



# SmartKeeda

The Question Bank

Presents

## TestZone

India's least priced Test Series platform

JOIN

### 12 Month Plan

2017-18 All Test Series

@ Just

# ₹ 399/-

300+ Full Length Tests

- Brilliant Test Analysis
- Excellent Content
- Unmatched Explanations

JOIN NOW

# Physics Questions for CDS, CGL Tier 1, 10+2 & Railway Exams

## Physics Quiz 11

Directions: Study the following questions carefully and answer the questions given below.

**1. Particles of matter are continuously in motion due to this kind of energy**

- A. Potential energy    B. Kinetic energy    C. Chemical energy  
D. Gravitational energy

**2. How is temperature related to particle motion?**

- A. Inversely proportional    B. Independent of each other    C. Directly proportional  
D. Curvilinear relationship

**3. Intermixing of particles of two different types of matter on their own is called**

- A. Diffusion    B. Osmosis    C. Adsorption    D. Radiation

**4. You are cooking dinner at your home when suddenly the bell rings and you go to answer the door. It is your neighbor. Both of you start chatting until the smell of something burning reaches you and you realize you forgot to turn off the cooking stove. This smell of burnt food reaching you across rooms is an example of-**

- A. Evaporation    B. Condensation    C. Sublimation    D. Diffusion

**5. Which of the following are properties of solids:**

- A. Definite shape    B. Negligible compressibility    C. Fixed volumes  
D. All of the above

**6. The rate of diffusion of liquids is**

- A. higher than that of solids  
B. equal to that of solids  
C. lower than that of solids  
D. None of the above

**7. The mass per unit volume of a substance is called**

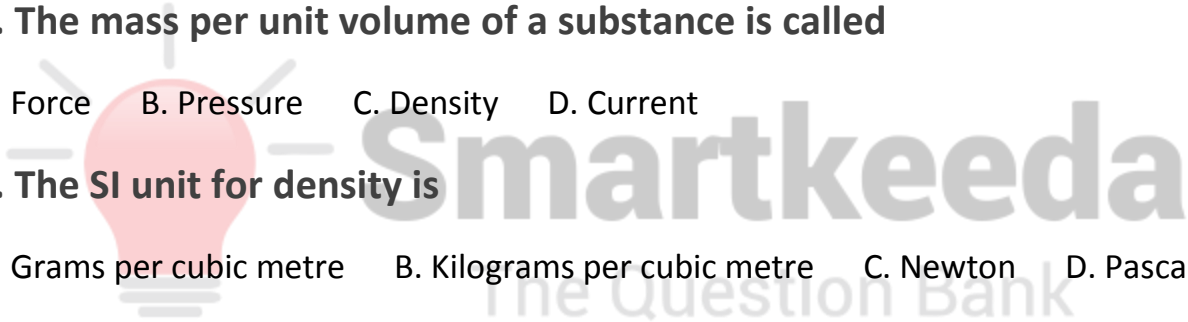
- A. Force    B. Pressure    C. Density    D. Current

**8. The SI unit for density is**

- A. Grams per cubic metre    B. Kilograms per cubic metre    C. Newton    D. Pascal

**9. Ice floats on water because**

- A. It is heavier than water.  
B. Hot water is lighter than cold water  
C. It is less dense than liquid water  
D. Ice gets displaced by water



**10. The melting point of a solid is defined as-**

- A. The temperature at which it boils and vaporizes.
- B. The temperature at which it starts getting heated up.
- C. The point where the energy it receives from the heat is just a little less than the force of attraction binding its particles.
- D. The temperature at which it melts and becomes a liquid.



**Smartkeeda**

The Question Bank

**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
B	C	A	D	D	A	C	B	C	D

**Explanations:****1.**

Matter is composed of very tiny particles (atoms or molecules), which are separated from each other by inter-particle distances. Each particle of matter is in constant motion. Because the particles are in motion, they possess kinetic energy.

Hence, option B is correct.

**2.**

The temperature of matter tells us the average kinetic energy possessed by the particles. When we apply heat to matter, it gets absorbed and results in the particles having increased kinetic energy. This basically means that while the particles were already in motion before, this kinetic energy results in greater motion. All of this leads to a rise in temperature.

Hence, the relationship is direct- the more the temperature, more is the kinetic energy.

Hence, option C is correct.

**3.**

Diffusion is the movement of a fluid from an area of higher concentration to an area of lower concentration. Diffusion is a result of the kinetic properties of particles of matter. The particles will mix until they are evenly distributed. The transport of matter continues until equilibrium is reached and there is a uniform concentration through the material.

Real life Application:

When perfume is sprayed in a corner of a room, we can smell it in the entire room within sometime.

If you put in some drops of food coloring in a glass of water, it would spread all through the water and ultimately color the entire glass of water.

Take a teaspoon of salt and put it in a glass of water, stirring it. We see after sometime the salt dissolves and the ions are evenly distributed.

If we leave a bottle of soft drink without its lid on, it becomes flat after a while. This is due to the carbon dioxide bubbles leaving the bottle due to diffusion, leaving it flat.

Hence, option A is correct.

#### 4.

Diffusion occurs when particles spread. They move from a region where they are in high concentration to a region where they are in low concentration. Diffusion happens when the particles are free to move. Due to an increase in temperature, the kinetic energy of the particles increases, leading to greater motion which in turn leads to them being freer to move. This is also the reason why, to smell cold food, you need to step really close and sniff.

Hence, option D is correct.

#### 5.

Properties of solids:

- (i) Solids have definite shape and distinct boundaries.
- (ii) Solids have fixed volume.
- (iii) They have negligible compressibility.
- (iv) They are rigid (their shape cannot be changed).
- (v) Their intermolecular force of attraction is maximum.
- (vi) The kinetic energy of its particles is minimum.

Hence, option D is correct.

#### 6.

When in liquid state, particles can move more freely than in solid state. This is due there being more space between any two particles (inter-particle distance) in liquid

state than in solid. Thus, particles in liquid state find it easier to undergo diffusion than particles in solid. Hence, rate of diffusion is higher in liquid state.

Hence, option A is correct.

**7.**

Density is mass per unit volume.

Very simply put- Density is how compact an object is.

This is exactly what the formula above states. Density is the mass of an object divided by the volume. If the volume is big, the same mass would be spread over a larger area and hence, the density will be low.

A typical example is this question below:

If we have two boxes, both having the same size, with one filled with gold and the other with feathers, which box would be the heaviest?

Answer: Of course, the box with gold will be heavier! This is as feathers aren't as dense as gold and thus the same amount/ volume of feathers would be much lighter. Hence, option C is correct.

**8.**

The SI unit for density is Kilograms per cubic metre.

Hence, option B is correct.

**9.**

Ice floats on water because it is about 9% less dense than liquid water. In other words, ice takes up about 9% more space than water, so a litre of ice weighs less than a litre of water. The heavier water displaces the lighter ice, so ice floats to the top. Water reaches its maximum density at 4 degree C (40 F). As it cools further and freezes into ice, it actually becomes less dense. On the other hand, most substances are most dense in their solid (frozen) state than in their liquid state. Water is different because of hydrogen bonding.

Real life impact: One consequence of this is that lakes and rivers freeze from top to bottom, allowing fish to survive even when the surface of a lake has frozen over. If ice sank, the water would be displaced to the top and exposed to the colder temperature, forcing rivers and lakes to fill with ice and freeze solid.

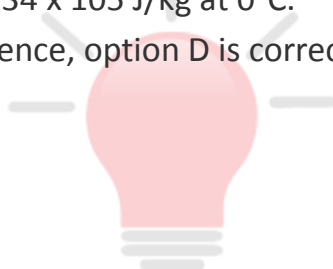
Hence, option C is correct.

**10.**

Melting point of a solid is defined as the temperature at which a solid changes into a liquid. On heating a solid, its molecules absorb energy in the form of heat and their kinetic energy increases. As the kinetic energy increases, the temperature of the solid increases. As a result, the force of attraction between the molecules decreases and the molecules become more and more separated. This increases the potential energy of the molecule and the particles leave their fixed positions and start moving more freely. Melting point of a solid indicates the strength of the force of attraction between the particles of the solid.

The quantity of heat required to completely change 1 kg of ice into water at atmospheric pressure at its melting point is called latent heat of fusion. For ice, it is  $3.34 \times 10^5$  J/kg at  $0^\circ\text{C}$ .

Hence, option D is correct.



**Smartkeeda**  
The Question Bank





# SmartKeeda

The Question Bank

प्रस्तुत करते हैं

## TestZone

भारत की सबसे क़िफ़ायती टेस्ट सीरीज़

अभी  
जुड़ें

### 12 Month Plan

2017-18 All Test Series

@ Just

# ₹ 399/-

300+ फुल लेन्थ टेस्ट

- श्रेष्ठ विश्लेषण
- उत्कृष्ट विषय सामग्री
- बेजोड़ व्याख्या

अभी जुड़ें