



**UNIQUE STUDY POINT**  
**OBJECTIVE QUESTIONS: CLASS IX**  
**MATTER IN OUR SURROUNDING**

### Fill in the blanks:-

- Matter is made up of small \_\_\_\_\_.
- The forces of attraction between the particles are \_\_\_\_\_ in solids, \_\_\_\_\_ in liquids and \_\_\_\_\_ in gases.
- \_\_\_\_\_ is the change of gaseous state directly to solid state without going through liquid state, and vice-versa.
- Evaporation causes \_\_\_\_\_.
- Latent heat of fusion is the amount of heat energy required to change 1 kg of solid into liquid at its \_\_\_\_\_.
- Solid, liquid and gas are called the three \_\_\_\_\_ of matter.
- The smell of perfume gradually spreads across a room due to \_\_\_\_\_.
- Rapid evaporation depends on the \_\_\_\_\_ area exposed to atmosphere.
- As the temperature of a system increases, the pressure of the gases \_\_\_\_\_.
- As the volume of a specific amount of gas decreases, its pressure \_\_\_\_\_.
- As the temperature of a gas decreases, its volume \_\_\_\_\_.
- Gas molecules at higher temperatures have more \_\_\_\_\_ than at cooler temperatures.
- Usually the total charge of a plasma is \_\_\_\_\_.
- The pressure inside of a sealed tube if you raise the temperature goes \_\_\_\_\_.
- Forces of attraction in liquids are \_\_\_\_\_ than in solid.
- Liquids that move quickly downhill are described as having \_\_\_\_\_.

### True/ False:-

- Boiling is a bulk phenomenon.
- Evaporation is a surface phenomenon.
- The rate of evaporation depends only on the surface area exposed to the atmosphere.
- Latent heat of vaporization is the heat energy required to change 1 kg. of a liquid to gas at atmospheric pressure at its melting point.
- Water at room temperature is a liquid.
- Atoms in a liquid are farther apart than the atoms in a gas.
- The molecules in a gas are in constant motion.
- Gases present in air have the same pressure throughout the entire atmosphere.
- All materials move from solid to liquid to gas as the temperature increases.
- Because electrons have been stripped away from atoms in plasma, plasmas have a negative charge.
- It is just as easy to compress a liquid, as it is to compress a gas.
- Evaporation and boiling are the same processes because molecules move from a liquid to gaseous state.
- If we pour liquid nitrogen ( $N_2$ ) into a glass, it will change its state to a solid.
- You may find plasma in a star.
- A system that changes from a solid state to a liquid state gains energy.
- Plasmas are all made of the same ions. They have different colours due to different amounts of electricity.

### Very Short Answer Questions-

- Name the three states of matter. Give one example of each.
- What are the two ways in which the physical state of matter can be changed?
- Explain how gases can be liquefied?
- What is sublimation? Give examples.
- Define latent heat of fusion.

6. Define latent heat of vaporization.
7. What produces more severe burns, boiling water or steam?
8. How can the boiling point of a liquid be raised, without adding any impurity?
9. In how many forms did the earlier scientists classify matter?
10. Why does a summer rainstorm lower the temperature?
11. A beaker of a liquid with a vapour pressure of 350 torr at 25°C is set alongside a beaker of water (Vapour pressure of 23.76 torr) and both are allowed to evaporate. In which liquid does the temperature change at a faster rate? Why
12. At a given temperature, one liquid has a vapour pressure of 240 torr and another measure 420 torr. Which liquid probably has the lower boiling point? Which probably has the lower heat of vaporization?
13. A drop of dettol got evenly distributed in water. How?
14. Liquid nitrogen is used as a commercial refrigerant to flash freeze foods. Nitrogen boils at -196°C. What is this temperature on the Kelvin temperature scale?
15. What property or properties of gases can you point to support the assumption that most of the volume in a gas is empty space?
16. What is unit cell?
17. What is the effect on surface tension of temperature?
18. Surface tension is same for different liquids. Explain.

**Question 1.** What is condensation? How is the condensation of a gas carried out?

**Question 2.** Why do solids not diffuse?

**Question 3.** Convert the following Kelvin temperature to degrees Celsius.

- a. 175 K
- b. 295 K
- c. 300 K
- d. 225 K

**Question 4.** Convert the following Celsius temperature to Kelvin temperature.

- a. 25 °C
- b. -15 °C
- c. 0 °C
- d. 3 °C

**Question 5.** Arrange the following substances in increasing order of intermolecular force of attraction: water, sugar, oxygen

**Question 6.** What is the physical state of water at the following temperatures?

- (a) 25 °C
- (b) 0 °C
- (c) 100 °C

**Question 7.** Why does the temperature of a substance remain constant during melting and boiling even when heat is being supplied to it continuously?

**Question 8.** Explain the diffusion of copper sulphate into water.

**Question 8.** Why do the gases exert more pressure on the walls of the container than the solids?

**Question 9.** The process in which a solid is converted directly into a gas is called sublimation. Iodine is an element that sublimates. A sample of solid iodine in a stoppered flask was allowed to stand undisturbed for several days. Crystals of solid iodine grew on the sides of the flask. Explain at the molecular level what happened?

**Question 10.** Give three examples of crystalline and amorphous solids.

**Question 11.** Why is motor oil more viscous than water? Does motor oil have a greater surface tension than water.

**Question 12.** Describe why a drop of food coloring in a glass of water slowly becomes evenly distributed without the need for stirring?

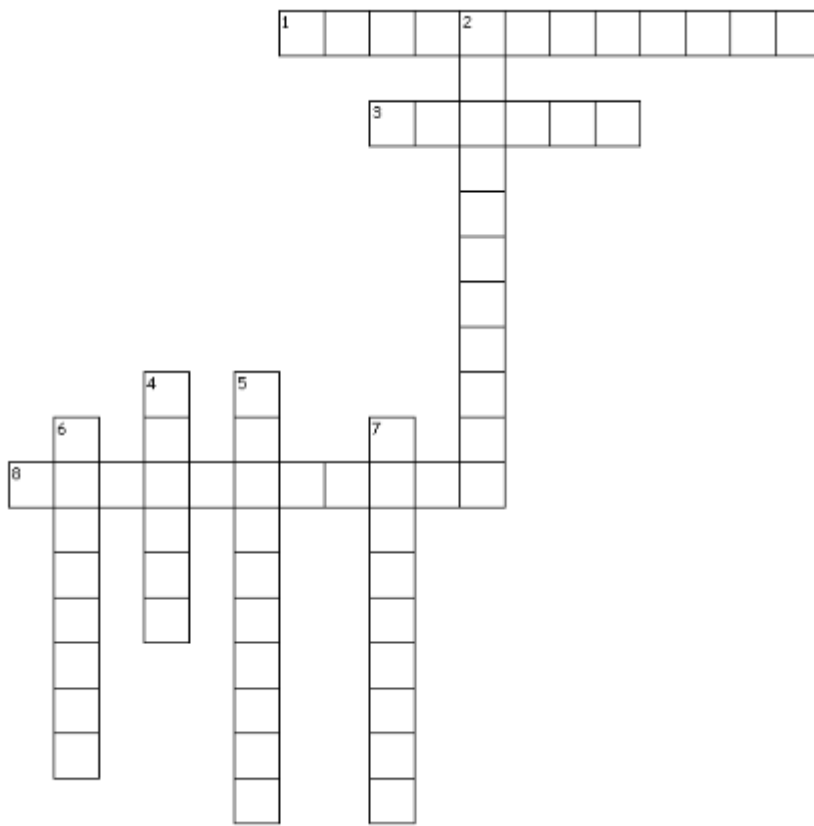
**Question 13.** Liquid mix more slowly than gases. Why?

**Question 14.** Define the following terms:

- a. Melting point
- b. Freezing point
- c. Boiling point

**Question 24.**

**Crossword Puzzle**



Across

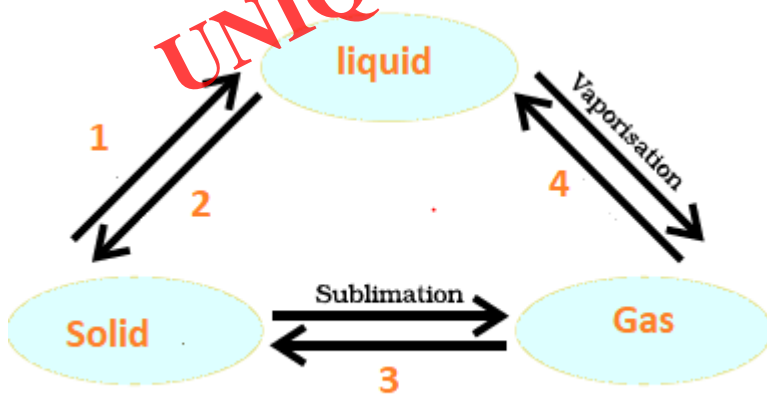
1. BEC stands for Bose-Einstein-\_\_\_\_\_
3. The state consists of super energetic and super excited particles
8. Conversion of solid to vapour is called \_\_\_\_\_

Down

2. This is the phenomenon of change of a liquid into vapours at any temperature below its boiling point
4. SI unit of Temperature
5. CNG stands \_\_\_\_ natural gas
6. It is the amount of water vapour present in air.
7. LPG stands for \_\_\_\_\_petroleum gas.

**Question 25.**

Write the terms for numbers in the below figure



Interconversion of the three states of matter

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