1. The property of flow is unique to fluids. Which one of the following statements is correct?

(a) Only gases behave like fluids

(b) Gases and solids behave like fluids

(c) Gases and liquids behave like fluids

(d) Only liquids are fluids

Answer: c) Gases and liquids behave like fluids

Explanation: In gases and liquids, the intermolecular force of attraction between the particles is less and they facilitate the flow of these states of matter.

2. A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement?

(a) Water, air, wind

(b) Air, sugar, oil

(c) Oxygen, water, sugar

(d) Salt, juice, air

Answer: c) Oxygen, water, sugar

Explanation: The intermolecular force of attraction is less in gases than in liquids and solids. Solids have higher intermolecular attraction compared to liquids. In the answer, oxygen is a gas which has lesser intermolecular attraction than water- a liquid and sugar- a crystalline solid.

3. Choose the correct statement of the following

(a) Conversion of solid into vapours without passing through the liquid state is called sublimation.

(b) Conversion of vapours into solid without passing through the liquid state is called vaporisation.

(c) Conversion of vapours into solid without passing through the liquid state is called freezing.

(d) Conversion of solid into liquid is called sublimation.

Answer: a) Conversion of solid into vapours without passing through the liquid state is called sublimation.

Explanation:

- Sublimation is a process in which a solid is converted into vapours without passing through a liquid state.
- Vaporisation is a phase transition from liquid to vapours.
- Conversion of liquid to solid at substance's freezing temperature is called as freezing.

4. 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) ii and iii

Explanation

- To increase the intermolecular interaction either the volume of Hydrogen gas should be reduced or the container volume should be increased.

- By increasing the pressure or by adding Hydrogen without increasing container volume inter-molecular interaction would decrease.
- Water under study was found to boil at 102°C at normal temperature and pressure.

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

(a) diffusion (b) sublimation (c) evaporation (d) humidity

Answer: (a) diffusion.

6. If the surface area is increased, then the rate of evaporation is –

(a) decreased (b) remain same

(c) increased (d) evaporation does not depend on the surface area.

Answer: (c) increased.

7. The forces of attraction between particles are maximum is

(a) water (b) ice

(c) water vapour (d) neither maximum nor minimum but equal

Answer: (b) ice.

8. The forces of attraction between particles are minimal in –

(a) sugar (b) salt (c) water (d) oxygen

Answer: (d) oxygen.

9. Some water vapour changes into liquid state, then it particles

(a) gains energy (b) loses energy (c) neither loses energy nor gains energy

(d) It depends on atmosphere

Answer: (b) loses energy.

10. Gases can be liquefied by

(a) increasing pressure (b) decreasing temperature

(c) both (a) and (b) (d) decreasing pressure

11. Which of the following is a characteristic property of a substance?

a) Color b) Mass c) Volume d) T**emperature**

12. Which state of matter has the highest kinetic energy?

a) Solid b) Liquid **c) Gas** d) Plasma

13. The state of matter with the least kinetic energy is:

a) **Solid** b) Liquid c) Gas d) Plasma

14. Which of the following is the smallest unit of matter?

a) **Atom** b) Molecule c) Particle d) Element

15. 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) (ii) and (iii)

16. 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) Kerosene

17. 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

18. Which one of the following set of phenomena would increase 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

19. Which of the following is the smallest unit of matter?

a) Atom b) Molecule c) Particle d) Element

20. 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) (ii) and (iii)

21. 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) Kerosene

22. Which one of the following set of phenomena would increase 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) Evaporation, diffusion, expansion of gases

23. Which of the following cannot be considered a form of matter?

(a) Atom (b) Water (c) Humidity (d) Electron

Answer: (c) Humidity

24. Which of the following causes the temperature of a substance to remain constant while it is undergoing a change in its state?

(a) Latent heat (b) Lattice energy (c) Loss of heat (d) None of these

Answer: (a) Latent heat

25. Which of the following statements is correct?

(a) Materials existing as liquids at room temperature have their melting and boiling points lower than that of room temperature.

(b) The phenomenon involving the transition of a substance from solid to liquid state is called sublimation.

(c) To convert a temperature on the Celsius scale to Kelvin scale, subtract 273 from the given temperature

(d) The density of ice is less than that of water.

Answer: (d) The density of ice is less than that of water.

26. Which of the following statements is not true regarding the characteristics of matter?

(a) Particles of a matter are randomly moving in all directions.

(b) Kinetic energy of the particles increases with a rise in temperature

(c) Kinetic energy of the particles of all maters remains the same at a particular temperature.

(d) Particles of matter diffuse into each other on their own.

Answer: (c) Kinetic energy of the particles of all maters remains the same at a particular temperature.

27. What effect does a change in temperature have on matter?

a) It changes the state of matter

b) It changes the color of matter

c) It changes the mass of matter

d) It changes the chemical composition of matter

Answer: a) It changes the state of matter

Explanation: A change in temperature can cause matter to change its state (solid, liquid, or gas).

28. How does evaporation cause cooling?

a) By releasing heat

b) By absorbing heat

c) By releasing energy

d) By absorbing energy

Answer: b) By absorbing heat

Explanation: Evaporation causes cooling because when a liquid evaporates, it absorbs heat from its surrounding environment, resulting in a decrease in temperature.

29. Which of the following statements is correct?

(a) Materials existing as liquids at room temperature have their melting and boiling points lower than that of room temperature.
(b) The phenomenon involving the transition of a substance from solid to liquid state is called sublimation.
(c) To convert a temperature on the Celsius scale to Kelvin scale, subtract 273 from the given temperature
(d) The density of ice is less than that of water.

Answer: (d) The density of ice is less than that of water.

30. Which of the following statement is not true regarding the characteristic of matter?
(a) Particles of a matter are randomly moving in all directions.
(b) Kinetic energy of the particles increases with a rise in temperature
(c) Kinetic energy of the particles of all maters remains the same at a particular temperature.

(d) Particles of matter diffuse into each other on their own.

Answer: (c) Kinetic energy of the particles of all maters remains the same at a particular temperature.

B.Fill in the blanks:

(a) Evaporation of a liquid at room temperature leads to a_____effect.

(b) At room temperature the forces of attraction between the particles of solid substances are_____than those which exist in the gaseous state.

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

(d) _____ is the change of solid state directly to vapour state without going through the _____state.

(e) The phenomenon of change of a liquid into the gaseous state at any temperature below its boiling point is called_____.

Answer:

a. Cooling
b. Stronger
c. Liquid, gaseous
d. Sublimation, liquid
e. Evaporation

C. Match the physical quantities given in column A to their S I units given in column B:

(A)	(B)
(a) Pressure	(i) cubic metre
(b) Temperature	(ii) kilogram
(c) Density	(iii) pascal
(d) Mass	(iv) kelvin
(e) Volume	(v) kilogram per cubic metre

Answer:

(a) — (iii) The SI unit of pressure is the pascal (denoted by P).

(b) — (iv) The SI unit of temperature is -Kelvin (denoted by K).

(c) — (v) The SI unit of density is kilogram per cubic metre (kg/m^3).

(d) — (ii) The SI unit of mass is the kilogram (kg).

(e) — (i) The SI unit of volume is m^3.

Short Answer Questions:

Q1. Why is ice at 273K more effective in cooling than water at the same temperature?

Answer: At 273 K, ice will absorb heat energy or latent heat from the medium to overcome fusion and transform into water. As a result, ice has a greater cooling impact than water at the same temperature since water does not absorb the excess heat from the medium.

Q2. Write the factors behind the rate of evaporation.

Answer: Surface area, temperature, humidity of the liquid.

Q3. What do you mean by fusion?

Answer: Solid changes into liquid is called fusion.

Q4. Arrange the following substances increasing, order of forces of attraction between the particles water, ice, water vapour.

Answer: Water vapour <water < ice.

Q5.Why does our palm feel cold when we put on some acetone or petrol, or perfume on it?

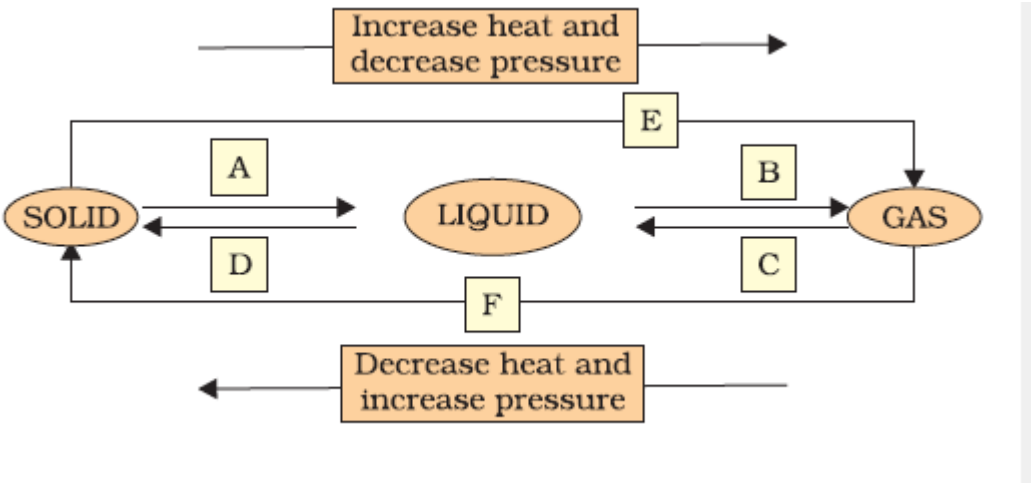
Answer: Acetone, petrol, and perfume are volatile substances that evaporate when they come in contact with air. Evaporation is facilitated as it uses energy from the palm, hence leaving a cooling effect on our palms.

Q6. Why is ice at 273K more effective in cooling than water at the same temperature?

Answer: At 273 K, ice will absorb heat energy or latent heat from the medium to overcome fusion and transform into water. As a result, ice has a greater cooling impact than water at the same temperature since water does not absorb the excess heat from the medium.

III. Long Answer Questions:

Q7. Name A, B, C, D, E, and F in the following diagram showing a change in its state.



Answer: Interconversion of three states of matter: Using temperature or pressure, any state of matter can be turned into another.

(A) Solid to Liquid → Melting (or) fusion (or) liquefaction

(B) Liquid to Gas → Evaporation (or) vaporization

(C) Gas to liquid → Condensation

(D) Liquid to Solid → Solidification

(E) Solid to Gas → Sublimation

(F) Gas to Solid → solidification

Q8. What are the characteristics of the particles of matter?

Answer: The characteristics of particles of matter are as follows:

(a) Presence of intermolecular spaces between particles

(b) Particles are in constant motion

(c) They attract each other

(d) All matter is composed of very small particles which can exist independently.