

CHEMISTRY

BOOKS - KUMAR PRAKASHAN KENDRA CHEMISTRY (GUJRATI ENGLISH)

MATTER IN OUR SURROUNDINGS

Activity

1. What do you think has happened to the salt?



2. Where does it disappear?



3. Does the level of water change?



4. Is the water still coloured?



5. What do you observe immediately after adding the ink drop?



6. What do you observe immediately after adding a drop of honey?



7. How many hours or days does it take for the colour of ink to spread evenly throughtout the water?



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8. Which group was the easiest to break? Why?



9. If we consider each student in chain as a particle of matter, then in which group do the particles hold each other with the maximum force?



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10. What will happen if these liquids are split on the floor?



11. Measure 50 mL of any one liquid and transfer it into different containers one by one. Does the volume remains the same?



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12. Does the shape of the liquid remain the same?



13. When you pour the liquid from one container into another does it flow easily?



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Intext Questions And Answers

1. Which of the following are matter?

Chair, air, love, smell, hate, almonds, thought, cold, 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 yhou have to go close.



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



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



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5. 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.



6. a. Tabulate the difference in the characteristics of states of matter.



7. Comment upon the following: rigidity, compressibility, fluidity, filling as gas container,

shape, kinetic energy and density.



8. 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.



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



10. Convert the following temperatures to

Celsium scale:

a. 300K b. 573 K



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11. What is the physical state of water at:

a. $250\,^{\circ}\,C$ b. $100\,^{\circ}\,C$



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



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13. Suggest a method to liquefy atmospheric gases.



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



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



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



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



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



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Questions And Answers Answer The Following Questions In Very Short

1. What is matter?



2. State the physical nature of matter.



3. What is diffusion?



4. What is the effect of heat on the rate of diffusion?



5. Name the process by which two or more different types of matter intermix on their own.



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6. What are the three different states of matter?



7. The rate of difusion in gases is faster as compared to solids and liquids. Why?



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8. In which state of matter is the intermolecular force a. the maximum b. the minimum?



9. Sponge, though compressible, is a solid.



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10. An unlit incense stick gives smell only when we come close to it, but on lighting the stick we get smell even far away from it. Why?



11. Arrange the following substace in increasing order forces of attraction between the particles:

Water, Sugar, Oxygen.



- 12. a. Name the state of matter which is rigid.
- b. Name the process of conversion of solid state to liquid state.



13. State the effect of heat on diffusion.



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14. The rate of diffusion is very fast in gases.

Why?



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15. What is dry ice?



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16. A crystal of copper sulphate can impart colour of large amout of water.

Which characteristic of particles of matter is described by the above observation?



17. Convert the following temperatures to the Celsius scale: a. 293 K b. 470 K



18. Convert the following temperature to the Kelving scale: a.

 $25\,^{\circ}\,C$ b. $373\,^{\circ}\,C$



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19. What is the physical state of water at

a. $25^{\circ}C$ b. $0^{\circ}C$ c. $100^{\circ}C$?



20. How is dry ice stored?



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21. Label the arrows marked A,B in the following:

- a. Solid $\stackrel{A}{\longleftrightarrow}$ liquid
- b. Liquid $\stackrel{A}{\longleftrightarrow}$ Gas
- c.Solid $\stackrel{A}{\longleftrightarrow}$ Gas



22. Express the boiling point of water in a. the Celsium b. the Kelvin scales.



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23. How does the melting point of a substance indicate the strength of its intermolecular force of attraction?



24. Name two substances that show sublimation.



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25. Which phenomenon occurs during the followin changes?

a. Formation of clouds b. Drying of wet clothes c.Melting of wax in the sun d. Size fo the naphthalene ball decreases.



26. What is humidity?



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Questions And Answers Give Definition Of The Following

1. Matter



2. Density



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3. Temperature



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4. Melting point



5. Boiling point



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6. Latent heat of fusion.



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7. Latent heat of vaporization



8. Liquefaction of a gas



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9. Evaporation.



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10. Intermolecular force.



11. Plasma.



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12. Bose -Einstein Condensate.



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Questions And Answers Choose The Correct
Option From Those Given Below Each Question

1. How many natural physical states of matter
are there?
A. Two
B. Three
C. Four
D. Five
Answer:
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2. In	which	physical	state	has	the	substance	a
defir	nite sha	ape?					

- A. Liquid and gaseous
- B. Liquid
- C. Gaseous
- D. Solid

Answer: D



3. What change is observed in a matter of substance with rise in temperature?

A. Weight decreases

B. Weight increases

C. Volume decreases

D. Volume increases

Answer: A::C



4. Which of the following statements is false for gaseous matter?

A. Intermolecular force is highest

B. No definite shape

C. No definite volume

D. It is compressible

Answer: A::C



5. What is observed on transferring a liquid from one vessel to another?

A. it changes its shape and vlume.

B. No change in its shape and volume.

C. It changes its shape, but not the volume

D. Its volume changes, but shape does not change.

Answer: C



6. What change is observed in the particles of the matter with the rise in temperature?

A. Kinetic energy increases

B. Kinetic energy decreases

C. Potential energy remains constnat

D. Potential energy decreases

Answer: A::C



7. What fraction of the density of normal air should a gas of extremely low density be cooled to super low temperature?

A. One hundred

B. Ten lac

C. One lac

D. Thousand

Answer: A::C



- 8. What is the full form of PNG?
 - A. Petrol Natural Gas
 - B. Pipe Natural Gas
 - C. Pressurised Natural Gas
 - D. Pressurised Neutral Gas

Answer: A::D



9. Which of the following the is the molecular formula of dry ice?

A.
$$CO_{2(g)}$$

B.
$$CO_{2(1)}$$

$$\mathsf{C.}\,CO_{2\,(\,s\,)}$$

D.
$$CO_{2\,(\,aq\,)}$$

Answer: B::C



10. Which of the following is the correct order of matters arranged in the descinding order of their intermolecular attraction force?

- A. Water, air, wind
- B. Air, sugar, oil
- C. Oxygen, water, sugar
- D. Common salt, juice, air

Answer: A



- **11.** Due to which property does the aroma of hot food reaches us some metres away?
 - A. The intermolecular force of atrraction is different in different matters.
 - B. The motion of the particles of matter increases with the rise in temperature.
 - C. The intermolecular force of attraction is same in different matters.
 - D. The motion of the particles of matter decreases with the rise in temperature.

Answer: B



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12. Diffusion means

- A. The phenomenon of intermixing of particles of matters due to the random motioni of their atoms.
- B. The capacity of suction force on the particles of matter.

- C. The phenomena of merging of particles of matters into one another.
- D. The process of conversion of particles of matter in gaseous state.

Answer: A::C



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13. Which of the following substances does not show phenomenon of sublimation?

- A. Iodine
- B. Sodium chloride
- C. Ammonium chloride
- D. Camphor

Answer: A::C::D



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14. In which of the following interconversions is heat released?

- 1. Condensation 2. Evaporation
- 3. Cooling 4. Melting
 - A. only 1
 - B. only 4
 - C. 1 and 3
 - D. 2 and 4

Answer: C::D



15. Which of the following is the correct order of convertinv $25^{\circ}C$, $38^{\circ}C$ and $66^{\circ}C$ into Kelvin scale?

- A. 298 J, 300 K, 338 K
- B. 273 K, 278 K, 543 K
- C. 298 K, 310 K, 338 K
- D. 298 K, 311 K, 339 K

Answer: A::C::D



16. On converting the magnitudes of temperature 308 K, 329 Kand 391 K into Celsius scale, the magnitudes obtaind are respectively

A. $33^{\circ}C$, $56^{\circ}C$, $118^{\circ}C$

B. $35^{\circ} C, 66^{\circ} C, 119^{\circ} C$

C. $35^{\circ}C$, $56^{\circ}C$, $118^{\circ}C$

D. $56^{\circ}C$, $119^{\circ}C$, $35^{\circ}C$

Answer: A::B::C



17. What change in temperature occurs, while the entire ice is melting?

A. Decreases slowly

B. The temperative remains constant

C. Remain constant in the beginning and

then decreases

D. Increases slowly

Answer: A::C

18. What is the latent heat of fusion of ice?

A.
$$33.4 imes10^5 Jk^{-1}$$

B.
$$22.5 imes10^5 Jkg^{-1}$$

C.
$$33.4 \times 10^4 Jk^{-1}$$

D.
$$2.25 imes 10^4 Jkg^{-1}$$

Answer: C



19. What is the latent heat of vaporisation of water?

A.
$$2.25 imes10^6 Jkg^{-1}$$

B.
$$3.34x10^6 Jkg^{-1}$$

C.
$$22.5 imes 10^4 Jkg^{-1}$$

D.
$$33.4 imes 10^5 Jkg^{-1}$$

Answer: A



20. What are the suitable conditions for the liquefaction of gas?

A. Low temperature and low pressure

B. High temperature and low pressure

C. Low temperature and high pressure

D. High temperature and high pressure

Answer: A::B



21. Water kept in an earthen pot becomes cool during summer. Which phenomenon is related with this process?

- A. Diffusion
- B. Transportation
- C. Evaporation
- D. Osmosts

Answer: C



- **22.** In what circumstances does the evaporation of water increase?
 - A. On increasing temperature and decreasing surface area.
 - B. On decreasing temperature and increasing surface area.
 - C. On increasing temperature and increasing surface area.

D. On decreasing temperature and decreasing surface area.

Answer: A



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23. What is the reason for glowing the flourescent tube and neon sigh bulb?

A. Presence of charged particles

B. High density of gas

- C. High temperature
- D. Passing of high electric current

Answer: A::C::D



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24. Which of the following matters possesses definite volume but does not possess shape?

- A. Oxygen
- B. Kerosene

C. Steel

D. Chalk

Answer: A::C::D



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25. Which of the following statement is not true?

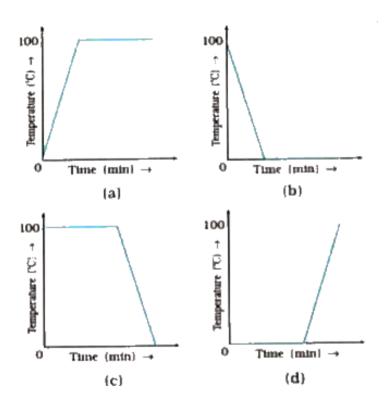
A. Kinetic energy of the particles of solid matter is maximum.

- B. The particles of liquid matter are arranged in proper order.
- C. There is negligible force of attraction between the particles of gaseous matter.
- D. The particles of gaseous matter occupy the entire possible space.

Answer:



26. Dheya takes some ice and water in a beaker and heat it on a low flame. She notes the temperature from time to time. Which of the following graphs shows the correct result.



A. a

B.b

C. c

D. d

Answer: A::C::D



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Questions And Answers Fill In The Blanks

1. The evaporation of liquid at room temperature makes the surrounding.....

2. At room temperature, the force of attraction between the particles in solid matter isthan that of particle sof gaseous state of the same matter.



3. The phenomenon of changing of a liquid into vapours at any temperature below its

boiling point is called......

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4. on increasing the temperature, the rate of

A. increases

diffusion.....

B. decreases

C. both

D. None of these

Answer: increases



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5. The rate of diffusion isin gas as compared to that in liquid.

A. less

B. medium

C. more

D. less

Answer: all



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6. On increasing theand decreasing thethe gas gets converted into liquid.



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7. Ice floats on water because thedensity of ice is.....than that of water.



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8. The melting point of a solid is an indication of theof the force of attraction betwe particles.



9. The melting point of ice isK and boiling point of water is ...K.

A. 255, 265

- B. 273,273
- C. 273, 373
- D. 273, 375

Answer: C



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10.is called dry ice.



11. The force exerted on a surface per unit area by the particles of matter is called......



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Questions And Answers Fill In The Blanks By Selecting The Correct Alternative From Those Given In The Bracket

1. The matter of liquid state can have any(shape, volume, mass)



2. The process formation of cloud is called.....(evaporation, condensation, sublimation)]



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3. The process drying of wet clothes is called (evaporation, condensation, cooling)



4. On keeping naphthalene balls open in air, its volume......(increases, decreases, remains same)



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5. The mass per unit volume of a substances is called.....(area, density, pressure)



6. The particles of steam (water vapour)at 373 K have more.....than that in water at the same temperature. (rigidity, energy, density)



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7. The conversion of liquid state into solid state is called.....(sublimation, fusion, condensation)



8. Kelvin=.....+ Celsium(273, 173, 273)



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9. 1 atm =.....pascal

 $1.01 imes 10^5, 1.01 imes 10^{-5}, 1.01 imes 10^5)$



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10. Now sicentists are talking of five stats of matter. They are solid, liquid, gas plasma and

.....(Bose Kelvin condensation, Bose Newton

Condensate, Bose Eistein Condensate)



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Questions And Answers State Whether The Following Statements Are True Or False

1. Every matter has mass.



2. The kinetic energy of particles in gaseous state is maximum.



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3. The clothes dry faster on windy day.



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4. The BEC is formed by cooling a gas of extremely low density, about one hundred

thousandth the density of normal air.



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Questions And Answers Answer The Following **Questions In Short**

1. How does the rate of diffusion change wth temperature?



2. Give one similarity and one dissimalarity between a liquid and a gas.



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3. Why is the rate of diffusion faster in gases?



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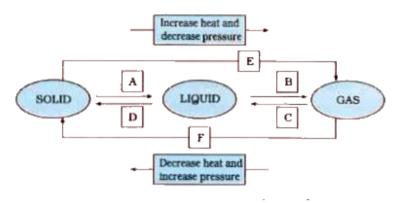
4. Why is ice at 273 K more effective in cooling than water at the same temeperature?

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

Explain steam at 100°C causes more severe burns than the water at the same temperature.



6. Name A,B,c,D,E and F in the following showing the change in its state:





7. How does the melting point of a substance indicate the strength of its intermolecular force of attraction?

8. In winter, thee freezes at room temperature but groundnut oil (or mustard oil/sesame oil) does not. Explain.



- **9.** Which phenomeon occurs during the following changes?
- 1. formation of clouds, 2 Drying of wet clothes,

3. Wax melts in the sun, 4. The size of naphthalene balls decreases.



10. Name the factors that affect the rate of evaporation.



11. How is the high compressibility of gases useful to us?

12. States the differences between solid and gasesous states on the basis of 1 intermolecular space and 2. compressibility.



13. When a solid melts its temperature remains the same. So where does the heat

energy go? What is the name given to this heat?



14. Doctor advises to put strips of wet cloth on the forehead of a person having high temperature. Explain.



Questions And Answers Give Scientific Reasons For The Following Statements 1. Common salt (Table salt) dissolves in water.



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2. The smell can be detected even on repeated dilution of 2mL of dettol in water.



3. We can get the smell of perfume sitting several metres away.



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4. The diffusion of honey and ink in water is uneven.



5. The solubility of copper sulphate is different in hot water and cold water.



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6. The rate of diffusion in liquids is higher than that in solids.



7. Naphthalene balls disappear with time without leaving any solid.



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8. Between 1000 litres water and 1000 litres CNG, CNG can be transported ealsily from one palce to another.



9. Water at room temperature is a liquid.



10. An iron almirah is a solid at room temperature.



11. It is advisable to drink hot tea in saucer instead of drinking from a teacup.

12. The proportion of humidity in Mumbai as compare to Ahmedabad is more. OR

We experience more humid after first rain.



13. Wet clothes dry up faster at open place.



14. Evaporation causes cooling.



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15. Water droplets are seen on the outer surface of a glass containing very cold water.



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16. Solid substances have more density. And are non compressible.



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17. Gaseous substance exerts pressure on the walls of the container.



18. Air can be filled in more proportion in tyres.



Questions And Answers Match The Following Properly

Column I	Column II
1. Pressure	a. m ³
2. Temperature	b. kilogram
3. Density	c. pascal
4. Mass	d. kelvin
5. Volume	e. kilogram per metre ³



Column I	Column II
1. degree celsius (°C)	a. kilogram
2. centimetre	b. pascal
3. gram per	c. metre
centimetre ³	d. kelvin
4. bar	e. kilogram per metre ³
5. milligram	

2.



Column I	Column II
1. Boiling point of water	a. 273 K
2. Melting point of ice	b. 373 K
3. Latent heat of	c. 100 K
vaporation of water	d. 0.335 kJ g ⁻¹
Latent heat of fusion of ice	e. 2.259 kJ g ⁻¹

3.



Questions And Answers Distinguish Between The Following

1. Solid state and Liquid State



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2. Liquid state and Gaseous state.



3. Evaporation and Boiling.



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Questions And Answers Answer The Following Questions In Brief

1. List three characteristics of particles of matter, giving examples.



2. Explain interconversion in the states of amtter with reference to (i) force of attraction (ii) kinetic energy of particles.



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3. Compare solids and gases on the basis of (i) rigidity (ii) compressibility and (iii) movement of particles.



4. Tabulate the differences in the states of matter on the basis of (i) kinetic energy (ii) density (iii) force of attraction between particles.



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5. a. Dry ice is obtained when a gas is compressed at high pressure. Name the gas and state what happens to it when the pressure is released.

b. Suggest a method to liquefy atmospheric gases.

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



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6. a. Explain what is sublimation.

b. Which of the following shows phenomenon of sublimation?

Solid water, solid carbon dioxide, solid ammonium chloride.



Questions And Answers Answer The Following Questions In Detail

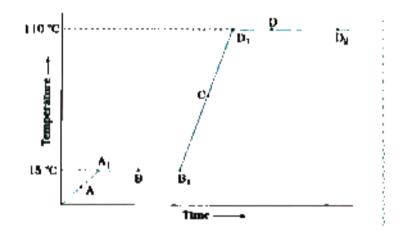
1. Explain in detail the effects of changes in temperature and pressure on the states of matter.



Questions And Answers Answer The Following Questions In Detail

- 1. The temperature time graph given below shows the heating curve for pure wax. From the graph answer the following questions:
- a. What is the physical state of wax at the points A,B,C,D?
- b.What is the melting point of wax?
- 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 the change of slates involved in above

process.





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2. List three characteristics of particles of matter. Describe one example for each characteristic to illustrate it. Name the characteristics which are responsible for a.

Spreading of smell of scent in a room and b. water taking shape of the vessel in which poured.



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3. Explain the three states of matter.



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4. Discuss with examples the factors affecting the rate of evaporation.

Value Based Questions With Answer

- 1. Shalini, the school teacher, travels in school bus with other students. The school bus is fitted with CNG cylinder. She told the driver of the bus to check at times for any leakage in CNG. She told the driver tobe more careful especially during summer.
- 1. What is CNG? 3. What values did Shaline depict in the above act?

- 2. Shantabai lives in a village. She does not have a refrigerator or AC in her home. During summer she keeps wet cloth around the earthen pot. She keeps vegetables. Wrapped in cloth and sprimkles water over it.
- 1.Why did Shantabai keep wet cloth around the earthen pot?
- 2. How can she keep her home cool during summer?
- 3 What values of Shantabai are depicted here?

Question Based On Practical Skills With Answer

1. At what temperature does water boil at atmospheric pressure?

A. 100K

B. $100\,^{\circ}\,C$

 $\mathsf{C.}-100^{\,\circ}\,C$

 $\mathsf{D}.\,273K$

Answer: B



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2. At what temperature does ice melt at atmospheric pressure?

A.
$$0^{\circ}C$$

$$\mathsf{B.}\ 0K$$

$$\mathsf{C.} - 0^{\circ} C$$

Answer: A



3. At room temperature $(30^{\circ}C)$ a student sets up an apparatus to determine the melting point of ice. He takes a beater half filled with ice and dips a mercury thermometer in it. The correct observation is......

A. mercury in the thermometer keeps on falling till it reads $-1^{\circ}C$. it remains

constat thereafter.

- B. Temperature falls, reached $0^{\circ}\,C$, then it remains constnat even after the whole of the ice has melted.
- C. temperature falls, reaches $0^{\circ}C$ and remains constnat only as long as both ice and water present in it.
- D. temperature falls in the beginning but start rising as soon as the ice starts melting.

Answer: C



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4. Which of the following apparatus is required to determine the boiling point of water?

A. Tripod stand, conical flask, thermometer, wire gauze, stand with clamp, pair of tongs.

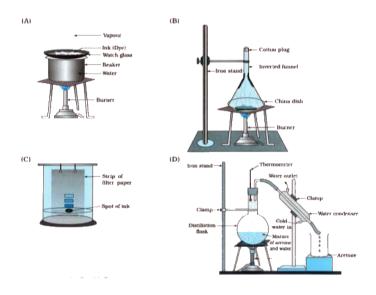
B. Funnel, burner, clamp and stand, test tube, thermometer, wire gauze, pumice stone pieces.

C. Boiling tube, beaker, thermometer, burner, cork wilth one hole, stand with clamp, wire gauze.

D. Round bottom flask, burner, thermometer, wire gauze, stand with clamp, cork with tow holes, tripod stand.

Answer: A::B::C::D

5. Which of the following figures illustrates the sublimation process?



A. A

B.B

C. C

D. D

Answer: A::B::C::D



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6. The physical state of water at 273 K, which is the melting point of ice will be observed as..

A. solid

B. liquid

C. vapour

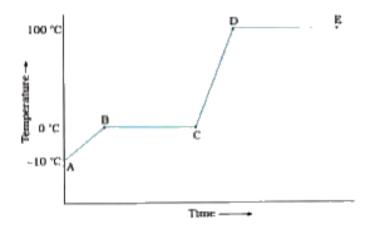
D. solid as well as liquid

Answer: A::D



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7. Study temperature -time graph given below:



The graph shows heating of ice form $-10^{\circ}C$ to water at $100^{\circ}C$. Identify the part of the graph which represents the change of state on heating. During change of state where does the absorbed heat energy go?



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8. Writ eone precaution each, one should take, in placing the bulb of the thermometer wile determining (1) melting point of ice 2. boiling point of water.

9. Define boiling pont of water. What happens to the boiling point of water when the atmosphere pressure increases?



- **10.** Name the process involved in the following changes:
- 1. liquid to solid, 2. gas to liquids, 3. solid to gas 4. solid to liquid.

11. At what temperature in Kelvin scale does water boil? Explain what happens whenwe supply heat energy to water till it changes its state? What is the heat energy called?

