	INDIAN SCHOOL AL WADI AL KABIR	
Class: IX	**Department: SCIENCE 2023 – 24** **SUBJECT: CHEMISTRY**	**Date of submission:** **05.05.2023**
Worksheet No: 01 **WITH ANSWERS**	**CHAPTER / UNIT:** **MATTER IN OUR SURROUNDINGS**	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	**CLASS & SEC:**	**ROLL NO.**

MULTIPLE CHOICE QUESTIONS (1 M)

1. Which of the following is not a property of gas?
   a. Gases have a definite shape
   b. Gases have no definite volume
   c. The rate of diffusion of a gas is higher
   d. Gaseous particles are in a state of random motion

2. When heat is constantly supplied by a burner to boiling water, then the temperature of the 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

3. Gases can be liquefied under specific conditions of temperature and pressure. Identify the correct set of conditions.
   a. Low temperature, low pressure
   b. High temperature, low pressure
   c. Low temperature, high pressure
   d. High temperature, high pressure

4. Which of the following 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

5. Which condition out of the following will increase the evaporation of water?
   a. Increase in temperature of water
   b. Decrease in temperature of water

c. Less exposed surface area of water
d. Adding common salt to water

6. Dry ice is
   a. water in solid state
   b. water in gaseous state
   c. CO_2 in liquid state
   d. CO_2 in solid state

7. Solids and gases mix/dissolve in water
   a. because water is a good solvent
   b. because water has intermolecular space
   c. diffusion is faster in water
   d. all of the above

8. During summer, water kept in an earthen pot becomes cool because of the phenomenon of
   a. diffusion
   b. transpiration
   c. osmosis
   d. evaporation

9. 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. Salt, juice, air
   c. Oxygen, water, sugar
   b. Air, sugar, oil

10. On converting 25°C, 38°C and 66°C 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 and 338 K

ASSERTION -REASON TYPE QUESTIONS

Choose the correct options for the following questions.
a. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. Assertion is true but Reason is false.
d. Assertion is false but Reason is true

11. Assertion: Most of the solid, liquid and gases can diffuse into liquids.
    Reason: Liquids cannot change its shape

12. Assertion: Naphthalene does not leave any residue when kept open for sometime
    Reason: The conversion of a solid directly into gas is called Condensation.

13. Assertion: During evaporation of liquids, the temperature remains unaffected.
    Reason: Kinetic energy is directly proportional to absolute temperature.

14. Assertion: There is no change in the temperature of a substance when it undergoes a change of state though it is still being heated.
Reason: The heat supplied is absorbed either as latent heat of fusion or as latent heat of vapourisation.

15. Assertion: The intermolecular forces in solid state are stronger than in liquid state.
Reason: The space between the particles of matter is called intermolecular space.

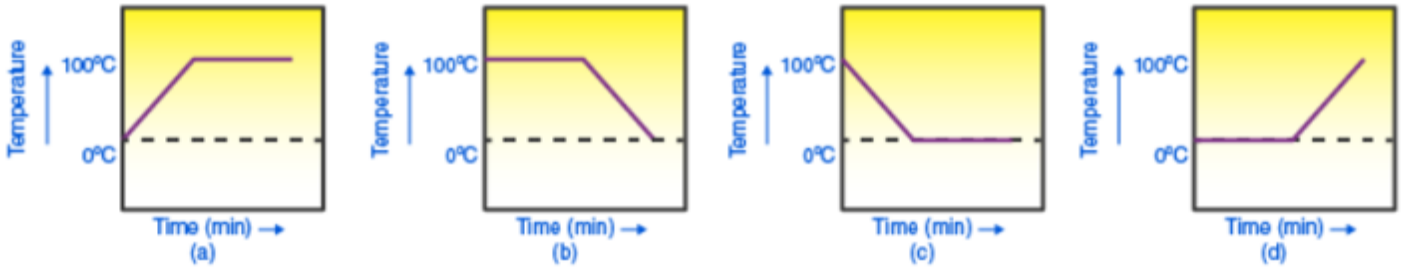
CASE STUDY/DATA BASED QUESTIONS (4 M)

16.

In an experimental activity, crushed ice was taken in a beaker. A thermometer is fitted in such a way that its bulb was thoroughly surrounded by ice. A student heats the beaker containing ice and water. The beaker is now slowly heated and temperature was regularly noted. Temperature rises gradually as the heating is continued and becomes constant when ice starts changing into liquid.

a. Identify the process associated with conversion of ice into water.
b. What specific name is given to the constant temperature?

c. He measures the temperature of the content of the beaker as a function of time. Which of the following would correctly represent the result? Justify your choice.



OR

c. Water as ice has a cooling effect, whereas water as steam may cause severe burns. Explain these observations.

VERY SHORT ANSWER TYPE (2M)

17. a. 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?
b. Name the process which occurs when a drop of Dettol is added to water.

18. It is a hot summer day, Priya and Ali are wearing cotton and nylon clothes respectively. Who do you think would be more comfortable and why?

19. a. Why do the gases exert more pressure on the walls of the container than the solids?
b. The phenomenon of the change of a liquid into the gaseous state at any temperature below its boiling point is called _____.

SHORT ANSWER TYPE (3M)

20. Substance 'A' has high compressibility and can be easily liquefied. It can take up the shape of any container. Predict the nature of the substance. Enlist four properties of this state of matter.

21. Give reasons for the following statements.

a. A small volume of water in a kettle can fill a kitchen with steam
b. Evaporation causes cooling.
c. Sponge though compressible is a solid.

22. You are given the following substances with their melting and boiling points.

Substance	Melting point (°C)	Boiling point (°C)
X	-219	-183
Y	119	445
Z	-15	78

Identify the physical states of X, Y and Z at room temperature (30°C).

LONG ANSWER TYPE QUESTIONS (5 M)

23.

a. The smell of perfume gradually spreads across a room. Name and explain the process.
b. The arrangement of particles is less ordered in the _____ state. However, there is no order in the _____ state.
c. Conversion of solid to vapour is called sublimation. Name the term used to denote the conversion of vapour to solid.
d. Look at the figure and suggest in which of the vessels A, B, C or D the rate of evaporation will be the highest? Explain.

ANSWERS

Q.No	Answers
1	a. Gases have a definite shape
2	d. Does not rise at all
3	c. Low temperature and high pressure
4	c. Evaporation, diffusion, expansion of gases
5	a. Increase in temperature of water

6	d. CO_2 in solid state
7	d. all of the above
8	d. evaporation
9	c. Oxygen, water, sugar
10	a. 298 K, 311 K and 339 K
11	c. Assertion is true but Reason is false
12	c. Assertion is true but Reason is false
13	d. Assertion is false but Reason is true
14	a. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
15	b. Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
16	a. Fusion of Solid b. Melting Point c. When we heat the mixture, the energy supplied is utilized to melt the ice, and the temperature does not change until all the ice melts because of the latent heat of fusion. On further heating, the temperature of the water would increase. So, graph (d) correctly represents the result. OR c. Water turns into ice when the temperature decreases to 0°C. Water turns into steam at 100°C when heat is supplied to the water. Water as steam has more latent heat, while water as liquid does not. Hence, water as steam may cause severe burns, while water as ice has a cooling effect.
17	a. This observation indicates that particles of water have spaces between them into which sugar particles fit. b. When Dettol is added to water, diffusion takes place.
18	Priya would be more comfortable than Ali. The reason is that we get a lot of sweat in our bodies on a hot summer day. Cotton is a good absorber of water. It absorbs sweat from the body and provides a larger surface area for evaporation which causes a more cooling effect. Nylon does not absorb sweat, so the sweat does not evaporate, and Ali would feel uncomfortable.
19	a. In gases, the particles move randomly at high speed and they collide with each other and with the walls of the container. b. Evaporation
20	'A' is a gas. Properties of gases • They do not have fixed shape and fixed volume. • They have large interparticle space. • They have least forces of attraction between the molecules. • They are highly compressible.
21	a. The liquid form of water converts into gaseous form in steam. Its particles move very rapidly in all the directions and fill the kitchen as gases completely fills the vessel. b. Evaporation produces cooling as the particles at the surface of the liquid gain energy from the surroundings and change into vapour, thereby producing a cooling effect. c. A sponge has minute holes in which air is trapped. Also, the material is not rigid. When we press it, the air is expelled out and we are able to compress it. But it is a solid because it has definite shape and volume and does not change its shape unless compressed.

22	‘X’ is gas at room temperature. ‘Y’ is solid at room temperature. ‘Z’ is liquid at room temperature.
23	a. Diffusion. The intermixing of particles of different types of matter on their own. b. liquid, gaseous state c. Deposition d. The rate of evaporation increases with the increase in surface area and wind speed. The surface areas of vessels C, A and D are similar, but the wind speed is more above vessel C because of the fan. Hence the rate of evaporation will be highest in vessel

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