Physics Class Notes

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Unit 5 – Refraction of Light

Optical Density

The characteristics of each medium influence the speed of light that passes through the respective medium. Optical density is a measure that shows how a medium influences the speed of light passing through it.

As the optical density of a medium increases, the speed of light through it decreases.

Medium	Speed of light (m/s)
Vacuum	3×10^8 m/s
Water	2.25×10^8 m/s
Glass	2×10^8 m/s
Diamond	1.25×10^8 m/s

From the above table, the increasing order of optical density is
Air<Water<Glass<Diamond.

Refraction of Light

When a ray of light entering obliquely from one transparent medium to another with difference in optical density, its path undergoes a deviation at the surface of separation. This is refraction. Different media has different optical density is the reason for refraction.