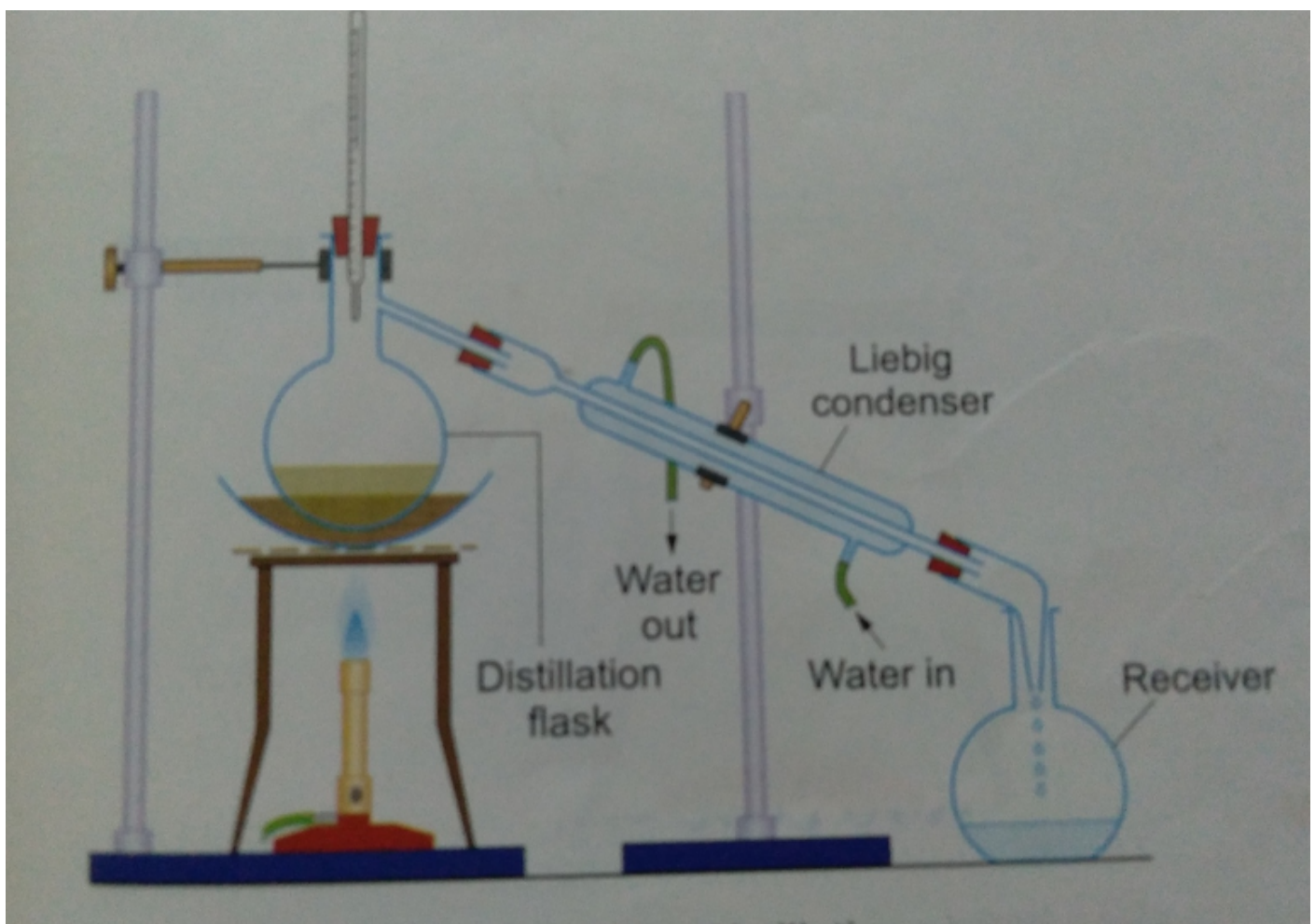
Ans. Filtration is a method for separating an insoluble solid from a liquid. When a mixture of sand and water is filter then the second stage behind in the filter paper (it becomes the Residue) the water passes through the filter paper (it becomes the filtrate).

2. Describe a simple experiment to carry out the distillation of water.

Ans. The process is useful for separating a solid -liquid homogeneous mixture (example a solution of salt in water) and a solid- liquid heterogeneous mixture (example A Sand water mixture).

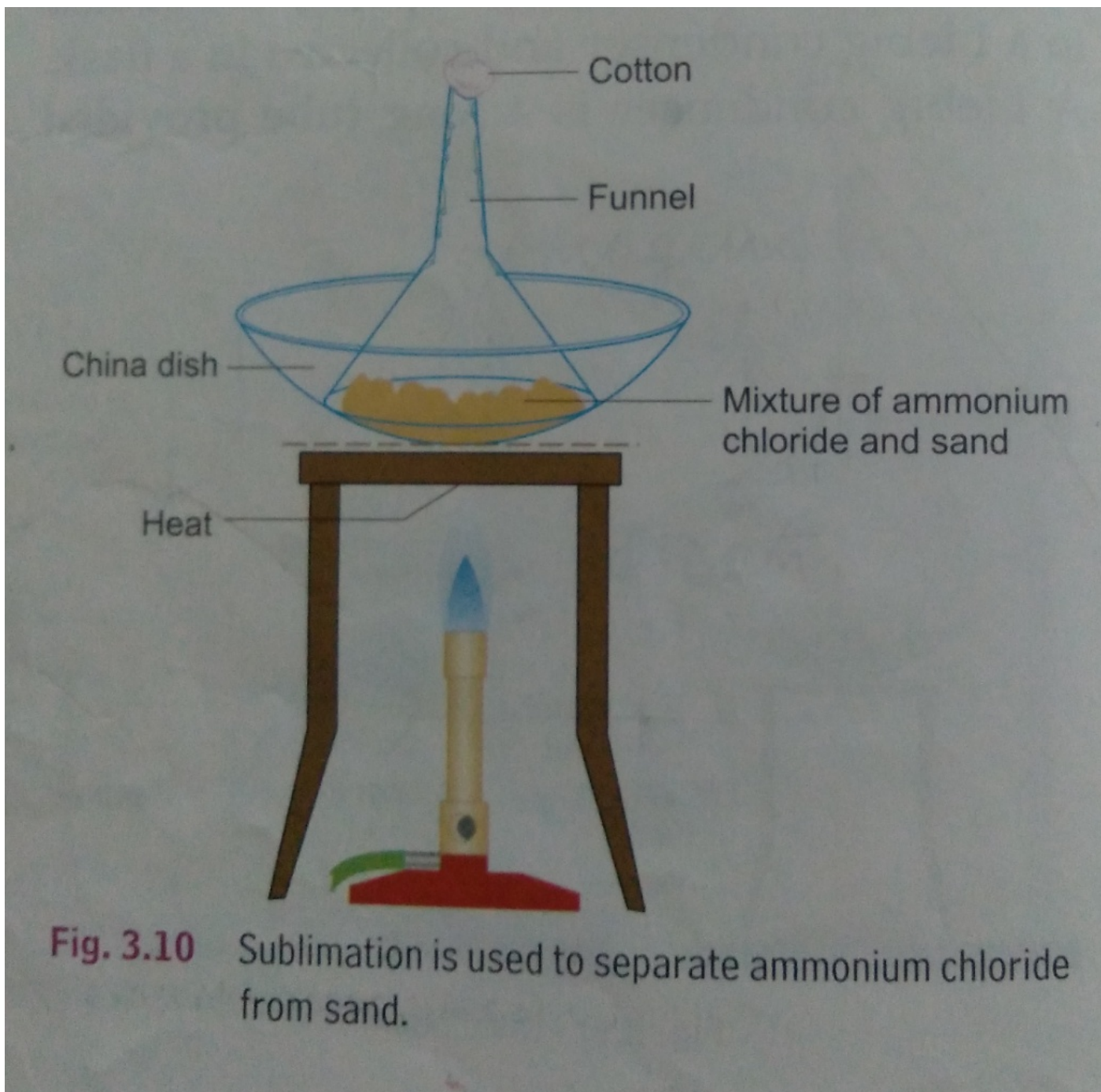
Distillation is performed as shown in figure. The mixture is boiled in a flask and the emerging vapours are cooled in a liebig condenser and collected in a flask.

A lie big condenser is a long tube provided with a jacket through which water is circulated for cooling the vapours in the tube.



3. How can ammonium chloride be separated from sand? Give experimental details?

Ans. Ammonium chloride can be separated from sand by sublimation experimental details are: Mix ammonium chloride with sand and keep the mixture in a dish. Cover the mixture with an inverted glass funnel and plug loosely the opening of the funnel with cotton. Heat the dish gently on a wire gauze. Ammonium Chloride sublimes and collect in the cotton and cooler part of the funnel whereas sand remains the dish.



4. Describe the technique of paper chromatography.

Ans. This technique is used when all the components of a mixture are soluble in a solvent.

Chromatography is based on the principle of absorption. In absorption a substance is called a absorbate and another substance called an absorbent. Generally, Alumina (Aluminium oxide), silica (Silicon dioxide) or cellulose is used as an absorbent. The technique using chromatographic paper is called paper chromatography.

**Choose the correct option.**

1. Which of the following is a homogeneous mixture?

Ans. d) a nitrogen- Oxygen mixture.

2. Which of the following is a heterogeneous mixture?

Ans. a) A salt- pepper mixture

3. Which of the following is an alloy?



Ans.c) stainless steel

4. Which of the following method would you use for separating the pigment of an ink?

Ans.d) paper chromatography

5. Which of the following method would use used for separating iron from sulphur particles?

Ans.a) magnetic separation

6. Which of the following methods can be used to separate mustard oil and water from a mixture of the two?

Ans.a) separating funnel

### Match the following

1. A Chalk -water mixture

a) a heterogeneous solid- liquid mixture

2. A glucose solution

b) a homogeneous solid- liquid mixture

3. A fizzy drink

c) a gas -liquid mixture

4. Smoke

d) a solid -gas mixture

5. Air

e) a gaseous mixture

### Fill in the blanks

1. The components of a mixture are presented in any proportion.

2. The components of a mixture do not retain their properties.

3. The components of mixture can be separated by physical means.

4. Water containing dissolved air in a gas liquid mixture.

5. An alloy is a homogeneous solid mixture.

6. Ammonium chloride can be sublimed.

7. Complete the following table.

7. Complete the following table.

	Types of mixture	Example	Method of separation
(i)	A heterogeneous solid-liquid mixture	Muddy water	Sedimentation and filtration
(ii)	A <u>homogenous liquid mixture</u>	Pigments of an ink	<u>chromatography</u>
(iii)	A heterogeneous solid mixture containing one soluble constituent	<u>Sand + Salt</u>	<u>filtration and evaporation</u>
(iv)	A heterogeneous liquid mixture	<u>Oil + water</u>	Using a separating funnel
(v)	A <u>heterogeneous solid mix.</u>	<u>Ammonium chloride + Sand</u>	Sublimation

Write T for true and F for false for the following statement.

1. Black coffee is a pure substance. F
2. The components of a mixture chemically react with one another. F
3. Mist is a homogeneous mixture. F
4. Paper chromatography is based on the principle of absorption. T
5. Distilled water is a pure water. T