SCIENCE

IMAGE FORMATION BY SPHERICAL LENS

SPHERICAL LENS

1. Definition : A piece of a transparent medium bounded by atleast one spherical surface, is called a spherical lens.

2. Types : There are two types of spherical lenses:

(i) Convex or Converging Lenses : These are thick in the middle and thin at the edges.

(ii) Concave or Diverging Lenses : These are thin in the middle and thick at the edges.

There are three types of convex lenses :



- (a) Double Convex Lens : It has both the surfaces convex.
- (b) Plano–Convex Lens : It has one surface plane and the other surface convex.
- (c) Concavo–Convex Lens : It has one surface concave and the other surface convex.

CLASS VIII

Different types of concave lenses

There are three types of concave lenses :



(a) Double Concave Lens : It has both the surfaces concave. (Fig.)

(b) Plano-Concave Lens : It has one surface plane and the other surface concave. (fig.)

(c) Convexo-Concave Lens : It has one surface convex and the other surface concave. (fig.)

IMAGE FORMATION

I. Rules

1. Incident on the lens parallel to principal axis : After refraction from the lens, it actually passes through second principal focus F2 (in case of a convex lens) or appears to come from the second principal focus F2 (in case of a concave lens).

2. Incident on the lens through first principal focus : F1 (in case of a convex lens) in direction of first principal focus F1 (in case of a concave lens) After reflection from the lens it goes parallel to the principal axis.

3. Incident on the lens in direction of optical centre : It passes undeviated through the lens.

CLASS VIII

II. Three Special rays for convex lens

1. When light ray incident parallel to principal axis.



2. When light ray incident from focus.



3. When light ray incident on the pole



III. Three Special rays for concave lens

1. When light ray incident parallel to principal axis.

