

CBT SCIENCE
(APRIL) CLASS IX -2025
ANSWERS(WITH EXPLANATION)
(MATTER IN OUR SURROUNDINGS)

Answer:1 (c) Gases and liquids behave like fluids.

Explanation : liquids and gases are categorized as fluids because they have a property to flow, i.e., the molecules of liquids and gases can easily move fast and tumble over one another freely. The extent to which fluids yield to shearing forces (and hence flow easily and quickly) depends on a quantity called the viscosity.

Answer: 2. (c) Evaporation, diffusion, expansion of gases

Explanation: Increasing temperature enhances evaporation by providing more energy to molecules, diffusion by increasing molecular motion, and expansion of gases due to increased kinetic energy, causing gases to occupy more volume.

Answer: 3 (d) evaporation

An earthen pot (matka) is made from mud particles and has minuscule pores in it. There are a large number of these extremely small pores. Through these pores, water can evaporate. This process of evaporation of water is continuous process and water keeps on evaporating slowly. The latent heat energy required for this evaporation comes from the earthen pot and the water present in the earthen pot. In other words, water present in an earthen pot loses some heat energy by evaporation. Loss of heat energy results in a cooling effect. Hence, in summer, to drink cold water, people keep drinking water in earthen pots.

Answer:4 (c) Oxygen, water, sugar In matter, particles are held together by intermolecular forces of attraction that keep the particles together and knitting. In general, the increasing order of strength of intermolecular forces is-

Gases < Liquids < Solids

Oxygen is a gas, water is liquid and sugar is solid. So this arrangement is correct.

Answer: 5 (a) 298 K, 311 K and 339 K Kelvin is the SI Unit of measurement of temperatures. It is represented with the Unit Kelvin 'K'. Temperatures can be converted from Celsius to Kelvin by adding 273 to the the Celsius Scale. We have been given 3 temperatures here which are in the Celsius Scale. 25°C, 38°C and 66°C.

To convert all of them to the Kelvin Scale, add 273 to all of them.

$$25 + 273 = 298 \text{ K}$$

$$38 + 273 = 311 \text{ K}$$

$$66 + 273 = 339 \text{ K}$$

Answer: 6 (c) 373 K The boiling point of water at sea level is 373 K

Explanation : At sea level, the atmospheric pressure is standard, which allows water to boil at this temperature. However, the boiling point can change if the atmospheric pressure changes, such as at higher altitudes, where the boiling point is lower due to reduced air pressure.

Answer: 7 (d) Iron

Explanation : Interparticle forces, also known as intermolecular forces, are the forces of attraction between particles within a substance. These forces determine the physical properties of the substance, such as its boiling point, melting point, and solubility. To determine the strength of interparticle forces, the nature of the particles and the type of bonding present in the substance is important .

Iron is a solid metal and is composed of iron atoms arranged in a crystal lattice structure. The interparticle forces in iron are primarily metallic bonding, which is strong.. Metallic bonding in iron is particularly strong due to the presence of multiple valence electrons that are delocalized and form a strong bond between the iron atoms.

Answer:8 (d) CO₂ in solid state

Explanation : Dry ice is (d) **CO₂ in solid state**. Dry ice is the solid form of carbon dioxide. Unlike regular ice, which is frozen water, dry ice doesn't melt into a liquid form when it warms up. Instead, it undergoes sublimation, which means it changes directly from a solid to a gas without becoming a liquid.

Answer: 9 (a) High pressure, low temperature

Explanation : The most favourable conditions to convert a gas into liquid are **high pressure and low temperature**. This change is called a phase change. To change an everyday gas such as nitrogen into a liquid, it needs to be cooled down below about -200°C . Therefore, the correct option is (B) low temperature and high pressure.

10. Answer: (a) Increase in temperature of water

Explanation : Increase in temperature leads to increase in the evaporation of water.

When the temperature increases, the molecules of water move farther, the kinetic energy increases and they move into the vapour state. Hence, as the temperature increases, so does the evaporation of water. Evaporation is a surface phenomenon. The greater the surface area, the more evaporation there will be.