CASE STUDY QUESTION 41

Read the following and answer any four questions from (i) to (v)

A mirror is a surface that reflects a clear image. Images can be of two types: Real image and virtual image. An image that can be formed on the screen is known as a real image and the one which cannot be formed on the screen is known as a virtual image. These images are formed when light falls on a mirror from the object and is reflected back by the mirror on the screen.

One useful tool that is frequently used to depict this idea is known as a ray diagram. A ray diagram is a diagram that traces the path that light takes in order for a person to view a point on the image of an object. On the diagram, rays (lines with arrows) are drawn for the incident ray and the reflected ray.

A ray diagram used arrow type lines to represent the incident ray and the reflected ray. It also helps to trace the direction in which light travels.

(i) Convex mirror always forms, an image :
(a) Virtual, erect and enlarged   (b) Virtual, inverted and enlarged
(c) Virtual, erect and diminished   (d) Real, erect and diminished

Ans: (c) Virtual, erect and diminished

(ii) A convex lens forms the image of sun at :
(a) C   (b) focus   (c) pole   (d) between focus and pole

When an object is at infinity from a convex lens, then the image formed is :
(i) at the focus,
(ii) real and inverted, and
(iii) much smaller than the object (or highly diminished).

Ans: (b) focus

(iii) A concave lens can form a real and inverted image, when :
(a) Object is placed at 2f   (b) Object is placed beyond 2f
(c) Object is placed between f and 2f   (d) It can never form a real and inverted image.

Ans: (d) It can never form a real and inverted image.

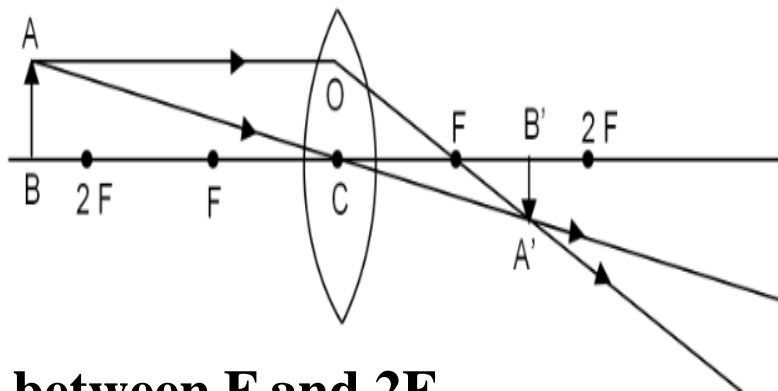(iv) An object is placed beyond 2F, in front of a convex lens, image will be formed :
(a) between F and 2F   (b) at focus
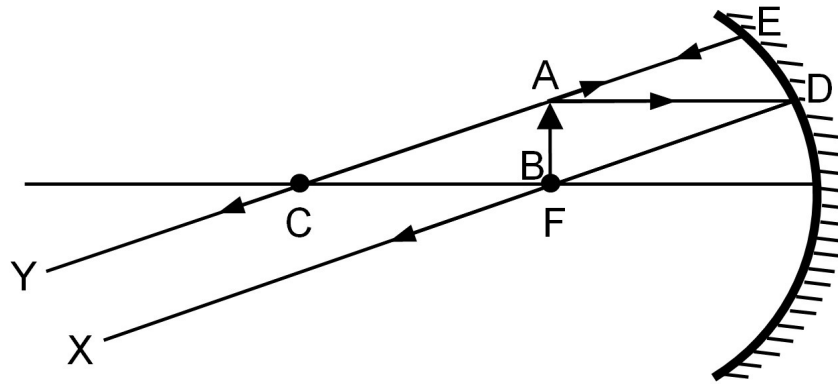(c) at the centre of curvature   (d) between focus and Optical centre

Ans: (a) between F and 2F

(v) An object is placed at focus of a concave mirror, image will be formed at :

(a) focus   (b) between F and C   (c) beyond C   (d) at infinity

Ans: (d) at infinity