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

## Physics Quiz 9

Directions: Study the following question carefully and choose the right answer.

**1. Which one of the following is the permissible level of noise in a silent zone at day time?**

- A. 50 dB    B. 60 dB    C. 65 dB    D. 75 dB

**2. Consider the following statements regarding X-rays**

**1. Can pass through aluminum.**

**2. Can be deflected by magnetic field.**

**3. Move with a velocity less than the velocity of ultraviolet ray in vacuum.**

**Which of the statements given above is/are correct?**

- A. 1, 2 and 3    B. Only 1    C. 2 and 3    D. 1 and 2

**3. If a small raindrop falls through air**

A. Its velocity goes on increasing

B. Its velocity goes on decreasing

C. Its velocity goes on increasing for some time and then becomes constant

D. It falls with constant speed for some time and then its velocity increases

**4. Television signal cannot be received generally beyond a particular distance due to**

- A. Curvature of the Earth    B. Weakness of antenna    C. Weakness of signal  
D. Absorption of signal in air

**5. Which one of the following common devices works on the basis of the principle of mutual induction?**

- A. Tube light    B. Transformer    C. Photodiode    D. LED

**6. The phenomenon of mirage occurs due to which one of the following?**

- A. Polarization of light    B. Dispersion of light    C. Diffraction of light  
D. Total internal reflection of light

**7. Assertion (A) In a pressure cooker food is cooked above boiling point.**

**Reason (R) Boiling point of water increases as the pressure increases.**

**Codes:**

- A. Both A and R are true and R is the correct explanation of A  
B. Both A and R are true, but R is not the correct explanation of A  
C. A is true, but R is false  
D. A is false, but R is true

**8. On which one of the following conservative laws, does a rocket work?**

- A. Mass    B. Energy    C. Linear momentum    D. Angular momentum

**9. Bar is a unit of which one of the following?**

- A. Force    B. Energy    C. Pressure    D. Frequency

**10. What would be the best choice for window material to keep the outside heat away?**

- A. Single-pane glass
- B. Double-pane glass without a gap in between
- C. Double-pane glass with water filled in between
- D. Double-pane glass with air in between



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**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	B	C	A	B	D	A	C	C	D

**Explanations:**

**1.**

The permissible level of noise in a silent zone at day time is 60 dB.

**2.**

**Characteristics of X-rays:**

1. X-rays can pass through aluminum.
2. X-rays cannot be deflected by magnetic field as they do not have charge.
3. X-rays are electromagnetic wave, so they move with velocity of light.

**3.**

When a small rain drop falls through air, first its velocity is increasing but after sometime it gets a velocity called terminal velocity, which is constant throughout.

**About terminal velocity:**

Terminal velocity is the highest velocity attainable by an object as it falls through air. It occurs once the sum of the drag force ( $F_d$ ) and buoyancy equals the downward force of gravity ( $FG$ ) acting on the object. Since the net force on the object is zero, the object has zero acceleration.

In fluid dynamics, an object is moving at its terminal velocity if its speed is constant due to the restraining force exerted by the fluid through which it is moving.

**4.**

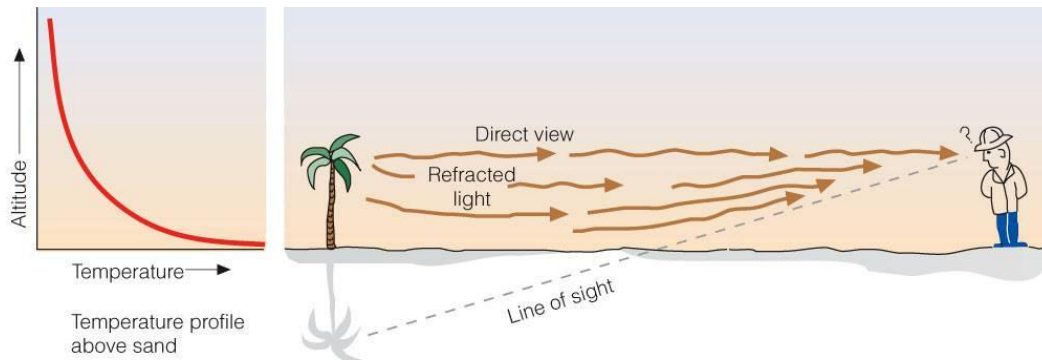
Television signal cannot be received generally beyond a particular distance due to curvature of the Earth.

5.

In a transformer, there are two types of coils primary coil and secondary coil. Both primary and secondary coils work on the principle of mutual induction.

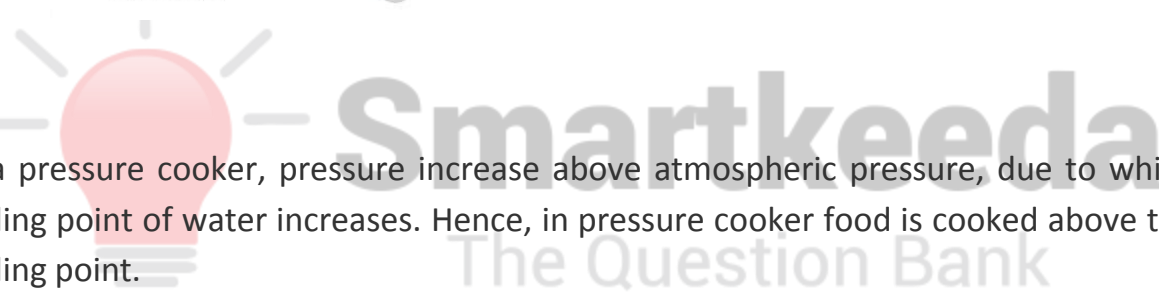
6.

Mirage in desert occurs due to total internal reflection of light.



7.

In a pressure cooker, pressure increase above atmospheric pressure, due to which boiling point of water increases. Hence, in pressure cooker food is cooked above the boiling point.



8.

A rocket works on the principle of conservation of linear momentum.

*The Principle of Conservation of Linear Momentum*

If the sum of the external forces is zero, then

$$0 = \vec{P}_f - \vec{P}_o \implies \vec{P}_f = \vec{P}_o$$

$$(m_1 \vec{V}_{f1} + m_2 \vec{V}_{f2}) = (m_1 \vec{V}_{o1} + m_2 \vec{V}_{o2})$$

**PRINCIPLE OF CONSERVATION OF LINEAR MOMENTUM**

The total linear momentum of an isolated system is conserved.



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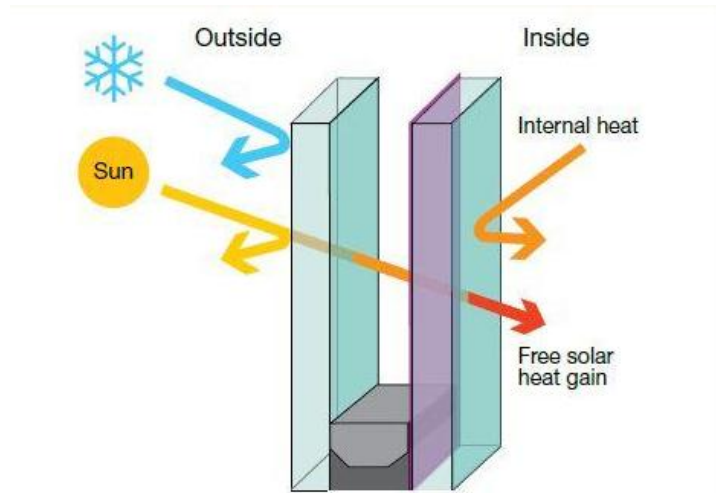
9.

The unit of pressure is Pascal (Pa) and bigger unit of pressure is bar.

$$1 \text{ Bar} = 10^5 \text{ Pa}$$

10.

The double pane window is one of the greatest ways to keep outside heat away. This concept allows the conduction process to be inhibited, allowing for sunlight to come in through the window without as much heat transfer. Here is a look at the double pane window and how it works.



Double pane windows simply have two panes of glass within them instead of the standard one pane of glass. There is generally a separation of approximately one half inch, and this separation is filled with a non toxic gas for the purpose of further insulating the window.

Conduction is defined as the transfer and the dissipation of heat from one material to another. Conduction is capable of occurring between two different materials or substances or within a single material or substance.





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