

8. (a) Melting point of ice is 0 °C. What is the freezing point of water?
(b) Steam at 100 °C liquefies to water at the same temperature. What is the boiling point of water?
- Ans.** (a) Freezing point of water is 0 °C. It is because melting point and freezing point have the same numerical value.
(b) Boiling point of water is 100 °C. It is because boiling point and liquification point have the same numerical value.
9. (a) Define the following terms :
(i) Sublimation (ii) Sublime (iii) Sublimate
(b) Which of the following substances sublime:
(i) Ice (ii) Dry ice (iii) Iodine
(iv) Mercury (v) Ammonium chloride (vi) Camphor
- Ans.** (a) (i) Sublimation: The process by which a solid directly changes to its gaseous state on heating and the gaseous state on cooling, directly changes to the solid state, is called sublimation.
(ii) Sublime: The gaseous state formed directly from the solid state is called sublime.
(iii) Sublimate: The solid state formed directly from the gaseous state is called sublimate.
(b) (i) Dry ice (ii) Iodine
(iii) Ammonium chloride (iv) Camphor.
10. State your observations in the following cases:
(i) Ammonium chloride (solid) is heated in a dry hard glass test tube.
(ii) Carbon dioxide gas is compressed to 70 atmospheric pressure.
(iii) Iodine crystals are heated in a dry hard glass test tube.
- Ans.** (i) (a) White ammonium chloride directly changes into dense white fumes without melting.
(b) Dense white fumes condense on the cooler parts of the test tube to form a white powdery solid mass of ammonium chloride.
(ii) Carbon dioxide gas changes to solid state, without changing to liquid state.
(iii) (a) The brownish black crystals of iodine directly change into beautiful violet vapours, without changing to the liquid state.
(b) The violet vapours condense on the upper cooler parts of the test tube to form brownish black tiny shining crystals of iodine.
11. (a) Distinguish between a gas and a vapour.
(b) (i) Name a gas used at low pressure in an electric filament lamp.
(ii) Name a vapour used at low pressure in fluorescent tube light.
- Ans.** (a)(i) A gas is a state of matter, which exists in the gaseous state, such that its temperature is equal to or more than the boiling point of the liquid from which it is formed.
A vapour is a state of matter, which exists in the gaseous state, such that its temperature is less than the boiling point of the liquid from which it is formed.
(ii) A gas obeys Boyle's law and Charles' law, but not a vapour.

- (b) (i) Argon is used in electric filament lamp.
(ii) Mercury vapour is used in fluorescent tube light.

12. Liquids as well as gases are called fluids. State two ways how they differ from each other?

- Ans. (i) The intermolecular spaces in case of gases are very large as compared to liquids.
(ii) Liquids have one free surface, but gases have no free surface.

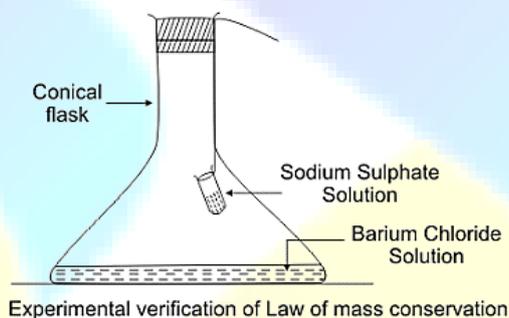
13. How is the boiling point of water affected in the following cases:

- (i) Increase in atmospheric pressure?
(ii) Decrease in atmospheric pressure?
(iii) Addition of common salt in it?

- Ans. (i) Boiling point increases with the increase in atmospheric pressure.
(ii) Boiling point decreases with the decrease in atmospheric pressure.
(iii) Boiling point increases with the addition of common salt.

14. How will you verify the law of conservation of mass, using barium chloride and sodium sulphate solutions?

- Ans. (i) Pour about 10 ml of a solution of barium chloride in a conical flask

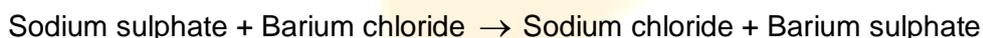


(ii) Take an ignition tube and tie to its neck a thin and long cotton thread. Half fill this tube with sodium sulphate solution. Carefully lower the ignition tube in the conical flask, taking care that its contents do not spill in the barium chloride solution. Fix a rubber cork at the mouth of the conical flask, so that the ignition tube remains suspended above the barium chloride solution.

(iii) Find the mass of the conical flask with the help of a physical balance.

This is the mass of reactants and the flask taken together.

(iv) Now, tilt the conical flask so that the contents of the ignition tube mix with barium chloride. You will notice that a white precipitate is formed.



(Sol) (Sol) (Sol) (White ppt.)

(v) Again find the mass of the conical flask. You will notice that there is no change in mass. From this observation, it implies that mass of reactants is equal to the mass of products during a chemical change.

Thus, the experiment clearly proves that mass can neither be created nor destroyed during a chemical change.

15. When wood is burnt, the mass of ash formed is far smaller than the mass of wood. Does it mean that law of conservation of mass is not obeyed. Explain your answer.

Ans. Apparently, it appears that the law of conservation of mass is not obeyed.

However, if we could calculate the mass of wood and the mass of oxygen, which burns it and also the mass of ash, the mass of carbon dioxide and the mass of water formed, it will be seen that mass of reactants is equal to the mass of products. Thus, the law of conservation of mass is obeyed.