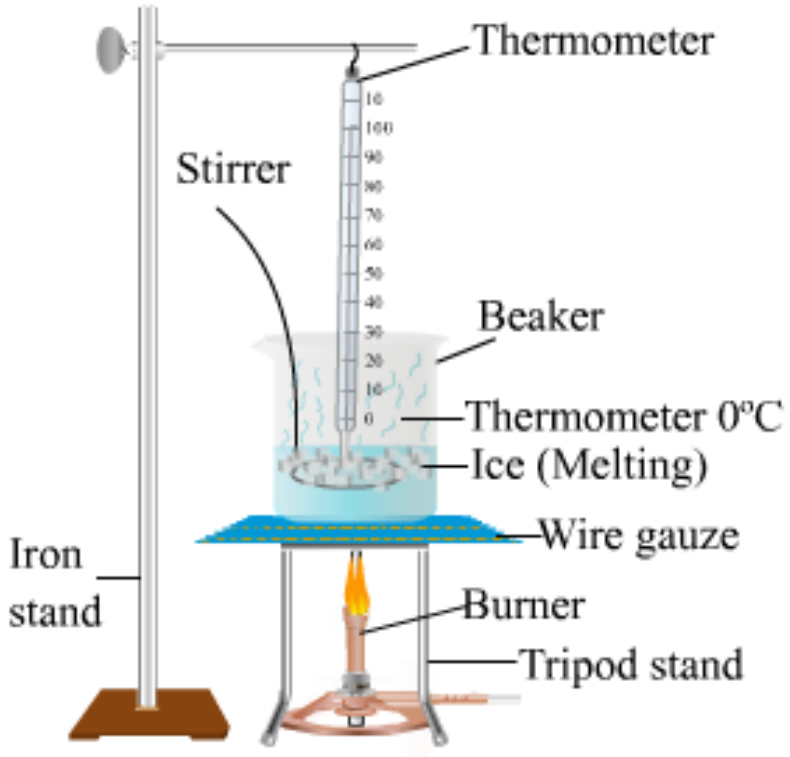
Solution: 31
Steam causes more severe burns than boiling water because the steam contains more heat, in the form of latent heat, than boiling water. Hence, when steam falls on our skin and condenses to produce water, it gives out 22.5×10^5 Joules per kilogram more heat than boiling water.
Solution: 32
The latent heat of fusion of ice is 3.34×10^5 J/Kg. It means that 3.34×10^5 joules of heat is required to change 1 Kg of ice at its melting point of 0°C into water at the same temperature (of 0°C). This means that 1 Kg of ice at 0°C has 3.34×10^5 joules of less heat than 1 kg of water at the same temperature of 0°C.
Solution: 33
1 Kg of steam at 100°C has more heat than water at the same temperature because when water changes into steam, it absorbs latent heat, but when steam condenses to form water, an equal amount of latent heat is given out.
Solution: 34
It is because of the fact that steam at 100°C contains more heat, in the form of latent heat, than boiling water at 100°C. Hence, steam would give out 22.5×10^5 joules per kilogram more heat than boiling water.
Solution: 35
Steam causes more severe burns than boiling water because the steam contains more heat, in the form of latent heat, than boiling water. Hence, when steam falls on our skin and condenses to produce water it gives out 22.5×10^5 joules per kilogram more heat than boiling water.
Solution: 36
The temperature of a substance remains constant during the change of state because the heat gets used up in changing the state by overcoming the forces of attraction between the particles.
Solution: 37
(a) Either solid (as ice) or liquid as 0°C is the melting point of ice as well as the freezing point of water.
(b) Liquid.
(c) Either a liquid or a gas (steam) as 100°C is the boiling point of water as well as the condensation temperature of steam.
(d) Gas.
Solution: 38
The temperature of a substance remains constant during the change of state though heat is supplied continuously because the heat gets used up in changing the state by overcoming the forces of attraction between the particles.
Solution: 39
The temperature, at which a solid substance melts and changes into a liquid at atmospheric pressure, is called melting point of the substance. The melting point of ice is 0°C.
Solution: 40
The temperature, at which a liquid boils and changes rapidly into a gas at atmospheric pressure, is called boiling point of the liquid. The boiling point of water is 100°C.
Solution: 41
(a) Melting - The process in which a solid substance changes into a

liquid on heating is called melting.
(b) Boiling - The process in which a liquid substance changes into a gas rapidly on heating is called boiling.
Solution: 42
(a) Condensation - The process of changing a gas (or vapour) to a liquid by cooling is called condensation.
(b) Freezing - The process of changing a liquid into a solid by cooling, is called freezing.
Solution: 43
This happens because naphthalene balls undergo sublimation. The naphthalene balls keep on forming naphthalene vapours slowly which disappear into the air.
Solution: 44
Gases can be liquefied by applying pressure and lowering temperature. The temperature needs to be lowered because when the gas is compressed too much, then heat is produced due to compression. Cooling lowers the temperature of the compressed gas and helps in liquefying it.
Solution: 45
Ammonia gas is liquefied by applying high pressure and lowering the temperature of the gas. Lowering the temperature is done by continuously pouring water over the coils carrying the compressed gas.
Solution: 46
There is a lot of space between the particles of a gas. If enough pressure is applied to the gas, it gets highly compressed. The particles of gas get so close together that they start attracting each other sufficiently to form a liquid. And we say that the gas has liquefied.
Solution: 47
On a hot day, when our body temperature tends to rise too much, our sweat glands give out moisture (sweat) on our skin. When this sweat evaporates, it takes the latent heat of vaporization from our body hence making our body cool.
Solution: 48
All water on earth does not get evaporated on hot summer days because of the high value of latent heat of vaporization of water.
Solution: 49
Liquids like alcohol, petrol and perfume are volatile (which can change into vapours easily). When we apply alcohol to the back of our hand, we find that it dries up quickly and while it is drying, the hands feel cold. This happens due to the fact that to change from liquid to the vapour state, alcohol requires latent heat of vaporization. The alcohol takes this latent heat of vaporization from the hand due to which the hand loses heat and we feel cold.
Solution: 50
The cooling in a desert room cooler is caused by the evaporation of water. The higher temperature on a hot day increases the rate of evaporation of water, and the dryness of air also increases the rate of evaporation of water. And due to this increased rate of evaporation of water, a desert room cooler works better on a hot and dry day.
Solution: 51
The earthen pot (or matka) has a large number of extremely small pores on its walls. Some of the water kept in the earthen pot continuously keeps seeping through these pores to the outside of the pot. This water evaporates continuously by taking the latent heat of vaporization from the earthen pot and the remaining water. In this way, the earthen pot and remaining water loses heat and gets cooled.
Solution: 52
We should wear cotton clothes in hot summer days because we perspire more through the pores of the skin during such days. Since, sweat is mainly water and cotton clothes are good absorber of water, they absorb the sweat quickly and expose it to the

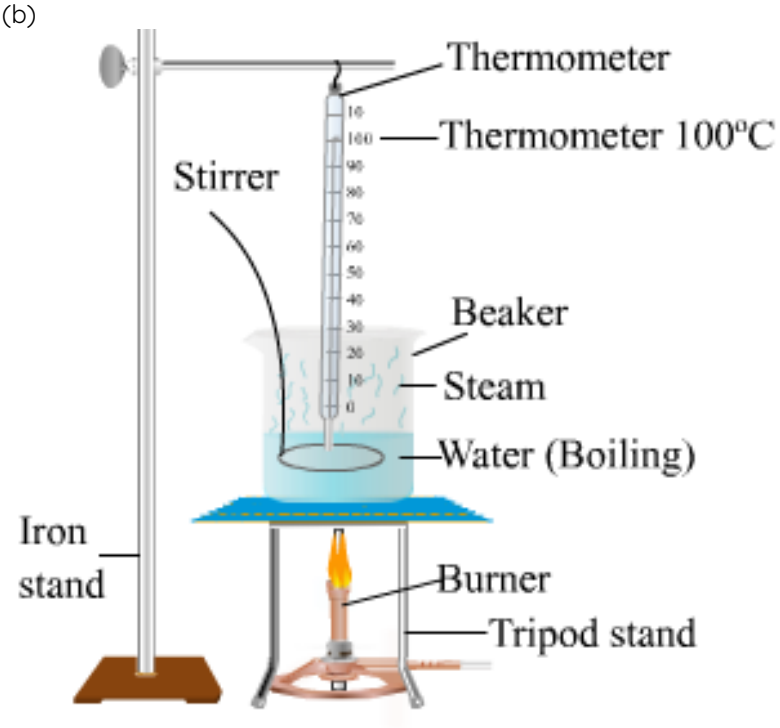
atmosphere for evaporation. The evaporation of sweat from the cotton clothes takes the latent heat of vaporization from our skin hence the skin loses heat and makes us feel cool and comfortable.
Solution: 53
If the hot tea or milk is taken in a cup, then due to the narrow shape of the cup, the surface area of hot tea in the cup is comparatively small. Due to this, the evaporation of hot tea is slow; cooling caused by evaporation is less and hence the hot tea remains appreciably hot for a much longer time. On the other hand, the saucer has a large surface area due to which the tea taken in the saucer evaporates much faster, thus cooling it quickly and making it convenient to sip or drink.
Solution: 54
Acetone (or perfume) is volatile in nature. When we apply it to our palm, we feel cold. This happens due to the fact that to change from liquid to the vapour state, acetone requires latent heat of vaporization. Acetone takes this latent heat of vaporization from the hand due to which the palm loses heat and feels cold.
Solution: 55
The presence of water vapour in air can be demonstrated by the following experiment: We take a steel tumbler and put some well crushed ice in it. Allow the steel tumbler to stand undisturbed for about 5 minutes with the ice in it. We would observe that a large number of tiny drops of water appear on the outer surface of the steel tumbler. This happens because the air around the steel tumbler contains water vapour in it. When these water vapour come in contact with the cold, outside surface of steel tumbler, they condense to form tiny drops of liquid.
Solution: 56
(a) The latent heat of fusion of a solid is the quantity of heat in joules required to convert 1 Kg of the solid (at its melting point) to liquid, without any change in temperature. The latent heat of fusion of ice is 3.34×10^5 J/Kg.
(b)



Latent heat of fusion

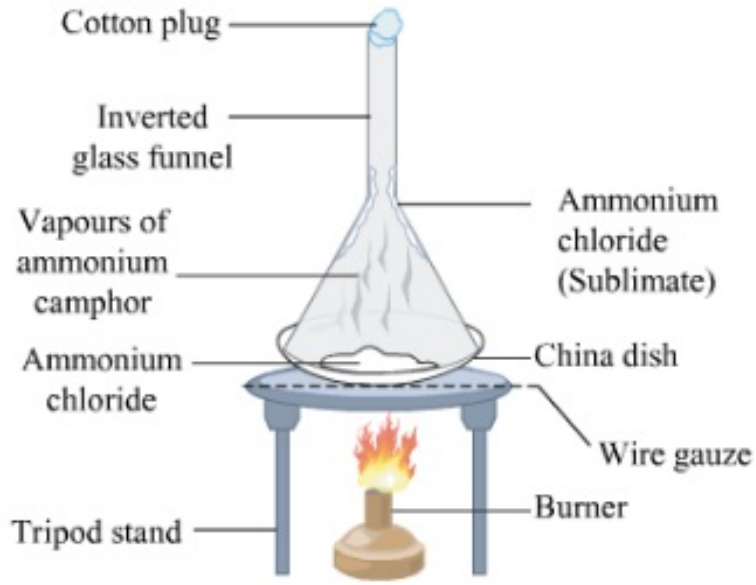
Solution: 57
(a) The latent heat of vaporization of a liquid is the quantity of heat

in joules required to convert 1 Kg of the liquid (at its boiling point) to vapour or gas without any change in temperature. The latent heat of vaporization of water is 22.5 x 10^5 J/Kg.
(b)

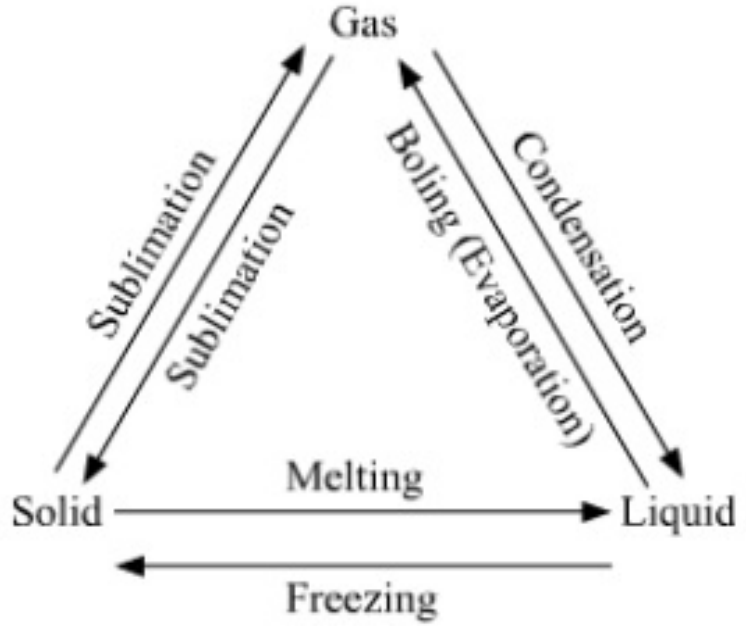


atent heat of vaporisation

Solution: 58
(a) The changing of a solid directly into vapours on heating and of vapours into solid on cooling is known as sublimation. The common substances which undergo sublimation are Camphor and Naphthalene.
(b)



Solution: 59
(a) The physical states of matter can be changed by changing pressure and changing the temperature.
(b)



Solution: 60
(a) The process of a liquid changing into vapour (or gas) even below its boiling point is called evaporation. The factors affecting rate of evaporation are:
(i) Temperature.
(ii) Surface area.
(iii) Humidity.
(iv) Wind speed.
(b) Evaporation causes cooling because when a liquid evaporates, it draws or takes the latent heat of vaporisation from 'anything' which it touches and hence the substances or surroundings lose heat and get cooled.

********** END **********