

(A) (i) Write true or false for each statement:

a) The temperature of a substance remains unaffected during its change of state. \rightarrow True

b) Ice melts at 100°C . \rightarrow False

c) Water at 100°C has more heat than steam at 100°C . \rightarrow False

d) Evaporation of a liquid causes cooling. \rightarrow True

e) Water evaporates only at 100°C . \rightarrow False

f) Boiling takes place at all temperatures. \rightarrow False

g) Evaporation takes place over the entire mass of a liquid. \rightarrow False

h) The process of a gas converting directly into solid is called vaporization. \rightarrow False

nt : i) At high altitudes, water boils above 100°C . \rightarrow False

j) The melting point of ice is 0°C \rightarrow True

② Fill in the blanks

a) Evaporation takes place at all temperatures.

b) Freezing process is just the reverse of melting.

c) Sublimation is a process that involves direct conversion of a solid into its vapour on heating.

d) The temperature at which a solid converts into a liquid is called its melting point.

e) The smallest unit of matter that exists freely in nature is called molecule.

f) Molecules of a substance are always in a state of motion and so they possess kinetic energy

g) Intere-molecular space is maximum in gases less in liquids and the least in solids

h) Intere-molecular force of attraction is maximum in solids, less in liquids and the least in gases

③ Match the following: -

a) Molecules → matter

b) 100°C → water boils

c) 0°C → water freezes

d) At all temperatures → evaporation

e) Camphore → changes from solid to gas

4) a) The inter-molecular force is maximum in :

→ Solids

b) The inter-molecular space is maximum in :

→ gases

c) The molecules can move freely anywhere in :

→ gases.

d) The molecules move only within the boundary in :

→ liquids.

e) The temperature at which a liquid gets converted into its vapour state is called its :

→ boiling point.

f) Rapid conversion of water into steam is an example of :

→ vaporization

g) Evaporation takes place from the :

→ surface of liquid

h) Boiling takes place from :

→ throughout the liquid.

(B) Short / Long Answer questions.

(1) Define the term matter. What is it composed of?

→ Matter is something which occupies space, has mass and can be perceived by our senses.

Composition :

* The matter was made up of five tetras :
Akash, Vayu, Agni, Jal and Prithvi.

* Matter is made up of tiny particles called molecules.

② State three properties of molecules of matter?

→ Three properties of molecules of matter are :-

* Small size

* They have spaces between them

* They attract each other.

③ What do you mean by inter molecular spaces?

→ The molecules of matter exert a force of attraction on each other. This force is called inter molecular space.

④ How do they vary in different states of matter?

- * Solids have tightly packed molecules
- * Liquids have loosely packed molecules
- * Gases have very loosely packed molecules.

⑤ Which of the following are correct?

→ a) Solids have definite shape and definite volume.

b) Liquids have definite volume but no definite shape.

⑥ Discuss the three states of matter: solid, liquid and gas on the basis of molecular model.

→ * Solids have tightly packed molecules.

* Liquids have loosely packed molecules.

* Gases have very loosely packed molecules.

⑦ What do you mean by "the change of state"? Write the flow chart showing the complete cycle of change of state.

→ The process of change from one state to another state either by absorption or rejection of heat at a constant temperature is called change of state.

⑧ Differentiate between melting point and boiling point, giving at least one example of each

→ Melting point

Boiling point

* The change from the solid state to the liquid state on a fixed temp. is called melting.

* The change from liquid state to gas on heating at a constant temp. by absorption of heat is called as boiling.

* For e.g. → ice (solid) melts at 0°C into water (liquid) when heated.

* E.g. → Boiling point of water is 100°C

⑨ Describe the process of condensation and sublimation with examples.

→ The change from vapour state to liquid state at a constant temp. on rejecting heat is called condensation.

E.g. → Steam (gas) at 100°C condenses to water (liquid) at 100°C on cooling

Sublimation is the process by which a solid when heated, directly changes into its vapour without first changing into liquid

E.g. → Dry ice.

⑩ Explain the terms melting and melting point.

→ The change from the solid state to the liquid state on heating at a fixed temperature is called melting.

* The temperature at which a solid changes into liquid without further

increase in temperature is called the melting point.

11) Describe an experiment to demonstrate that a substance absorbs heat during melting without change in its temperature.

→ Take a test tube. Put some wax in the test tube. Clamp the test tube in a vertical stand and place the test tube in a beaker of water placed on a wire gauze at a tripod stand. Clamp a thermometer in the same vertical stand and insert the thermometer in the test tube such that the bulb of the thermometer is inside the wax. Heat the beaker over the flame of a burner.

12) Explain the terms vaporization and boiling point.

→ When a liquid is heated it changes into its vapour at a fixed temperature. This process is called vaporization.

* The temperature at which a liquid changes into vapour without further increases in temperature is called boiling point.

13) A liquid can change into vapour state. Name the processes involved in the two cases.

a) at a fixed temperature

→ Vaporization or boiling

b) at all temperature

→ Evaporation

15) Describe an experiment to demonstrate that water absorbs heat during boiling at a constant temperature.

→ Take a beaker. Pour some water in the beaker. Place the beaker on

Wire gauze placed over a tripod stand. Clamp a thermometer in a retort stand and insert it in the beaker. Heat the beaker over the flame of a burner.

You will notice that the temperature of water rises continuously till the water starts boiling at 100°C . Once the water starts boiling, its temperature does not rise any further, although the heat is still being supplied. Now the bubbles formed through the water are seen. At this temperature water begins to boil and changes into steam. Thus, the boiling point of water is 100°C .

16) State (a) the melting point of ice and (b) the boiling point of water.

→ Melting point of ice is 0°C
Boiling point of water is 100°C

17) What is evaporation?

→ Evaporation is a process in which a liquid changes into vapour at all temperatures from the surface of a liquid.

18) State three factors which affect the rate of evaporation of a liquid.

→ * The temperature of liquid.

* The area of the exposed surface.

* The nature of the liquid.

19) Wet clothes dry more quickly on a warm day than on a cold humid day. Explain.

→ Wet clothes dry more quickly on a warm day than on a cold humid day because the rate of evaporation on a hot day is greater than that on a cold humid day.

20) Water in a dish evaporates faster than in a bottle. Give reason.

→ The water in a dish evaporates faster than in a bottle because the surface area of the dish is larger than the surface area of bottle and the evaporation takes place faster when there is a larger surface comparing to smaller surface.

(21) Why are volatile liquids such as alcohol and spirit stored in tightly closed bottles?

→ Volatile liquids such as alcohol and spirit stored in tightly closed bottles because they evaporated easily.

(23) Why is cooling produced on evaporation of a liquid?

→ The process of changing liquid into gas both below and at the boiling temperature is called Evaporation. Evaporation gain heat from the surrounding as a result there is a loss of heat in the surrounding the cooling process start and the surface become cool. This is the reason why evaporation produced cooling

(24) Explain with an example that when a liquid evaporates, it takes heat from its surrounding.

→ When we put a drop or two drops of spirit on our hand, it evaporates and ~~most~~ we feel a cooling effect on our hand. The spirit took heat from the surrounding area that is of our hand and evaporated. We can thus conclude that when a liquid evaporates, it takes heat from its surroundings.

(25) Give two applications of evaporation.

→ The two applications of evaporation are :-

* In summer water gets cooled in the earthen pot.

* Putting wet cloth on the forehead of a patient having high fever.

(26) Explain why in hot summere days water remains cool in earthern pots

→ The water kept in an earthern pot seeps into the small pores in the pot and evaporates from the surface of the pot. The heat required for evaporation is taken from water inside the pot, thus cooling the water stored inside. This is the reason why on hot summere days water remains cool in earthern pot.

(27) A patient suffering from high fevare is advise to put wet cloth strips on his forehead. why?

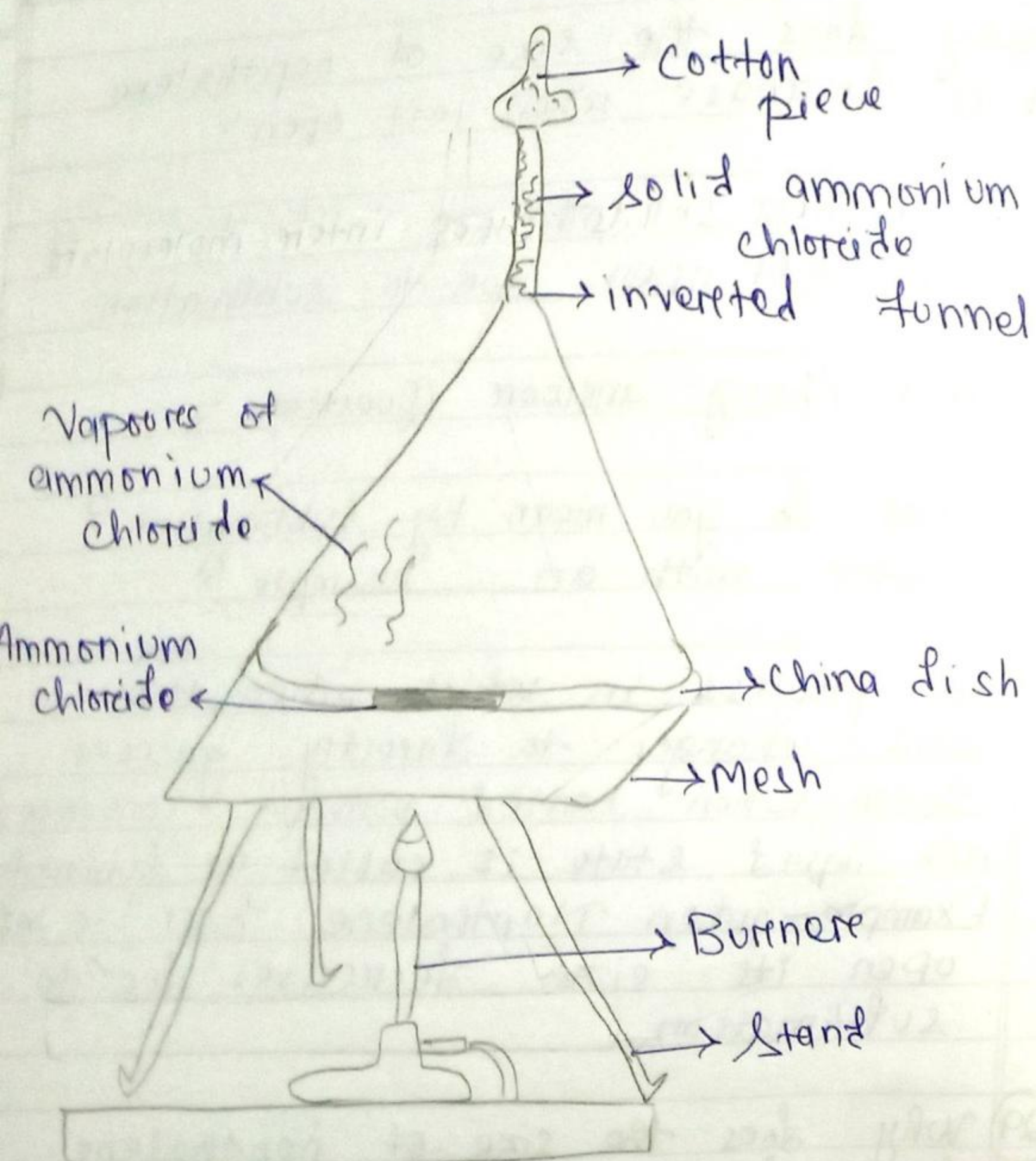
→ A patient suffering from high fevare is advised to put wet cloth strips on his forehead because the water evaporates and absorbs the heat from the body and that causes cooling and also helps in reducing the body temperature.

28) What do you mean by sublimation?
Explain with an example?

→ The process in which when the solid changes to directly gaseous form when heated without converted into liquid state is called as sublimation.
Example - when Naphthalene ball is left open its size decreases due to sublimation.

29) Why does the size of naphthalene ball decrease when left open?

→ The size of naphthalene ball decreases when left open due to sublimation.



30 Describe an experiment to demonstrate the process of sublimation

→ Take some camphor or ammonium chloride. Powder it. Keep the powder in a china dish. Now cover the china dish with an inverted funnel as shown in the figure. Then close the end of funnel with a piece of cotton.

Now place the dish on a wire mesh kept on a tripod stand to heat it by a burner. You will notice that the fumes (i.e. vapours) of ammonium chloride are seen in the funnel above the dish. These vapours upon rising, get cooled and change to solid ammonium chloride which gets deposited on the inner wall of the funnel. Thus, ammonium chloride on heating changes directly from solid to vapour and these vapours on cooling directly change to solid ammonium chloride.