

## B Short / Long answer Question

1) State the speed of light in a - air, b - water and c - glass

Ans Air -  $3 \times 10^8 \text{ ms}^{-1}$

Water  $2.25 \times 10^8 \text{ ms}^{-1}$

Glass -  $2 \times 10^8 \text{ ms}^{-1}$

2) How does the speed of light determine the optical density of a medium?

Ans If the speed of light in a medium is less than speed of light, then it is said that the medium is denser than air and vice-versa.

3) Which is optically denser? Water or air

Ans Speed of light in air =  $3 \times 10^8 \text{ ms}^{-1}$

Speed of light in water =  $2.25 \times 10^8 \text{ ms}^{-1}$ .

As, the speed of light in water is less than that of air, it is clear that the optical density is more of water than of air.

4. Out of air and glass which is optically rarer.

Ans Speed of light in air -  $3 \times 10^8 \text{ ms}^{-1}$ .  
Speed of light in glass -  $2 \times 10^8 \text{ ms}^{-1}$ .

So, as the speed of light is greater in air than that in glass. We can conclude that air is optically rarer, than glass.

5. What do you understand by refraction of light?

Ans When a ray of light travels from ~~and~~ one optically medium to another optical medium it either bends towards the normal or bends far from the normal.

This phenomenon is called refraction of light.

6. Describe an experiment to show that a light ray bends when it passes from one transparent medium