Talent & Olympiad

General Science

Light

Synopsis

- Light is a form of energy. It is an electromagnetic radiation which can travel through vacuum with a speed of $3 \times 10^8 m s^{-1}$.
- We can see an object only when it reflects or scatters the light falling on it.
- Light travels in straight lines. This property is known as the rectilinear propagation of light. Shadows are formed due to this property of light.
- Substances which allow light to pass through them are called transparent. Substances which absorb some amount of
 light incident on them and lets the remaining light to pass through them are called translucent substances. Substances
 which do not allow light to pass through them are called opaque objects.
- A polished or shining surface acts as a mirror and regular reflection takes place from its surface.
- When a beam of light falls on a smooth surface, the rays are reflected in a particular direction. This is called regular reflection.
- When there is no regular reflection, sharp images are not obtained and cannot be seen by us. This happens because of scattering of light due to irregular reflection.
- The three laws of reflection:
 - (a) The incident ray, the normal at the point of incidence and the reflected ray lie in the same plane.
 - (b) The incident ray and the reflected ray lie on either side of the normal.
 - (c) The angle of incidence is equal to the angle of reflection.

- An image which can be obtained on a screen is called a real image,
- An image which cannot be obtained on a screen is called a virtual image.
- The image formed by a plane mirror is erect, virtual and is of the same size as the object The image is at the same distance behind the mirror as the object is in front of it.
- In an image formed by a plane mirror, the left side of the object is seen on the right side in the image, and the right side of the object appears to be on the left side in the image. This is known as lateral inversion.
- Mirrors which have curved surfaces are called spherical mirrors. A convex mirror has outward curvature while a concave mirror has inward curvature.
- The image formed by a convex mirror is always virtual, erect and diminished than the object
- A concave mirror can form a real and inverted image. When the object is placed very close to the mirror, the image formed is virtual, erect and magnified.
- White light is composed of seven colours.