CHEMISTRY

BOOKS - S CHAND CHEMISTRY (HINGLISH)

MATTER IN OUR SURROUNDINGS

Solved Examples

1. What are the conditions for 'something' to be called 'matter' ?

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2. Name two processes which provide the best evidence for the motion of particles in matter.

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3. Which single term is used to describe the mixing of copper sulphate and water kept in a beaker. On its own ?

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4. When sugar is dissolved in water, there is no increase in the volume. Which characteristic of matter is illustrated by this observation ?

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5. Even two or three crystals of potassium permanganate can impart colour to a very large volume of water. Which characteristic of particles of matter is illustrated by this observation ?

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6. How do we detect the smell of an agarbatti (incense stick)?

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7. A piece of chalk can be broken into small particles by hammering but a piece of iron cannot be broken into small particles by hammering. Which characteristic of the

particles of matter is illustrated by these observations ?

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8. What is the scientific name of particles which make up matter ?

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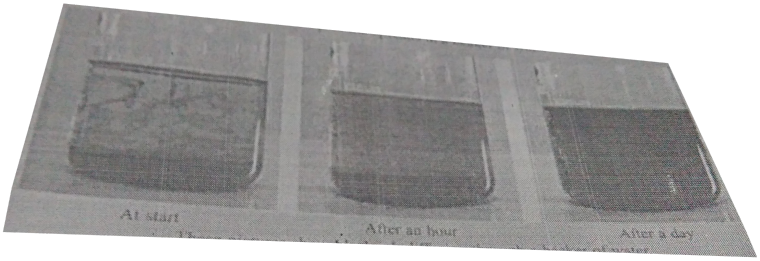
9. Name the process by which a drop of ink spreads in a beaker of water.



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10. What is the general name of :

(a) rigid form of matter ?

(b) Fluid forms of matter ?

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11. Out of solids, liquids and gases, which one has

(a) maximum movement of particles ?

(b) maximum interparticle attractions ?

(c) minimum spaces between particles ?

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12. A substance has a definite volume but no definite shape'. State whether this substance is a solid, a liquid or a gas.

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13. Name the physical state of matter which can be easily compressed.

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14. Why do solids have a definite volume?

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15. A substance has neither a fixed shape nor a fixed volume. State whether it is a solid, a liquid or a gas

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16. Name two gases which are supplied in compressed form in homes and hospitals.

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17. Write the full forms of the following

(a) LPG (b) CNG

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18. Which of the two diffuses faster : a liquid or a gas ?

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19. Which of the two diffuses slower : bromine vapour into air or copper sulphate into water ?

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20. Which of the following compounds does not decolorize the red-brown color of a solution of bromine in carbon tetrachloride?

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21. A bottle of perfume was opened in a room. The smell of its vapours spread in the entire room. Name the property of gases which is responsible for this behaviour of perfume vapours.

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22. If the fish is being fried in a neighbouring home, we can smell it sitting in our own home. Name the process which brings this smell to us.

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23. Name one property of liquids and gases which tells us that their molecules are moving constantly.

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24. Fill in the following blanks with suitable words :

(a) The best evidence that the particles of

matter are constantly moving comes from the studies of ..... and .....

(b) The smell of perfume gradually spreads across a room due to .....

(c) Solid, liquid and gas are the three ..... of matter.

(d) At room temperature, the forces of attraction between the particles of solid substances are ..... than those which exist in the gaseous state.

(e) The arrangement of particles is less ordered in the ..... state. However, there is no order in the ..... state.

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25. State two characteristics of matter demonstrated by :

(a) diffusion

(b) Brownian motion

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26. Name the scientist who studied the movement of pollen grains suspends in water

through a microscope. What is this phenomenon known as ?

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27. When a crystal of potassium peramagnate is placed in a beaker, its purple colour spreads throughout the water. What does this observation tell us about the nature of pottassium permanganate and water?

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28. When a gas jar containing air is inverted over a gas jar containing bromine vapour, the red-brown bromine vapour diffuse into air. Explain how bromine vapour diffuse into air.

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29. Describe in your own words what happens to the particles when salt dissolves in water.

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30. Explain why, we can easily move our hand in air but to do the same through a plank of wood, we need a karate expert.

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31. Give one example of the diffusion of a solid in another solid.

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32. Explain why, the diffusion of a solid in another solid is a very slow process.

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33. Which of the following diffuses fastest and which the slowest ?

Solid, Liquid, Gas

Give reasons for your answer.

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34. How do we detect the smell of an agarbatti (incense stick)?

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35. Name the three states of matter. Give one example of each.

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36. State two characterstic properties each of:

(a) a solid (b) a liquid (c) a gas

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37. Why do gases have neither a fixed shape nor a fixed volume ?

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38. How do solids, liquids and gases differ in shape and volume ?

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39. Arrange the following substances in increasing order of forc es of attraction between the particles-water, sugar, oxygen.

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40. Give two reasons to justify-

(a) Water at room temperaure is a liquid

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

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41. (a) When an incense stick (agarbatti) is lighted in one corner of a room, its fragrance quickly spreads in the entire room. Name the process involved in this. (b) A girl is cooking

some food in the kitchen. The smell of food being cooked soon reaches her brother's room. Explain how the smell could have reached her brother's room.

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42. 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.

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43. 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.

Watch Video Solution

44. A bottle of perfume was opened in a room. The smell of its vapours spread in the entire room. Name the property of gases which is

responsible for this behaviour of perfume vapours.

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45. When a crystal of copper sulphate is placed at the bottom of a beaker containing water, the water slowly turns blue. Why ?

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46. Honey is more viscous than water. Can you suggest why ?

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47. Explain why:

(a) air is used to inflate tyres.

(b) steel is used to make railway lines.

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48. Explain why, diffusion occurs more quickly in a gas than in a liquid.

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49. (a) What is meant by 'diffusion' ? Give one example of diffusion in gases.

(b) Why do gases diffuse very fast ?

(c) Name two gases of air which dissolve in water by diffusion. What is the importance of this process in nature ?

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50. (a) Compare the properties of solids, liquids and gases in tabular from.

(b) Give two reasons for saying that wood is a solid.

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51. (a) Why does a gas exert pressure ?

(b) Why does a gas fill a vessel completely ?

(c) Why are gases so easily compressible

whereas it is almost impossible to compress a solid or a liquid ?

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52. (a) Define matter. Give four examples of matter.

(b) What are the characteristics of matter ?

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53. (a) What is Brownian motion ? Draw a diagram to show the movement of a particle (like a pollen grain) during Brownian motion.

(b) In a beam of sunlight entering a room, we can sometimes see dust particles moving in a haphazard way in the air. Why do these dust particles move ?

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54. When a crystal of potassium permanganate is placed in a beaker, its purple colour spreads throughout the water. What does this observation tell us about the nature of potassium permanganate and water?

A. distribution

B. intrusion

C. diffusion

D. effusion

Answer: C

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55. Which one of the following statement is correct in respect of fluids ?

A. only gases behave as fluids

B. gases and solid behave as fluids

C. gases and liquids behave as fluids

D. only liquids are fluids

Answer: C

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

A. water, air, wind

B. air, sugar, oil

C. oxygen, water, sugar

D. salt, juice, air

Answer: C

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57. In which of the following conditions, the distance between the molecules of hydrogen gas would increase ?

(i) Increasing pressure on hydrogen contained in a closed container.

(ii) Some hydrogen gas leaking out of the container.

(iii) Increasing the volume of the container of hydrogen gas .

(iv) Adding more hydrogen gas to the

container without increasing the volume of the container.

A. (i) and (iii)

B. (i) and (iv)

C. (ii) and (iii)

D. (ii) and (iv)

Answer: C

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58. Out of the following, an example of matter which can be termed as fluid is :

A. carbon

B. sulphur

C. oxygen

D. phosphorus

Answer: C

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59. The best evidence for the existence and movement of particles in liquids was provided by :

A. John Dalton

B. Ernest Rutherford

C. JJ. Thomson

D. Robert Brown

Answer: D

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60. A form of matter has no fixed shape but it has a fixed volume. An example of this form of matter is :

A. krypton

B. kerosene

C. carbon steel

D. carbon dioxide

Answer: B

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61. Which of the following statement is incorrect ?

A. the particles of matter are very, very small

B. the particles of matter attract one another

C. the particles of some of the matter are moving constantly

D. the particles of all the matter have spaces between them

Answer: C

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62. When a gas jar full of air is placed upside down on a gas jar full of bromine vapours, the red-brown vapours of bromine from the lower jar go upward into the jar containing air. In this experiment :

A. air is heavier than bromine

B. both air an bromine have the same density

C. bromine is heavier than air

D. bromine cannot be heavier than air because it is going upwards against gravity

Answer: C

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63. When a gas jar containing colourless air is kept upside down over a gas jar full of brown-coloured bromine vapour, then after some time, the brown colour of bromine vapour spreads into the upper gas jar making both the gas jars appear brown in colour. Which of the following conclusion obtained from these observations is incorrect ?

A. bromine vapour is made of tiny particles which are moving

B. air is made up of tiny particles which are moving

C. the particles of bromine are moving but those of air are not moving

D. even though bromine vapour is heavier than air, it can move up against gravity

Answer: C

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64. Which one of the following statement is not true ?

A. the molecules in a solid vibrate about a fixed position

B. the molecules in a liquid are arranged in a regular pattern

C. the molecules in a gas exert negligibly small forces on each other, except during collisions

D. the molecules of a gas occupy all the space available

Answer: B

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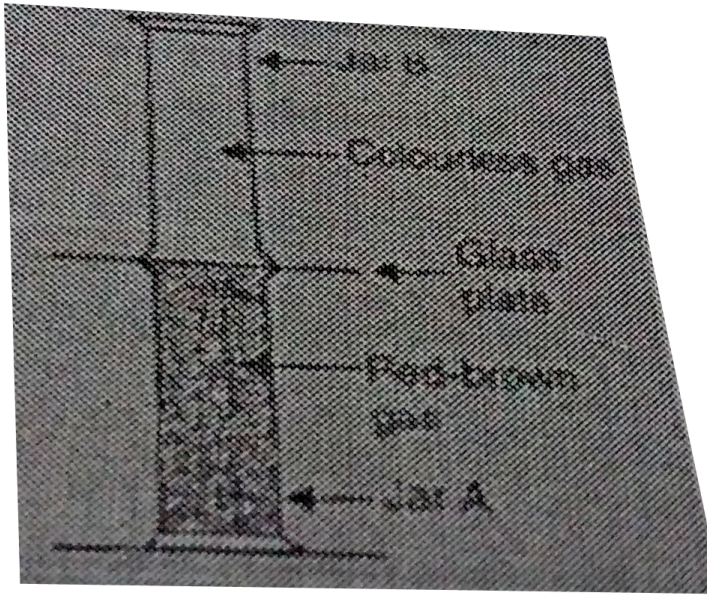
65. Look at the diagram on the right side, jar A contains a red-brown gas whereas jar B contains a colourless gas. The two gas jars are separated by a glass plate placed between them



What will happen when the glass plate between the two jars is pulled away ?

What name is given to the phenomenon which takes place ?

Name the brown gas which could be in jar A.

(d) Which is the colourless gas most likely to be present in jar B ?

(e) Name one coloured solid and one colourless liquid which can show the same phenomenon

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66. Bromine and air take about 15 minutes to diffuse completely but bromine diffuses into a vacuum very rapidly. Why is this so ?

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67. Bromine particles are almost twice as heavy as chlorine particles. Which gas will diffuse faster , bromine (vapour) or chlorine ? Explain your answer.

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68. Why is a liquid (the hydraulic fluid) used to operate the brakes in a car ?

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69. Explain why, a small volume of water in a kettle can fill a kitchen with steam.

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70. Explain why, osmosis can be considered to be a specieal kind of diffusion.

(i) osmosis, and (ii) diffusion :

(a) swelling up of a raisin on keeping in water

(b) spreading of virus on sneezing

(c) earthworm dying on coming in contact with common salt

(d) shrinking of grapes kept in thick sugar syrup

(e) preserving of pickles in salt

(f) spreading of smell of cake being baked in the kitchen

(g) aquatic animals using oxygen dissolved in water during respiration

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71. A student placed a gas jar containing air in the upside down position over a gas jar full of

red-brown bromine vapours. He observed that the red-brown colour spread upwards into the jar containing air. Based on this observation, the student concluded that it is only the bromine vapour which moves up and diffuses into air in the upper jar, the air from the upper jar does not move down by diffusion into the lower jar containing bromine vapours. Do you agree with this conclusion of the student ? Give reason for your answer.

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72. An inflated balloon full of air goes down slowly (becomes smaller and smaller slowly) even though the knot at the mouth of the balloon is airtight. And after a week all the air has escaped from the balloon. Explain how the air particles got out of the balloon.

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73. When extremely small particles X derived from the anther of a flower were suspended in a liquid Y and observed through a microscope,

it was found that the particles X were moving throughout the liquid Y in a very zig-zag way. It was also observed that warmer the liquid Y, faster the particles X moved on its surface.

What could particles X be ?

(b) What do you think liquid Y is ?

(c) What is zig-zag movement of X known as ?

(d) What is causing the zig-zag movement of particles X ?

(e) Name the scientist who discovered this phenomenon.

(f) What does this experiment tell us about the nature of liquid Y ?

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74. When a beam of sunlight enters a room through a window, we can see tiny particles X suspended in a gas (or rather a mixture of gases) Y which are moving rapidly in a very haphazard manner.

(a) What could particles X be ?

Name the gas (or mixture of gases) Y.

(c) What is the phenomenon exhibited by particles X known as ?

(d) What is causing the movement of particles

X ?

(e) What conclusion does the existence of this phenomenon give us about the nature of matter ?

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75. The boiling point of water is $100^{\circ}C$. Express this in SI units (Kelvin scale).

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76. The Kelvin temperature is 270 K. What is the corresponding Celsius scale temperature ?

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77. Convert the temperature of 573 K to the Celsius scale.

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78. Convert the temperature of $373^{\circ} C$ to the Kelvin scale.

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79. The boiling point of alcohol is $78^{\circ} C$. What is this temperature on Kelvin scale ?

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80. The Kelvin scale temperature is 0 K. What is the corresponding Celsius scale temperature ?

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81. Give the usual name for the following :

Heat required to change the state of a substance without changing the temperature

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82. What is the (a) common unit of temperature, and (b) SI unit of temperature ?

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83. Write the relation between Kelvin scale and Celsius scale of temperature.

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84. The Kelvin scale temperature is 0 K. What is the corresponding Celsius scale temperature ?

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85. What is meant by saying that the latent heat of fusion of ice is $3.34 \times 10^5 J/kg$?

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86. What is meant by saying that the latent heat of vaporisation of water is $22.5 \times 10^5 J/kg$?

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87. What is the name of the process in which (a) a solid turns directly into a gas ? (b) a gas turns directly into a solid ?

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88. Name one propertly which is shown by ammonium chloride but not by sodium chloride.

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89. What is the name of the process due to which dry ice changes into carbon dioxide gas ?

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90. State one condition necessary to liquefy gases (other than applying high pressure)

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91. Fill in the following blanks with suitable words :

(a) Gases can be liquefied by applying ..... And lowering .....

(b) When steam condenses to form water, heat is .....

(c) Temp on Kelvin scale = Temp on Celsius

scale + ...

(d) Scientists say that there are actually five states of matter : solid, liquid, gas, ... and .....

(e) The state of matter called ..... makes a fluorescent tube (or neon sign bulb) to glow.

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92. What do your understand by the term 'latent heat' ? What are the two types of latent heat ?

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93. Why does steam cause more severe burns than boiling water ?

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94. Explain why, steam at $100^{\circ} C$ is better for heating purposes than boiling water at $100^{\circ} C$.

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

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96. For any substance, why does the temperture remain constant during the change of state?

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97. Explain why, there is no rise in temperature of a substance when it undergoes a change of state though heat is supplied continuously.

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98. Define 'melting point' of a substance ? What is the melting point of ice ?

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99. Define 'boiling point' of a substance ? What is the boiling point of water ?

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100. Define the following terms :

(a) Melting (b) Boiling

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101. Define the following terms :

(a) Condensation (b) Freezing

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102. Explain why, naphthalene balls kept in stored clothes in our homes disappear over a period of time.

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103. How does applying pressure (or compression) help in the liquefaction of a gas ?

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104. How does perspiration or sweating help keep our body cool on a hot day ?

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

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

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

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

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

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Very Short Answer Type Questions

1. Name the temperature at which :

(a) a liquid changes into a gas. (b) a solid changes into a liquid.

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2. Name one common substance which can be easily changed from one state to another by heating or cooling

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3. What is the more common name for solid carbon dioxide?

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4. Why is solid carbon dioxide known as dry ice ?

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5. State whether the following statement is true or false :

solid carbon dioxide is stored under low pressure.

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6. What is the chemical name of dry ice ?

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Short Answer Type Questions

1. Why is heat energy needed to melt a solid ?

What is this heat energy called ?

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2. Under what conditions heat can be given to a substance without raising its tempearture ?

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3. Why does the temperature remain constant during the melting of ice even though heat is supplied continuously ?

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4. Why does the temperature remain constant during the boiling of water even though heat is supplied continuously ?

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5. Explain why ice at $0^{\circ}C$ is more effective in cooling than water at the same temperature.

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6. Would you cool a bucket of water more quickly by placing it on ice or by placing ice in it ? Give reasons for your answer.

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7. Which contains more heat, 1 kg of ice at $0^{\circ} C$ or 1 kg of water at $0^{\circ} C$? Give reason for your answer.

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8. Which contains more heat, 1 kg of water at $100^{\circ} C$ or 1 kg of steam at $100^{\circ} C$? Give reason for your answer.

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9. What is the physical state of water :

(a) at $0^{\circ} c$? (b) at $25^{\circ} C$? (c) at $100^{\circ} C$? (d) at $250^{\circ} C$?

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10. Explain briefly, how gases can be liquefied.

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11. How is ammonia gas liquefied ?

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12. Why does all the water of the earth not get evaporated during hot summer days ?

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13. How will you demonstrate that water vapour is present in air ?

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Long Answer Type Questions

1. (a) Define the term 'latent heat of fusion' of a solid. How much is the lateral heat of fusion of ice?

(b) Draw a labbelled diagram of the

experimental set-up to study the lateral heat of fusion of ice.

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2. (a) Define the term 'latent heat of vaporisation' of a liquid. What is the value of the latent heat of vaporisation of water ?

(b) Draw a labelled diagram of the experimental set-up to study the latent heat of vaporisation of water.

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3. (a) What are the two ways in which the physical states of matter can be changed ?

(b) Draw the 'states of matter triangle' to show the interconversion of states of matter.

(c) How can the evaporation of a liquid be made faster ?

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4. (a) What is evaporation ? State the various factors which affect evaporation.

(b) Why does evaporation cool a liquid ?

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Mcq

1. Which of the following are also considered to be the states of matter ?

(i) Plasma (ii) Platelets (iii) BEC (iv) BHC

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (ii) and (iv)

Answer: C

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2. One of the following does not undergo sublimation. This one is :

A. iodine

B. sodium chloride

C. ammonium chloride

D. camphor

Answer: B

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3. Which of the following process/processes release heat ?

(i) condensation (ii) vaporisation (iii) freezing (iv) melting

A. only (i)

B. only (iv)

C. (i) and (iii)

D. (ii) and (iv)

Answer: C

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4. If the temperature of an object is 268 K, it will be equivalent to :

A. $-5^{\circ}C$

B. $+5^{\circ}C$

C. $368^{\circ}C$

D. $-25^{\circ}C$

Answer: A

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5. The boiling point of ethane is, $-88^{\circ}C$. This temperature will be equivalent to :

A. 285 K

B. 288 K

C. 185 K

D. 361 K

Answer: C

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6. When heat is constantly supplied by a gas burner with small flame to melt ice, then the temperature of ice during melting :

A. increase very slowly

B. does not increase at all

C. first remains constant and then increases

D. increases to form liquid water

Answer: B

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7. When water at $0^{\circ}C$ freezes to form ice at the same temperature of $0^{\circ}C$, then it :

A. absorbs some heat

B. releases some heat

C. neither absorbs nor releases heat

D. absorbs exactly $3.34 \times 10^{5} J/kg$ of heat

Answer: B

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8. When heat is constantly supplied by a burner to boiling water, then the temperature of water during vaporisation :

A. rises very slowly

B. rises rapidly until steam is produced

C. first rises and then becomes constant

D. does not rise at all

Answer: D

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9. The latent heat of fusion of ice is :

A. $33.4 \times 10^5 J/kg$

B. $22.5 \times 10^5 J/kg$

C. $33.4 \times 10^4 J/kg$

D. $2.25 \times 10^4 J/kg$

Answer: C

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10. The latent heat of vaporisation of water is :

A. $2.25 \times 10^6 J/kg$

B. $3.34 \times 10^6 J/kg$

C. $22.5 \times 10^4 J/kg$

D. $33.4 \times 10^5 J/kg$

Answer: A

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11. Which one of the following sets of phenomena would increases on raising the temperature ?

A. diffusion, evaporation, compression of gases

B. evaporation, compression of gases, solubility

C. evaporation, diffusion, expansion of gases

D. evaporation, solubility, diffusion, compression of gases

Answer: C

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12. Which of the following represent the suitable conditions for the liquefaction of gases ?

A. low temperature, low pressure

B. high temperature, low pressure

C. low temperature, high pressure

D. high temperature, high pressure

Answer: C

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13. During summer days, water kept in an earthen pot (pitcher) becomes cool because of the phenomenon of :

A. diffusion

B. transpiration

C. osmosis

D. evaporation

Answer: D

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14. On converting $25^{\circ}C, 38^{\circ}$ and 66° to kelvin scale, the correct sequence of temperature will be

A. 298 K, 311 K and 339 K

B. 298 K, 300 K and 338 K

C. 273 K, 278 K and 543 K

D. 298 K, 310 K, 338 K

Answer: A

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15. The change from solid sate to vapour state without passing through the liquid state is called.....

A. vaporisation

B. fusion

C. sublimation

D. freezing

Answer: C

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16. The evaporation of water increases under the following conditions :

A. increase in temperature, decrease in surface area

B. increase in surface area, decrease in temperature

C. increase in surface area, rise in temperature

D. increase in temperature, increase in surface area, addition of common salt

Answer: C

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17. On converting 308 K, 329 K and 391 K to Celsius scale, the correct sequence of temperature will be :

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

B. $35^\circ C$, $56^\circ C$ and $119^\circ C$

C. $35^\circ C$, $56^\circ C$ and $118^\circ C$

D. $56^\circ C$, $119^\circ C$ and $35^\circ C$

Answer: C

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18. Which of the following energy is absorbed during the change of state of a substance ?

A. specific heat

B. latent heat

C. heat capacity

D. heat of solution

Answer: B

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19. Which of the following factor(s) is (are) responsible for the change of state of solid carbon dioxide into vapours ?

(i) Increase in pressure (ii) Decrease in

pressure

(iii) Increase in temperature (iv) Decrease in temperature.

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. (ii) and (iv)

Answer: C

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20. During respiration, glucose and oxygen enter our body cells and waste products carbon dioxide and water leave the body cells by the process of :

A. effusion

B. osmosis

C. diffusion

D. plasmolysis

Answer: C

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Hots

1. There are four substance W, X, Y and Z. The substance W is a dark violet solid having diatomic molecules. A solution of W in alcohol is used as a common antiseptic C. The susbstance X is a white solid which is usually recovered from sea water on a large scale. The substance Y is a white solid which is insoluble in water and used in the form of small balls for the safe storage of woollen clothes. The

substance Z is a yet another white solid which is used in making commonly used dry cells.

(a) Name (i) W (ii) X (iii) Y and (iv) Z.

(b) Out of W, X, Y and Z, which substance/substances can undergo sublimation ?

(c) Which substance is organic in nature ?

(d) what is the name of substance C ?

(e) Which substance belongs to the halogen family ?

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2. The substance X normally exists in a physical state which can flow easily but does not fill its vessel completely. It also turns anhydrous copper sulphate blue. When substance X is cooled excessively, it changes into a substance Y which has a fixed shape as well as a fixed volume. If, however, the substance X is heated strongly, it changes into a substance Z which has neither a fixed shape nor a fixed volume.

(a) Name the substances (i) X (ii) Y and (iii) Z.

(b) What is the process of conversion of X into Y known as ?

(c) At which temperature X gets converted

into Y ?

(d) What is the process of conversion of X into Z known as ?

(e) At which temperature X gets converted into Z ?

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3. The scientists now say that there are actually five states of matter A, B, C, D and E. The state A has a fixed volume but no fixed shape. The state B can be compressed very

easily by applying pressure and state C has a fixed shape as well as a fixed volume. The state D is a mixture of free electrons and ions whereas state E is named after an Indian scientist and a famous physicist.

(a) Name the physical state (i) A (ii) B (iii) C (iv) D, and (v) E.

(b) Name one substance belonging to state C which can directly change into vapours on heating. What is this process known as ?

(c) Name one substance which normally belongs to state B but whose solid form changes directly into gaseous state.

(d) Name the most common substance belonging to state A.

(e) Which state to matter makes the sun and other stars to glow ?

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4. When water is cooled to a temperature x, it gets converted into ice at temperature x by a process called P. And when ice at temperature x is warmed, it gets reconverted into water at the same temperature x in a process called Q.

(a) What is the value of temperature x in Kelvin ?

(b) What is the process P known as ?

(c) What is the name of energy released during process P ?

(d) What is the process Q known as ?

(e) What is the name of energy absorbed during process Q ?

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5. When water is heated to a temperature x, it gets converted into steam at temperature x by a process called R. And when steam at temperature x is cooled, it gets reconverted into water at the same temperature x by a process called S.

(a) How much is the value of x in Kelvin ?

(b) What is the process R called ?

(c) What is the name of the energy absorbed during the process R ?

(d) What is process S known as ?

(e) What is the name of energy released during the process S known as ?

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Ncert

1. Which of the following are matter? Chair, air,love, smell, hate, atmonds, thought, cold, lemon water, smell of perfume.

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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.

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

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4. CHARACTERISTICS OF 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

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6. (a) Tabulate the differences in the characteristics of states of matter.

(b) Comment upon the following: rigidity. Compressibility. Fluidity. Filling a gas container, shape, kinetic energy and density.

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7. 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.

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

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8. Liquids generally have lower density as compared to solids but you must have

observed that ice floatis on water. Find out/why.

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9. Convert the following temperatures to celsius scale :

(a) 300 K (b) 573 K

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10. What is the physical state of water at: a. $250^{\circ} Cb$. 100^(@)C ?

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11. For any substance, why does the temperture remain constant during the change of state?

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12. Suggest a method to liquefy atmospheric gases.

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

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

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

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

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

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18. Convert the following temperatures to the celsius scale.

(a) 293k (b) 470k.

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19. Convert the folowing temperature to the kelvin scale.

(a) $25^{\circ} C$ (b) $373^{\circ} C$.

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20. 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.

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21. Arrange the following substances in increasing order of forc es of attraction between the particles-water, sugar, oxygen.

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22. What is the physical state of water at :

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

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23. Give two reasons to justify-

(a) Water at room temperaure is a liquid

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

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

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

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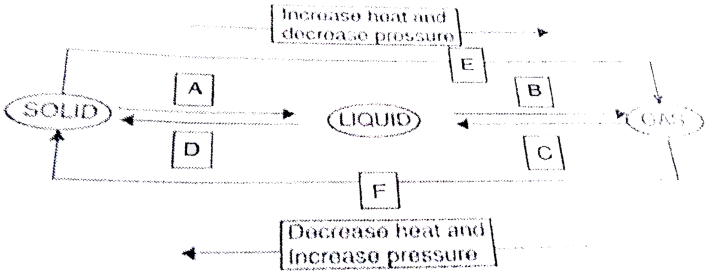
26. Name A, B, C, D, E and F in the following diagram showing changes in state :



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