PHYSICS

BOOKS - ICSE

MATTER

Exercise 11

1. Fill in the blank spaces by choosing the correct words from the list given below:

spaces, concave, adhesion, increases, surface

tension

Kinetic energy of the molecules _____with an increase in temperature.

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2. Fill in the blank spaces by choosing the correct words from the list given below:

spaces, concave, adhesion, increases, surface tension

With an increase in the

intermolecular_____, the intermolecular forces decrease.

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3. Fill in the blank spaces by choosing the correct words from the list given below:

spaces, concave, adhesion, increases, surface tension

The phenomenon due to which the exposed surface of a liquid behaves like a stretched membrane is called_____.

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4. Fill in the blank spaces by choosing the correct words from the list given below:

spaces, concave, adhesion, increases, surface tension

Mercury forms small spherical droplets, because it has no force of _____with the surfasce of glass.

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5. Fill in the blank spaces by choosing the correct words from the list given below:

spaces, concave, adhesion, increases, surface tension

The meniscus formed by water in a test tube is of ___shape

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6. Statement given below are incorrect. Write the correct statements:

A molecule is the smallest unit of matter which may or may not have an independent existence, but always takes part in a chemical reaction.

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7. Statement given below are incorrect. Write the correct statements:

Meniscus is formed in case of confined liquids due to the force of surface tension.

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8. Statement given below are incorrect. Write the correct statements:

The pressure of an encosed gas increases with the increase in volume.

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9. Statement given below are incorrect. Write the correct statements:

The molecules of a gas have very small intermolecular spaces.

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10. Statement given below are incorrect. Write the correct statements:

Solids have definite mass, but no definite volume.

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11. Write True or False for the following statement:

With the decrease in intermolecular spaces, the intermolecular forces decrease_____.

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12. Write True or False for the following statement:

Solids get heated by conduction only._____

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13. Write True or False for the following statement:

With the decrease in the volume of a gas its pressure increases._____.

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14. Write True or False for the following statement:

Mercury in a test tube forms concave meniscus._____.

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15. Write True or False for the following statement:

The position of molecules in a liquid continuously change._____.

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16. The intermolecular spaces in case of liquids are:

A. less than the solids

B. more than the gases

C. more than the solids and less than the gases

D. more than the solids and gases

Answer:

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17. The kinetic energy of molecules of gas increase with:

A. fall in temperature

B. rise in temperature

C. decrease in pressure

D. increase in pressure

Answer:

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18. Heat is tranmitted in liquids by the process of :

A. conduction

B. convection

C. radiation

D. both conduction and convection

Answer:

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19. Why the surface of a liquid act like a stretched membrane?

A. 1.The molecules below the top surface exert upward pressure.

B. 2.The molecules are attracted more to the sides of the side of containing vessel.

C. 3.the molecules below the top surface attract the molecules above

D. 4.None of these

Answer:

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20. The meniscus formed by mercury in a test tube is:

A. 1.convex

B. 2.concave

C. 3.no meniscus is formed

D. 4.None of these

Answer:

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21. Match the statements in Column A, with those in Column B,

Column A	Column B
1. The phenomenon due to which top surface of a liquid behaves like stretched membrane.	(a) Gas pressure
2. A substance which cannot be subdivided into two or more simpler substances by any chemical means.	(b) Intermolecular force
3. The force of attraction between the molecules of a given substance.	(c) Adhesive force
4. The force exerted per unit area by the molecules of a gas on the sides of containing vessel.	(d) Surface tension
5. The force due to which ink sticks to a piece of paper.	(e) Element

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22. Define the terms: a. Element b. Atom, c. Molecule.

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23. State five important assumptions of the kinetic theory of matter.

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24. Explain the following on the basis of kinetic theory of matter.

a.Solids have a definite volume and definite shape.

b. Liquids have a definite volume, but no definite shape.

c. Gases have a no definite volume and no definite shape.

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25. What do you understand by the term suface tension?

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26. Name the force responsible for surface tension in liquids.

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27. Explain the following:

A very small amount of mercury on placing over a clean glass plate forms a tiny spherical ball.

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28. Explain the following: A very samll amount of water on placing over a clean glass plate forms an oval shaped drop.

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29. What do you understand by the term meniscus?

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30. Name the kind of meniscus formed (i) in case of water. (ii) in case of mercury.

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31. On the basis of kinetic model, explain how the liquids exert pressure.

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32. On the basis of kinetic model, explain how the liquids exert pressure.

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33. Explain the heating of an iron rod by conduction on the basis of kinetic model.

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34. Liquids and gases get heated by convection. Explain the convection on the basis of kinetic model.

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Exercise 1 2

1. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

During the change of state of a substance its temperature remains_____.

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2. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

The temperature at which a solid starts changing to liquid state is called_____.

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3. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

The amount of heat required to change 1 g of

a substance at its melting point into liquid state without any rise in temperature is called specific_____.

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4. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

The amount of heat required to change 1 g of

a liquid into its gaseous state without and rise in temperature is called specific _____.

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5. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

_____has the highest speficif latent heat of vaporisation.

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6. Statements given below are incorrect. Write the correct statements:

The specific latent heat of ice is $363 Jg^{-1}$.

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7. Statements given below are incorrect. Write the correct statements:

The boiling hot water causes more severe burns than the steam at $100^{\circ} C$.

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8. Statements given below are incorrect. Write the correct statements:

The process by which a gas change to a liquid state at some fixed temperature, with the absorption of heat energy is called vaporisation.

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9. Statement given below is incorrect. Write the correct statement:

It becomes cold during snowfall.

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10. Statement given below is incorrect. Write the correct statement:

Water at $0^\circ C$ cools a soft drink bottles better than ice at $0^\circ C$.

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11. Write true or false for the following statements:

The process of changing a solid at its melting point into liquid state, without any rise in temperature is called fusion. _____.

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12. Write true or false for the following statements:

Heat energy required to melt 1 g of ice to 1 g of water at $0^{\circ} C$ is 2260 J_____

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13. Write true or false for the following statements:

Steam at$100^{\circ} C$ causes more severe burns than water at $100^{\circ} C$ _____.

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14. Write true or false for the following statements:

The temperature at which a liquid changes into gaseous state without any rise in temperature is called liqudfaction point.

_____

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15. Write true or false for the following statements:

A vapour is a gaseous state of a liquid below its boiling point.

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16. The SI unit of specific latent heat is:

A. $Jg^{-1\circ}C^{-1}$

B. $J^{\circ}C^{-1}$

C. Jkg^{-1}

D. $Jkg^{-1\circ}C^{-1}$

Answer:

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17. The specific latent heat of fusioin of ice is:

A. $4.2Jg^{-1\circ}C^{-1}$

B. $4200Jkg^{-1\circ}C^{-1}$

C. $336Jg^{-1}$

D. $336,000Jg^{-1}$

Answer:

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18. During thaw (melting of snow) the atmosphere gets:

A. warm

B. cold

C. very hot

D. very cold

Answer:

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19. The substance having the highest specific latent heat of fusion is

A. lead

B. wax

C. ice

D. gold

Answer:

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20. Fill in the blank spaces by choosing the correct words from the list given below:

latent heat of fusion, melting point, steam, constant, latent heat of vaporisation.

_____has the highest speficif latent heat of vaporisation.

A. mercury

B. steam

C. alcohol

D. petrol

Answer:

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21. Match the statements in Column A, with those in Column B,

	Column A	Column B
1.	The heat energy required to raise the temperature of a given mass of substance through 1°C.	(a) Specific heat capacity
2.	The heat energy required to convert 1 g of a substance at its melting point in liquid state without any rise in temperature.	(b) Specific latent heat of vaporisation
3.	The heat energy required to raise the temperature of 1 g of a substance through 1°C.	(c) Ice
4.	The heat energy required to convert 1 g of a liquid at its boiling point into gaseous state without any rise in temperature.	(d) Heat capacity
5.	A substance having specific latent heat of fusion 336×10^3 Jkg^{-1}.	(e) Specific latent heat of fusion

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22. Define specific latent heat of fusion

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23. Define the following:

Specific latent heat of vaporisation:

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24. Define the following and state their numerical value in SI system.

Specific latent heat of fusion of ice.

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25. Define the following and state their numerical value in SI system.

Specific latent heat of vaporisation of steam.

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26. "After the steady state, the temperature of a conductor does not rise, even though heat is

supplied",. Why?

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27. Explain the change of state from solid to liquid on the basis of kinetic theory.

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28. Define the following:

a. Fusion, b. Fusion point, c. Solidification, d. Solidification point e. vaporization f. boiling

point g. Liquefactions, h. Liquefaction, point (i) Deposition.

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29. Explain the following:

Why do soft drink bottles cool better in ice at $0^\circ C$ than water at $0^\circ C$?

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30. Explain the following:

Why the weather becomes bitterly cool when snow starts melting?

Watch Video Solution

31. Explain the following:

Why does it become wark during snowfall?

Watch Video Solution

32. Explain the following:

Why do the glaciers not melt completely during summer?

Watch Video Solution

33. Explain the following:

Why are the burns caused by steam more severe than those caused by boiling water?

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Theme Assignment

1. Fill in the blank spaces.

The empty space between the molecules is called_____space.(molecular/ intermolecular)

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2. Fill in the blank spaces.

Molecules of a gas has_____intermolecular space. (minimum/ maximum)

Watch Video Solution

3. Fill in the blank spaces.

When molecules of a solid absorb heat energy the _____energy of its molecules increases. (potential/kinetic)

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4. Write true or false for the following statements.

The force of attraction between molecules is called intermolecular force of attraction.

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5. Write true or false for the following statements.

The molecules of a gas contained in a closed vessel are stationary.

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6. Write true or false for the following statements.

When kinetic energy of the molecules of a liquid becomes more than the intermolecular forces then energetic molecules rapidly leave the liquid and change into the gaseous state.

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7. If the matter is made of two of more different elements, then smallest unit of

matter is called

A. element

B. molecule

C. atom

D. None of these

Answer:

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8. The kinetic energy of the molecules increases with increase in:

A. temperature

B. velocity

C. motion

D. space

Answer:

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9. The intermolecular forces are maximum in case of

A. solid

B. liquid

C. gas

D. None of these

Answer:

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10. The process due to which a solid changes into liquid state at some fixed temperature by absorption of heat energy is known as

A. melting

B. fusion

C. both a and b

D. freezing

Answer:

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11. The change of liquid state into its vapour state at any temperature below its boiling point is called.

A. boiling

B. evaporation

C. sublimation

D. all of these

Answer:

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12. Statements given below are incorrect. Write the correct statements:

The intermolecular force of attraction increases if the intermolecular space betweenn molecules increases and vice versa.

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13. Statements given below are incorrect. Write the correct statements:

The force of attraction between similar kind of molecules is called force of adhesion.

Watch Video Solution

14. Statements given below are incorrect. Write the correct statements:

The solid state of the substance in case of evaporation is known as sublime and the gaseous state as sublimate.

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15. State kinetic theory of matter.

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16. Differentiate the three states of matter in terms of movement of particles.

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17. On the basis of kinetic theory of matter explain : Why the solids have a definite volume

and definite shape?

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18. On the basis of kinetic theory of matter explain : Why the solids have a definite volume and definite shape?

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19. Describe energy content in the three states of matter.

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20. Describe the change of state using kinetic theory.

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21. Define the following:

Boiling

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22. Define the following:

Evaporisation.

Watch Video Solution

23. Define the following:

Boiling

Watch Video Solution

24. Define the following:

Deposition

Watch Video Solution

25. Define the following:

Evaporisation.

Watch Video Solution

Questions Choose The Correct Option To Fill In The Blank

1. Matter is made of..... (atoms/cells).

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2. All particles in matter are ..... (in constant random motion/at rest always).

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3. Statements given below are incorrect. Write the correct statements:

The force of attraction between similar kind of molecules is called force of adhesion.

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4. Solids have the ..... (least/most) interparticle spacing.

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Questions Name The Following

1. The SI unit of latent heat .....

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2. The amount of heat absorbed or released when a unit mass changes its state .....

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3. The amount of heat absorbed when a substance melts .....

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4. The amount of heat released when a substance changes from gas to liquid .....

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5. The amount of heat absorbed to change 1 kg of water to vapour .....

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Questions Write T For True And F For False Correct The False Statements

1. Change of state of matter is a physical change, which is reversible.

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2. Evaporation is the change of state from liquid to vapour by absorbing heat at a particular temperature.

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3. Examples of condensation are formation of clouds, dew, and fog.

4. True or False Different pure substances have different, but fixed, melting points.

5. True or False When solid iodine is heated it melts into liquid iodine.

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Exercises Section I Name The Following

1. The fourth state of matter .....

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2. The force of attraction between molecules of different kinds is called _____

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3. The process of a gas turning into a liquid by giving out heat energy .....

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4. The amount of heat absorbed to change a substance from liquid to vapour .....

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5. The change of state from liquid to solid by the release of heat .....

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Exercises Section I Choose The Correct Option

1. The diameter of an atom ranges from .....

A. 1×10^{-10} to 5×10^{-10} m

B. 1×10^{-9} to 5×10^{-9} m

C. 1×10^{-8} to 5×10^{-8} m

D. None of these

Answer:

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2. In which state of matter do particles vibrate in fixed positions?

A. Solid

B. Liquid

C. Gas

D. Plasma

Answer:

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3. Interparticle attraction in solids is .....

A. very high

B. medium

C. low

D. very low

Answer:

Watch Video Solution

4. The amount of heat energy absorbed by 1 kg of water to change into water vapour is .....

A. 2260 J

B. 2260×10^3 J

C. 3336×10^3 J

D. 336 J

Answer:

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5. Which of the following is a solid that does not sublimate?

A. Camphor

B. Iodine

C. Solid CO_2

D. Ice

Answer:

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6. Formation of frost on the ground is an example of .....

A. solidification

B. vaporization

C. sublimation

D. deposition

Answer:

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Exercises Section I Write T For True And F For False Correct The False Statements

1. According to the kinetic theory of matter, as the temperature increases, average speed of the particles also increases. .....

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2. True or False there is force of repulsion between particles of matter

Watch Video Solution

3. Liquids expand .....than solids

Watch Video Solution

4. When a solid melts, why does the temperature remain constant and what happens to the arrangement of particles?

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5. Freezing is another name for melting. .....

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Exercises Section I Choose The Correct Option To Fill In The Blank

1. Cohesion is the force of attraction between particles of .....(same/different) substances.

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2. When matter is changing state, there is ..... (large/no) change in temperature.


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3. Evaporation causes ..... (heating/cooling).


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4. Name the following

The fixed temperature at which a liquid changes into vapour state .

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Exercises Section Ii Give Reasons For The Following

1. Water wets wood, whereas mercury does not. Give reason.

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2. Why can liquids take the shape of any vessel they are poured into?

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3. Soft drinks are cooled by placing them in ice rather than water at $0^{\circ} C$. Why?

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4. Water from lakes, rivers, and seas does not vaporize rapidly.

Watch Video Solution

5. Burns caused by steam are more serious than burns caused by boiling water.

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Exercises Section Ii Distinguish Between The Following

1. Solids and liquids (any four points on the basis of kinetic theory)

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2. Cohesion and adhesion

Watch Video Solution

3. Latent heat of fusion and latent heat of vaporization

Watch Video Solution

4. Distinguish between Boiling and evaporation

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5. Sublimation and deposition

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Exercises Section Ii Short Answer Questions

1. According to the kinetic theory of matter, why do liquids flow but solids do not?

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2. If you put gas in a container, it fills the entire space. Why?

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3. The specific latent heat of fusion of ice is 336×10^3 J/kg. What does this statement mean?

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4. Write two factors on which the rate of evaporation depends.

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5. How does condensation take place?

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Exercises Section Ii Long Answer Questions

1. Describe an activity to prove that there are spaces between particles.

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2. Write four advantages of high latent heat of fusion of a substance.

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3. What is evaporation? How does evaporation cause cooling?

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4. Explain how boiling takes place on the basis of kinetic theory.

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5. When a solid melts, why does the temperature remain constant and what happens to the arrangement of particles?

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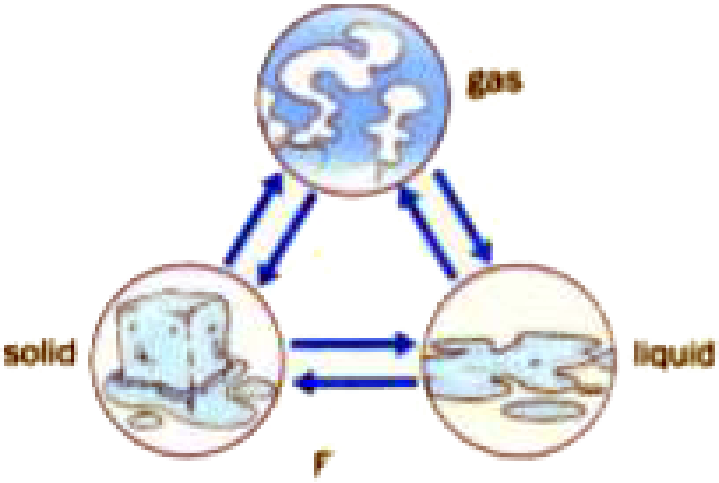
Picture Study

1. Figure A shows the change of states of matter. In it, add the following words: deposition, condensation, melting, sublimation, freezing, and evaporation.



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2. Complete the table given below . (The first one has been done as an example)

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3. Look at the change of state diagram from gas to solid given here carefully, and answer the following questions.

a. During freezing, certain amount of heat is

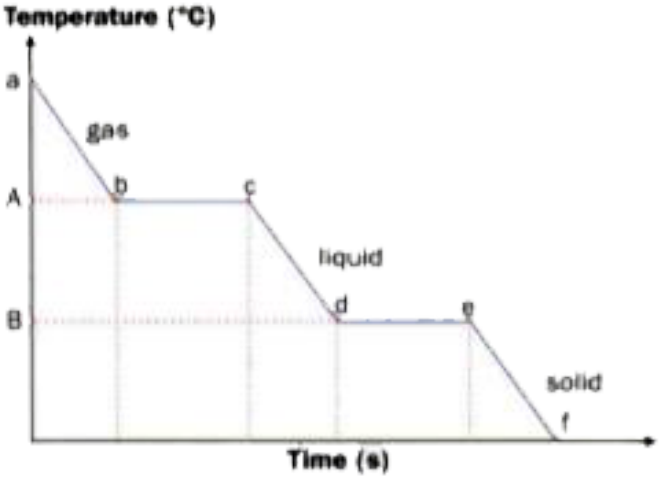
given out without any change in temperature. Which part of the graph shows this change?

b. During condensation, certain amount of heat is given out without any change in temperature. Which part of the graph shows this change?

c. Which point on the graph corresponds to

İ. condensation point? ii. freezing point?

d. What do ab and cd on the graph represent?



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