THE VILLAGE INTERNATIONAL SCHOOL
"We Nurture Dreams"

GRADE 9 CHEMISTRY

MATTER AROUND OUR SURROUNDINGS

QUESTION BANK

1. Which of the following elements is liquid at room temperature?

A) Argon

B) Copper

C) Mercury

D) Calcium

E) None of these

Ans: C

2. Which one of the following is not a matter?

a) Air

b) Water

c) Paper

d) Smile

e) None of these

Ans: d

3. Which one of the following statements is not correct about solid?

a) Soilds have fixed shape

b) Solids have fixed volume

c) Solids can flow

d) Solids have high densities

Ans: C

4. Which one of the following statements is correct?

Statement 1: In solids, molecules are tightly packed.

Statement 2: Force of attraction between molecules in solids is very weak.

a) Statement 1 only

b) Statement 2 only

c) Both the statements are incorrect

d) None of these

Ans: (a)

5. Which one of the following is correct about gas?

a) A gas does not have a fixed volume

b) A gas does not have a fixed shape

c) Gases are easily compressible

d) All of the above

Ans: (d)

6. In which one of the following states of matter maximum movement of particles is noted?

a) Solid

b) Liquid

c) Gas

d) All of the above

e) None of these

Ans (c)

7. Is there any similarity in materials?

Ans: Yes, all materials possess mass and occupy space

8. When 50 g of sugar is dissolved in 100 mL of water, there is no increase in volume. What

characteristic of matter is illustrated by this observation?

Ans: This observation indicates that particles of water have spaces between them into which sugar particles fit.

9. What happens when an inflated air balloon is pricked with a pin? Name the property of the gaseous state exhibited by this observation.

Ans: The balloon bursts and diffusion takes place.

10. Name the process which occurs when a drop of dettol is added to water.

Ans: When dettol is added to water, diffusion takes place

11. To which physical state of matter do the following statements apply?

(i) Incompressible, no fixed shape

(ii) Compressible, no definite volume

Ans: (i) Liquid (ii)Gas

12. Why do the gases exert more pressure on the walls of the container than the solids?

Ans:

In gases, the particles move randomly at high speed and they collide with each other and with the walls of the container.

13. Which of the following diffuses faster?

Water vapour, wax or, ethyl alcohol.

Ans:

Water vapour

14. Why do we see water droplets on the outer surface of a glass containing ice cold water?

Ans:

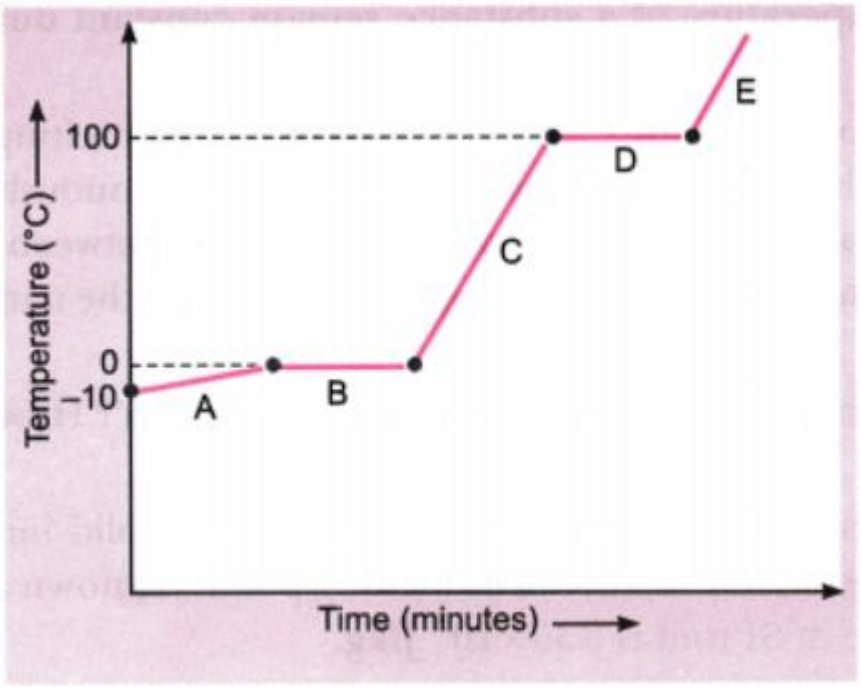
The water vapour present in the air comes in contact with cold surface of the glass, loses its energy and gets converted into droplets of water.

15. Kinetic energy of particles of water in three vessels A, B and C are E_A, E_B and E_C respectively and $E_A > E_B > E_C$. Arrange the temperatures, T_A, $T_B$and T_C of water in the three vessels in increasing order.

Ans:

$T_C < T_B < T_A$, the kinetic energy of particles is greater at higher temperature.

16. Analyse the temperature versus time graph of water, given below.



Which region contains all liquids?

Ans:

Region C

17. Why do solids have a regular geometrical shape?

Ans:

In solids, the particles have highly ordered arrangement because the intermolecular forces between the particles are very strong. Therefore, solids have a regular geometrical shape.

18. Why are gases compressible but not liquids?

Ans:

Gases are compressible because the intermolecular space is very large in gases, whereas liquids are not compressible because in liquids, the intermolecular space is less.

19. Can a rubber band change its shape on stretching? Is it a solid?

Ans:

Yes, a rubber band changes shape under force and regains the same shape when the force is removed. It breaks on applying excessive force. Yes, it is a solid.

20. Why steam at 100°C is better for heating purposes than water at 100°C?

Ans: Steam at 100°C is better for heating purposes than water at 100°C because the energy of 1 kg of steam at 100°C is 22.6×10^5 joule which is more than that of 1 kg of water at the same temperature.

21. Give two ways in which melting points and boiling points can be useful.

Ans:

a) To check whether the substance is pure or not.
b) To identify and characterise the substance.

22. Alka was making tea in a kettle. Suddenly she felt intense heat from the puff of steam gushing out of the spout of the kettle. She wondered whether the temperature of the steam was higher than that of the water boiling in the kettle. Comment.

Ans:

The temperature of both boiling water and steam is 100°C, but steam has more energy because of latent heat of vaporisation

23. Why does the temperature of a substance remain constant during its melting point or boiling point?

Ans:

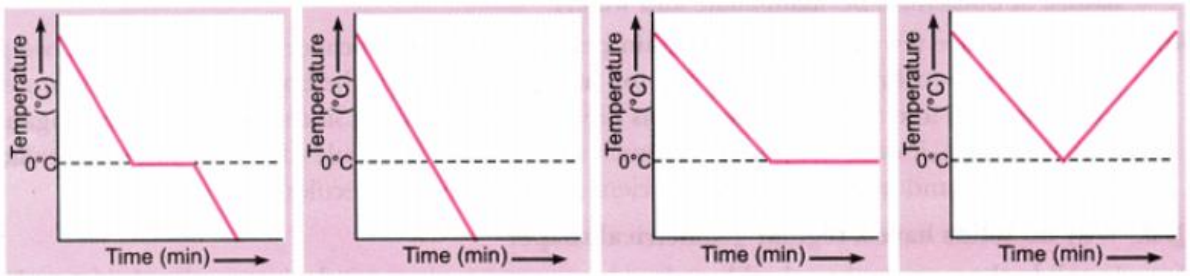
The temperature of a substance remains constant at its melting and boiling points until all the substance melts or boils because, the heat supplied is continuously used up in changing the state of the substance by overcoming the forces of attraction between the particles. This heat energy absorbed without showing any rise in temperature is given the name latent heat of fusion/latent heat of vaporisation.

24. What do you understand by the term ‘latent heat of fusion’? How much is the latent heat of fusion of ice?

Ans:

The amount of heat that is required to change 1 kg of solid into liquid at atmospheric pressure without any change in temperature at its melting point, is known as latent heat of fusion. The latent heat of fusion of ice in SI unit is 3.35×10^5 J/kg.

25. A glass tumbler containing hot water is kept in the freezer compartment of a refrigerator (temperature <0°C). If you could measure the temperature of the content of the tumbler, which of the following graphs would correctly represent the change in its temperature as a function of time?



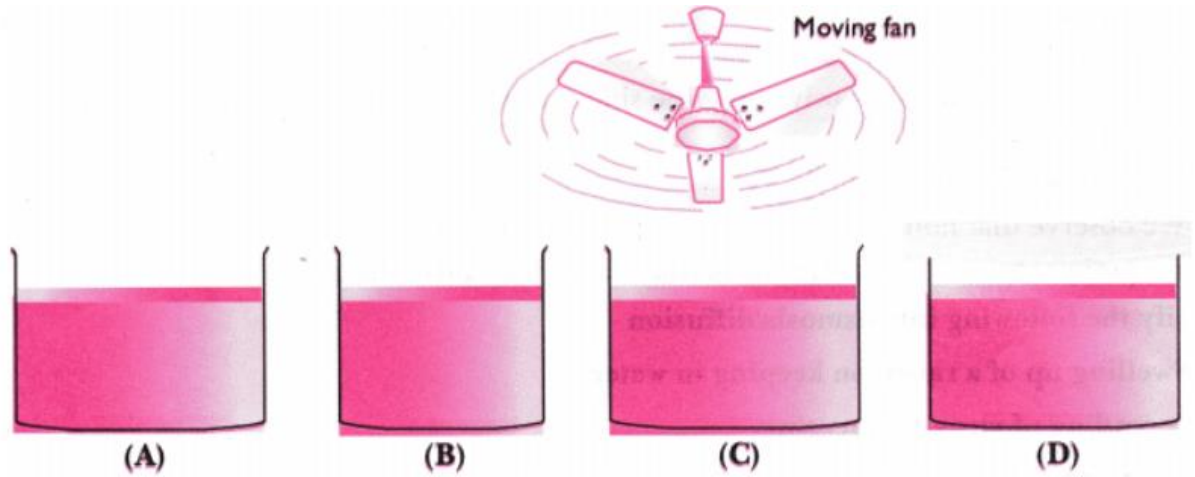
Ans: (a). The water will cool initially till it reaches 0°C, the freezing point. At this stage, the temperature will remain constant till all the water will freeze. After this, temperature would fall again

26. Why do the doctors advise to put strips of wet cloth on the forehead of a person having high fever?

Ans:

When a person has fever, his body temperature becomes more than the normal body temperature. If we put strips of wet cloth on the forehead of a person suffering from high fever, the water evaporates taking heat from the body. Thus, moist strips will lower his body temperature.

27. Look at the following figures and suggest in which of the glass containers, i.e., A, B, C or D, the rate of evaporation will be the highest? Explain



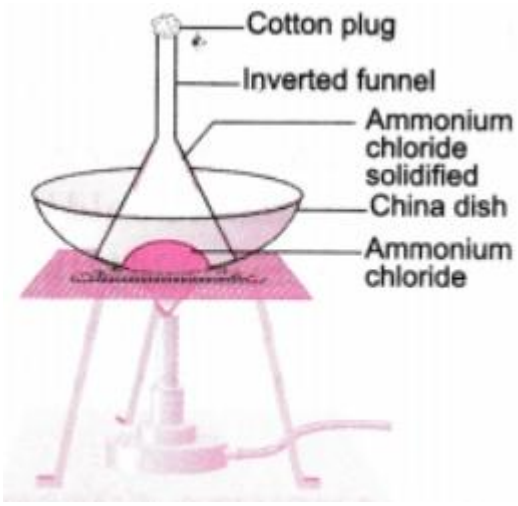
Ans: (C). The rate of evaporation increases with an increase in surface area because evaporation is a surface phenomenon. Also, with the increase in air speed, the particles of water vapour will move away with air, which will increase the rate of evaporation.

28. Why do wet clothes dry quickly in the sun than in the shade?

Ans:

The temperature in the sunny area is higher than in the shade and evaporation takes place at a faster rate at high temperature. Hence, wet clothes dry quickly in the sun

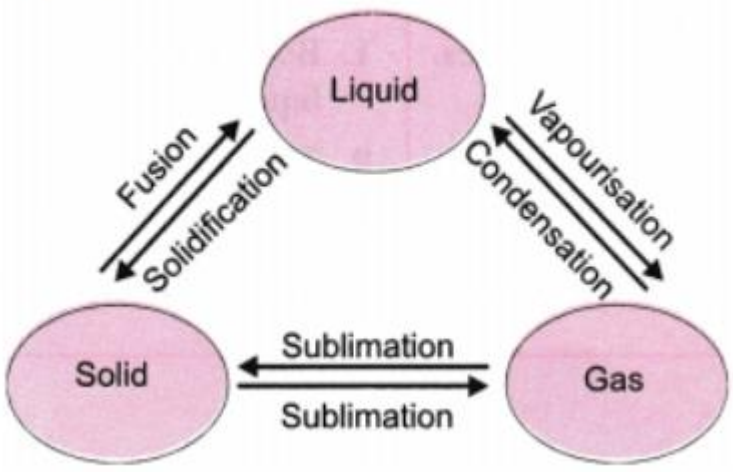
29. Design an experiment to show that ammonium chloride undergoes sublimation



- Take crystals of ammonium chloride in a china dish.
- Put the china dish on a tripod stand with wire gauze.
- Put an inverted funnel on the china dish and insert a cotton plug in the stem of the funnel.
- Heat the china dish on a low flame.
- In the inside of the funnel white deposits of ammonium chloride is seen which directly converts into gaseous state and then solidifies.

30. Explain interconversion of three states of matter with the help of flow chart. Name the process of each interconversion.

Answer:



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