TEACHERS FORUM®

QUESTION BANK

(solved)

Class IX

SCIENCE

SUBJECT EXPERTS

CONTENTS

1 MATTER IN OUR SURROUNDINGS

IMPORTANT POINTS

Particle Nature of Matter

• Anything that occupies space and has mass and is felt by senses is called matter.

• Matter is the form of five basic elements the Panch tatva – air , earth ,fire , sky and water.

Characteristics of particles of matter

• Made of tiny particles. • Vacant spaces exist in particles.

• Particles are in continuous motion.

• Particles are held together by forces of attraction.

Basis of Classification of Types

• Based upon particle arrangement • Based upon energy of particles

• Based upon distance between particles

• The changing of solid directly into vapours on heating and vapours into solid on cooling is called sublimation. Ex. Ammonium chloride, camphor & iodine.

• On increasing the temperature of solids, the kinetic energy of the particles increases which overcomes the forces of attraction between the particles thereby solid melts and is converted to a liquid.

• The temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point.

• The melting point of ice is 273.16 K.

• The process of melting, that is, change of solid state into liquid state is also known as fusion.

• Increasing or decreasing the pressure can change the state of matter. Applying pressure and reducing temperature can liquefy gases.

• In the case of liquids, a small fraction of particles at the surface, having higher kinetic energy, is able to break away from the forces of attraction of other particles and gets converted into vapour.

• This phenomenon of change of a liquid into vapours at any temperature below its boiling point is called evaporation.

• The rate of evaporation increases with an increase of surface area.

• With the increase of temperature, more number of particles get enough kinetic energy to go into the vapour state.

• Humidity is the amount of water vapour present in air. The air around us cannot hold more than a definite amount of water vapour at a given temperature. If the amount of water in air is already high, the rate of evaporation decreases.

• Wind speed : the higher the wind speed, the more evaporation.

• Boiling is a bulk phenomenon. Particles from the bulk (whole) of the liquid change into vapour state.

• Evaporation is a surface phenomenon. Particles from the surface gain enough energy to overcome the forces of attraction present in the liquid and change into the vapour state.

• Kelvin is the SI unit of temperature, 0^0 C = 273.16 K. We take 0^0 C = 273 K.

• Atmosphere (atm) is a unit of measuring pressure exerted by a gas. The SI unit of pressure is Pascal (Pa)

NCERT SOLUTIONS

(NCERT, page - 3)

1. Which of the following are matter?

   Chair, air, love, smell, hate, almonds, thought, cold, colddrink, smell of perfume.

Ans. Chair, air, almonds, cold drink, smell of perfume.

2. Give reasons for the following observation:

   The smell of hot sizzling food reaches you several metres away, but to get the smell from cold food you have to go close.

Ans. Cold food particles would take a very long time to diffuse and we have to go close to have a smell of it.

3. A diver is able to cut through water in a swimming pool. Which property of matter does this observation show?

Ans. Particles of water attract each other.

4. What are the characteristics of the particles of matter?

Ans. (i) Particles of matter have space between them

(ii) Particles of matter are continuously moving

(iii) Particles of matter attract each other.

(NCERT page - 6)

1. The mass per unit volume of a substance is called density. (density = mass/volume).

Arrange the following in order of increasing density – air, exhaust from chimneys, honey, water, chalk, cotton and iron.

Ans. Air < exhaust from chimneys < cotton < water < honey < chalk < iron.

2. (a) Tabulate the differences in the characterisitcs of states of matter.

(b) Comment upon the following:

rigidity, compressibility, fluidity, filling a gas container, shape, kinetic energy and density.

Ans.

Characteristics	Solid	Liquid	Gas
Intermolecular attraction	Very strong	Less strong	Weak
Density	Highest	Lower than solid	Low density
Fluidity	Do not possess	Possess	Possess
Diffusion	Exremely slow	Faster than solids	Very rapid
Energy of particles	Least energy	Higher than solids	Maximum

3. Give reasons

(a) A gas fills completely the vessel in which it is kept.

(b) A gas exerts pressure on the walls of the container.

(c) A wooden table should be called a solid.

(d) We can easily move our hand in air but to do the same through a solid block of wood we need a karate expert.

Ans. (a) In gases the intermolecular space is more and the intermolecular force of attraction is weak. Due to this fact the particles of a gas are completely free to move in the whole space available to them.

(b) The gas particles moving randomly at high speeds colloide with each other and also with the walls of the container. This exerts a pressure on the walls of the container.

(c) (i) It has definite shape and volume (ii) It cannot be compressed.

(d) • Intermolecular forces between constituent particles are negligible in air whereas it is very strong in solids.

• The intermolecular space between constituent particles is very large in air and it is negligible in solids.

• The particles in air have sufficient freedom of movement whereas in solids they have high rigidity.

4. Liquids generally have lower density as compared to solids. But you must have observed that ice floats on water. Find out why.

Ans. Density of ice is less than that of water.

(NCERT page - 9)

1. Convert the following temperature to celsius scale: (a) 300 K (b) 573 K.

Ans. (a) 300 K = 300 - 273 = 27^0C (b) 573 K = 573 - 273 = 300^0C

2. What is the physical state of water at: (a) 250ºC (b) 100ºC ?

Ans. (a) Gas (b) Vapour

3. For any substance, why does the temperature remain constant during the change of state?

Ans. Here the heat given to the substance is used up in changing the state of matter.

4. Suggest a method to liquefy atmospheric gases.

Ans. Atmospheric gases can be liquefied by applying high pressure and low temperature.

(NCERT page - 10)

1. Why does a desert cooler cool better on a hot dry day?

Ans. In summer season dry or hot air increases the rate of evaporation, and hence coolness is more. In rainy season as air is humid, rate of evaporation of water is comparatively low and hence cooling is less.

2. How does the water kept in an earthen pot (matka) become cool during summer?

Ans. Earthern pots have tiny pores on their surface through which water keeps seeping out. This water gets evaporated by absorbing latent heat from water inside the pot and the water in the pot becomes cool.

3. Why does our palm feel cold when we put some acetone or petrol or perfume on it?

Ans. Acetone has very low boiling point. When we put some acetone on our palm, the particles of it gain energy from our palm and evaporate quickly which causes cooling.

4. Why are we able to sip hot tea or milk faster from a saucer rather than a cup?

Ans. As the surface area of saucer is more, evaporation is more.

5. What type of clothes should we wear in summer?

Ans. Cotton being a good absorber of water, it helps in absorbing the sweat and expose it to the atmosphere for easy evaporation which causes cooling effect.

NCERT EXERCISES

1. Convert the following temperatures to the Celsius scale. (a) 293 K (b) 470 K.

Ans. (a) 293K = 293 - 273 = 20^oC (b) 470K = 470 - 273 = 197^oC

2. Convert the following temperatures to the Kelvin scale. (a) 25°C (b) 373°C.

Ans. (a) 25^0C + 273K = 298 K (b) 373^0C + 273K = 646 K

3. Give reason for the following observations.

(a) Naphthalene balls disappear with time without leaving any solid.

(b) We can get the smell of perfume sitting several metres away.

Ans. (a) Naphthalene sublimes and changes directly into gaseous state. Hence size of the balls decreases and ultimately they disappear.

(b) The vapours of perfume diffuse quite fast and mix with the particles of air and can reach a person sitting several meters away.

4. Arrange the following substances in increasing order of forces of attraction between the particles— water, sugar, oxygen.

Ans. Oxygen < Water < Sugar.

5. What is the physical state of water at - (a) 25°C (b) 0°C (c) 100°C ?

Ans. (a) Liquid (b) solid (c) Gas

6. Give two reasons to justify—

(a) water at room temperature is a liquid.

(b) an iron almirah is a solid at room temperature.

Ans. (a) It has fluidity and takes the shape of the container.

(b) It is rigid and has a fixed shape.

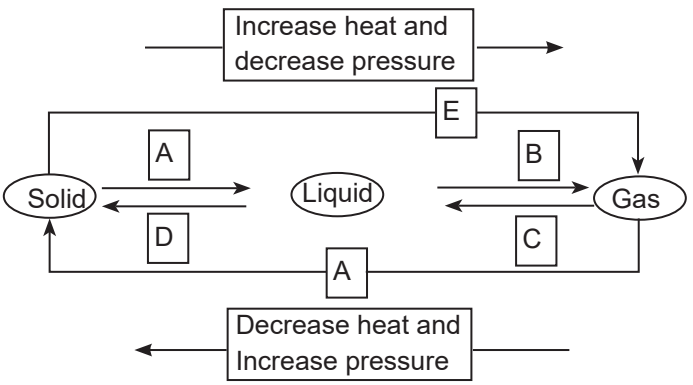
7. Why is ice at 273 K more effective in cooling than water at the same temperature?

Ans. At 273 K ice can absorb more amount of heat than water due to its latent heat of fusion.

8. What produces more severe burns, boiling water or steam?

Ans. Steam. Because steam has extra hidden heat called latent heat whereas boiling water does not have this hidden heat.

9. Name A,B,C,D,E and F in the following diagram showing change in its state



Ans. A - Fusion B - Vapourisation C - Condensation

D - Solidification E - Sublimation F - Sublimation

Additional Questions and Answers

Exercise 1.1

Topics : Physical Nature of matter, States of matter.

1 MARK

1. State one difference between a gas and a vapour. **(2016)**

Ans. Gas - It is stable state as compared to vapour eg. O_2, H_2

Vapour - It is unstable state. On normal cooling vapour change into liquid state.

2. A rubber band can change its shape on stretching. Will you classify it as solid or not? Justify your answer. **(2016, 2012)**

Ans. Rubber band changes shape under force and regains the shape when the force is removed, so it is classified as a solid.

3. 2 mL of dettol is added to a beaker containing 500 mL of water and stirred. State four observations that you make. **(2016)**

Ans. (1) Level of water remains same

(2) A uniform mixture is formed / a true solution is obtained.

(3) The solution becomes white in colour.

(4) Smell can be detected even on repeated dilution.

4. A small amount of gas is let into a large evacuated chamber. **(2016)**

(a) How much of the chamber gets filled with the gas ?

(b) What property of the gas helps it to do so ?

Ans. (a) Whole chamber (b) The particles move about randomly at high speed (diffusion)

5. Name the state of matter in which : **(2016, 2013)**

(i) Layers of particles can slip and slide over one another easily.

(ii) Particles just move around randomly because of very weak force of attraction.

Ans. (i) Liquid (ii) Gaseous

6. Out of the three states of matter, which cannot be compressed on applying pressure?

Ans. Solids **(2015)**

7. Name the phenomenon that takes place when a few crystals of copper sulphate are dropped in hot water ? Define the term. **(2015, 2012)**

Ans. Diffusion.

Intermixing of particles of two different types of matter on their own is called diffusion.

8. List any two properties of particles of matter. **(2015)**

Ans. (i) Particles have space between them. (ii) Particles are continuously moving.

9. Why does the level of water not change when common salt is dissolved in water ?

Ans. Salt particles are very small and they occupy the space between water molecules.

2 MARKS

10. What is the effect of the following on the rate of diffusion ? **(2016, 2014)**

(a) temperature (b) density of liquid

Ans. (a) Rate of diffusion increases with increase in temperature due to increase in the Kinetic energy of the particles.

(b) Rate of diffusion decreases with increase in density of liquid.

11. Arrange solids, liquids and gases in the ascending order of the following properties :

(a) Inter - particle attraction (b) Rigidity (c) Compressibility **(2016)**

Ans. (a) Gas < liquid < Solid (b) Gas < liquid < Solid (c) Solid < liquid < Gas

12. Give reasons : **(2015)**

(a) Sponge is a solid yet we are able to compress it.

(b) Wet clothes take longer time to dry in rainy season.

Ans. (a) A sponge has minute holes, in which air is trapped. When we press it the air is expelled out and we are able to compress it.

(b) Rate of evaporation decreases with increase in humidity.

13. (a) Write the full form of (i) L.P.G. (ii) C.N.G **(2013, 2012)**

(b) Give one use for each.

Ans. (a) L.P.G. - Liquified petroleum gas, Use: Fuel at home

(b) C.N.G - Compressed natural gas, Use : Fuel for vehicles

14. Predict the physical state of matter in each case from the following characteristics.

(a) It has a definite volume but no definite shape.

(b) It is rigid and highly incompressible.

(c) Kinetic energy of particles is minimum in this state.

(d) It represents the most highly compressible form of matter.

Ans. (a) Liquid (b) Solid (c) Solid (d) gas **(2012)**

3 MARKS

15. Substance 'A' has high compressibility and can be easily liquified. It can take up the

shape of any container. Predict the nature of the substance. Enlist four properties of this state of matter. **(2016)**

Ans. 'A' is a gas.

Properties of gases:

1. Highly compressible. 2. No definite shape and volume.

3. Space between the particle is very large.

4. Intermolecular force of attraction is very weak.

16. A substance 'A' has fixed shape and volume. It is incompressible. Predict the state of the substance. Enlist four properties of this state of matter. **(2016, 2014)**

Ans. It is solid.

Properties: 1. Fixed shape and volume. 2. Rigid 3. Incompressible

4. Cannot flow 5. Least kinetic energy of particles.

17. (a) State one property of solid which liquid does not possess and one property of liquid which solid does not possess.

(b) List any two properties of gases. **(2016)**

Ans. (a) Solid has definite shape while liquid takes the shape of the container.

Liquid can flow whereas solid cannot.

(b) 1. Space between the particles is very large.

2. The force of attraction between the particles is very less. 3. It is highly compressible.

18. Why gases are compressible but not liquids. **(2015)**

Ans. The intermolecular spaces is maximum in gases, whereas intermediate in liquids. Therefore, on cooling or applying pressure, the particles of a gas move closer and hence the volume decreases.

In liquids the particles are already closer and hence can not be brought closer and hence liquids are almost incompressible

19. A gas jar containing air is placed upside down on a gas jar of bromine vapour. It is observed that after some time, the gas jar containing air also becomes completely reddish brown.

(a) Explain why this happens. (b) Name the process involved. **(2015, 2013)**

Ans. (a) Both air and bromine vapours are made up of tiny moving particles. The moving particles of bromine vapour and air collide with each other and bounce about in all directions due to which they get mixed uniformly

(b) Diffusion

20. Describe an activity to show that matter is made up of small particles. **(2015)**

Ans. Activity

(i) Take a 100 ml beaker.

(ii) Fill half the beaker with water and mark the level of water.

(iii) Dissolve some salt with the help of glass rod.

Observation: When salt is dissolved in water, the particles get into the spaces between particles of water and so there is no change in water level.

Conclusion: Matter is made up of small particles

21. Answer the following questions. **(2015, 2012)**

(i) Arrange the following substances in increasing order of force of attraction between the particles.

(a) water (b) hydrogen (c) sand

(ii) Why does the temperature remain constant at the melting point ?

(iii) Which property of gases makes it possible to fill large volume of gases in small cylinders.

Ans. (a) Hydrogen < Water < Sand

(b) Heat gets used up in changing the state by overcoming the forces of attraction between the particles.

(c) High compressibility.

5 MARKS

22. (a) Define : (i) diffusion (ii) Latent heat of fusion **(2016, 2012)**

(b) Which state of matter is characterised by the following properties

(i) A substance with a fixed arrangement of particles

(ii) A substance that has large distance between the particles

(c) A spoonful of sugar is added to a beaker containing 500 mL of water and stirred for a while. State any two observations that you will make. Account for your observations.

Ans. (a) The intermixing of particles of two different types of matter on their own is called diffusion.

Latent heat of fusion is the amount of heat energy required to change 1kg of solid into liquid at its melting point.

(b) (i) Solids state (ii) Gaseous state

(c) 1. Sugar disappears in water 2. Volume of water does not increases.

Inference – There is lot of space between water molecules into which sugar molecules disappear.

Exercise 1.2

Topics : Can matter change its state?, Evaporation.

1 MARK

1. Convert the following temperature to the Kelvin scale. **(2016)**

   (a) 65° C (b) 300°C

Ans. (a) 65 + 273K = 338 K (b) 300 + 273K = 573 K

2. How does spreading of wet clothes quickens their drying ? Explain. **(2016, 2012)**

Ans. Spreading of cloths increases the surface area in contact with surrounding air and thus increases the rate of evaporation.

3. How does temperature affect the rate of evaporation ? **(2015)**

Ans. As the temperature increases rate of evaporation also increases.

4. At what temperature does solid ice and liquid water co - exist together ? **(2015)**

Ans. At the melting point of ice which is 0^0C

5. The molecules of water have more energy as compared to molecules of ice at same temperature. Justify this statement. **(2014, 2012)**

Ans. Water has more energy than ice at same temperature because particles in water have absorbed more energy during the change of state.

6. Write the boiling point and freezing point of water in Kelvin scale. **(2013)**

Ans. Boiling point = 373 K, Freezing point = 273 K

2 MARKS

7. What is effect of increase in temperature on the solid state of matter ? Explain.

Ans. On increasing temperature the KE of solids increases and particles start vibrating and overcome the forces of attraction between them and solid melts. **(2016)**

8. Evaporation is known as surface phenomenon. Justify this statement.

Ans. Particles from surface gain enough energy to overcome the forces of attraction present in the liquid and change into vapours. **(2016, 2014)**

9. (a) Melting points of three solids A, B and C are 298K, 310K and 400K respectively. Arrange these in increasing order of force of attraction between the particles of solid.

   (b) Write full form of (i) L.P.G. (i) C.N.G. **(2015)**

Ans. (a) A < B < C

(b) (i) LPG: Liquified Petroleum Gas (ii) CNG: Compressed Natural Gas

10. Why people sprinkle water on the roof after a hot sunny day. **(2015, 2012)**

Ans. After a hot sunny day, people sprinkle water on the roof or open ground because the large latent heat of vaporisation of water helps to cool the surface. Water takes the heat from the ground.

11. (a) Enumerate the changes that take place inside the matter during the change of states.

(b) When a solid melts, its temperature remains the same. Give reason. **(2015)**

Ans. (a) On increasing temperature, K.E. of the molecules increases and force of attraction between the molecules decrease and the state of matter changes.

(b) This is because the heat supplied to the matter is utilized in changing the state by overcoming the force of attraction.

12. Explain the inter conversion of three states of matter in terms of force of attraction and kinetic energy of the molecules. **(2014, 2012)**

Ans. During the inter conversion of a solid into a liquid, and liquid into gas on increasing temperature, the K.E of the molecules increases and force of attraction among the molecules decreases and vice versa.

3 MARKS

13. While boiling the water a student observed that temperature remains constant at 100°C till whole of water vaporises. Explain. **(2016)**

Ans. Once the change of water into vapours begins, the energy which is supplied is being used up as latent heat. It means heat does not increase. The KE of the particles are used up to overcome the interparticle force between them.

14. (a) Explain the term humidity. How does rate of evaporation depend on humidity ?

(b) Why does a desert cooler cool better in the month of May and June rather than in July and August. **(2016, 2012)**

Ans. (a) Humidity is the amount of water vapours present in the air.

If the amount of water in air is high, rate of Evaporation decreases.

(b) In May or June the air is very hot and dry as compared to July and Aug. So in dry hot air the rate of evaporation of water increases and we get cold air.

15. Give reasons for the following. **(2016)**

(a) Thermometer reading remains constant for a while during melting of a solid even though we continue to heat the solid.

(b) We are able to sip hot tea faster from a saucer rather than a cup.

(c) Earthen pitchers are used to cool water.

Ans. (a) Here the heat gets used up in changing the state by overcoming the force of attraction between the particles.

(b) Evaporation depends on the surface area.

(c) Evaporation causes cooling.

16. (a) The room temperature on Celsius scale is 25°C. What is the room temperature on Kelvin scale ?

(b) State four characteristics of particles of matter. **(2016)**

Ans. (a) 25°C + 273 = 298 K

(b) (i) Matter consists of tiny particles which cannot be seen individually with the naked eye.

(ii) There exists space in between the particles of matter.

(iii) The particles of a matter are not stationary but are continuously moving.

(iv) The particles of matter are held together by forces of attraction.

17. (a) Define the following

(i) Latent heat of fusion (ii) Melting point

(b) List two factors due to which gases show the property of diffusing very fast into other gases. **(2015, 2012)**

Ans. (a) (i) Amount of heat required to change 1kg of a solid at its melting point and at atmospheric pressure into liquid.

(ii) The temperature at which a solid melts to become a liquid at the atmospheric pressure.

(b) High speed of particles and large interparticle distances.

5 MARKS

18. (a) Convert 574 K to the Celsius scale.

(b) What will be the state of water at : (i) 10°C (ii) 275 K (iii) 370 K

(c) Give reason - why water at room temperature is a liquid? **(2016)**

Ans. (i) 574K = 574 - 273 = 301°C

(ii) (a) Liquid (b) Liquid (c) Liquid

(iii) Room temperature is generally above freezing point (0°C) and below boiling point (100°C).

19. Answer the following questions : **(2016, 2014)**

(a) Out of boiling and evaporation which is a surface phenomenon ? Explain.

(b) In the absence of a refrigerator butter is kept wrapped in a wet cloth during summer. Why ?

(c) Why do ice–cream appears colder than water at the same temperature ?

Ans. (a) Evaporation is a surface phenomenon. Here particles from the surface gain

enough energy to overcome the forces of attraction present in the liquid and change into vapour state.

(b) Due to wet cloth the temperature is comparatively lower than room temperature so butter does not melt when remain wrapped in wet cloths.

(c) Ice cream at 273 K will take latent heat from the medium to convert itself into liquid at 273 K but in water such condition is not possible.

20. What is evaporation ? In the following examples state which factor is responsible for the change in rate of evaporation and how ?

(i) Cloths dry faster on a windy day.

(ii) Wet clothes dry faster on spreading them.

(iii) Clothes dry faster in sun than in shade.

(iv) Clothes take longer time to dry on a rainy day. **(2016)**

Ans. Phenomenon of change of liquid into vapours at any temperature below its boiling point is called evaporation.

(i) Wind : As wind increases rate of evaporation increases.

(ii) Surface area : As surface area increases, rate of evaporation increases.

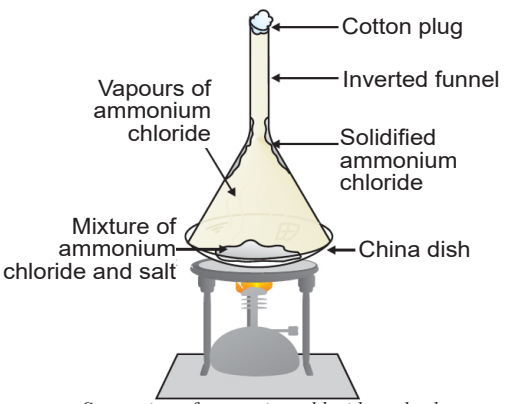
(iii) Temperature : As temperature increases rate of evaporation increases.

(iv) Humidity : As humidity increase, rate of evaporation decreases.

21. (a) Draw a well labelled diagram showing sublimation of ammonium chloride.

(b) Convert : 340 K to degree Celsius. **(2016, 2013)**

Ans. (a)



Separation of ammonium chloride and salt by sublimation

(b) 340 K = 340 - 273 = 67°C

22. (i) How would increase in pressure and decrease in temperature of a gas affect :

(a) the distance between particles ?

(b) strength of force of attraction between particles ?

(c) the physical state of the gas ?

(ii) Write the chemical formula of dry ice. How is it stored? Explain why is it named so? **(2015, 2014, 2012)**

Ans. (i) (a) decreases (b) increases (c) gas becomes liquid

(ii) Solid CO_2

Solid CO_2 gets converted directly to gaseous state on decrease of pressure to 1 atm without coming to liquid state.

23. (a) Distinguish between evaporation and boiling. **(2015)**

(b) Why does our palm feel cold when we put some perfume on it?

(c) What produces more severe burns, boiling water or steam ? **(2015, 2012)**

Ans. (a)

Evaporation	Boiling
It is a surface phenomenon	It is a bulk phenomenon
It is a slow process	It is a fast process
It takes place at all temperature	It takes place at a definite temperature

(b) Perfume absorbs heat energy from our palm and evaporate and this causes cooling.

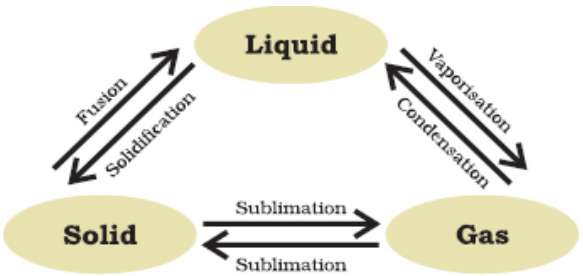
(c) Steam. Because steam has extra hidden heat called latent heat whereas boiling water does not have this hidden heat.

24. (a) Draw a flow diagram for interconversion of the three states of matter and indicate the name of process for each interconversion.

(b) Convert the following temperatures to Kelvin scale – (i) 110°C (ii) -20°C

(c) List the two factors that determine the state of a given substance. **(2015)**

Ans. (a)



(b) 110°C = 110 + 273 = 383 K

–20°C = –20 + 273 = 253 K

(c) Temperature and Pressure

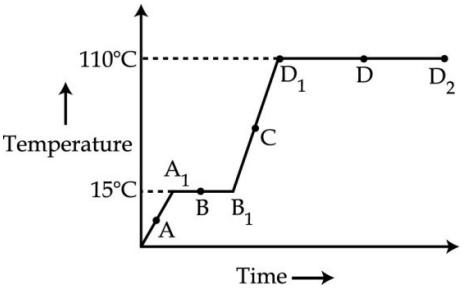
25. The temperature - time graph given below shows the heating curve for pure wax. After studying the graph answer the following questions : **(2015, 2012)**

(a) What is the physical state of the substance at the point A, B, C and D ?

(b) What is the melting point of the substance?

(c) What is its boiling point ?

(d) Which portions of the graph indicate that change of state is taking place?



(e) Name the terms used for heat absorbed during change of states involved in the above process.

Ans. (a) A - Solid B - fusion C - liquid D - vapourisation

(b) 15°C (c) 110°C (d) A_1B_1 and D_1D_2

(e) Latent heat of fusion and latent heat of vapourisation.

SELF ASSESSMENT TEST

1. Liquids and gases are commonly known as fluids. Compare their properties and show that they can flow easily.

   Which property of fluids is essential for the survival of aquatic life?

2. (a) Define matter. Name the state of matter in which the forces between the constituent particles are

   (i) Strongest, (ii) Weakest.

   (b) Give reasons for the following :

   (i) A liquid generally flows easily.

   (ii) Ice at 0°C appears colder to the mouth than water at 0°C. Why ?

   (iii) Doctors advise to put strips of wet cloth on the forehead of a person having high temperature.

3. (a) Arrange the following in the increasing order of

   (i) force of attraction (ii) Intermolecular space: Iron nail, kerosene and oxygen gas.

   (b) Define the terms : (i) Rigidity (ii) Compressibility (iii) Diffusion

4. What will happen when we start putting pressure and compress a gas enclosed in a cylinder ? Do you think that increasing or decreasing the pressure and temperature can change the state of matter. Justify your answer with an example.

5. 5 mL of water was taken in a test tube and china dish separately. These samples were then kept under different conditions as below

   (a) Both the samples are kept under a fan.

   (b) Both the samples are kept inside a cup board.

State in which case evaporation will be faster ? Give reason to support your answer.

How will the rate of evaporation change if above activity is carried out on a rainy day. Justify your answer.

6. Define boiling point of a liquid. At what temperature in the Kelvin scale does water boil ? Explain what happens when we supply heat energy to water till it changes its state. What is this heat energy called ?

7. In which one of the following pair of substances, diffusion is not likely to occur ?

   (i) copper sulphate and water (ii) copper and iron (iii) smoke and air

8. Explain what happens to the molecular motion and energy of 1 kg of water at 273 K when it is changed into ice at same temperature. How is the latent heat of fusion related to the energy exchange that takes place during this change of state ?

9. Give reasons for the following :

   (a) Water at room temperature is a liquid.

   (b) A gas cylinder cannot be half filled.

   (c) Gases exert pressure on the wall of the containing vessel.

10. Give reasons :

    (a)Salt and sugar when kept in different jars take the shape of the jars, yet they are classified as solids.

    (b) Solids have negligible compressibility yet sponge can be compressed.

    (c) Gases exert pressure on the walls of the container.

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