

PHYSICS - X-PART-5 CLASS 52



Persistence of vision

When an object is viewed by a person, its image remains in the retina of the eye for a time interval of 0.0625s (1/16s) after seeing it. This phenomenon is called persistence of vision. If more than one scene is viewed within 0.0625s, the effect of all these scenes will be felt by the eye simultaneously.

Newton's colour disc

1. In which colour does the disc appear when rotated fast?

* white

2. Give reason.

* The disc appears white since all the rays of light from the seven colours reach the retina of the eye within 0.0625 second (1/16s). The disc appeared white due to persistence of vision.



Examples of persistence of vision

1. A torch rotated rapidly appears as an illuminated circle.
2. Raindrops look like glass rods during rain.

Scattering of light

Scattering is the change in direction brought out by the irregular and partial reflection of light when it hits the particles of the medium.

Scattering and wavelength

* Colours like violet, indigo and blue have the smallest wavelengths in sunlight. They undergo maximum scattering.

* Red has comparatively greater wavelength and it can overcome small obstacles and hence scattering is low. As a result they travel greater distance.

* Rate of scattering and the size of the particles are interrelated. As the size of the particle increases, the rate of scattering also increases. If the size of the particles is greater than the wavelength of light, then the scattering is same for all colours.

Worksheet

1. What is Newton's Colour disc?
2. How does it appear on rotating fast?
3. Justify your answer