PHYSICS - X-PART-6 CLASS 41

Assignment (02-12-21)

1. An object is placed 8 cm away in front of a concave mirror of focal length 5 cm. Find out the position of image and magnification.

The distance of the object from the mirror u = - 8 cm
The distance to the image from the mirror v = ?
The focal length of the mirror f = - 5 cm

$v = uf/(u-f)$
$= (-8 \times -5) / (-8 +5)$
$= (40) / (-3)$
$v = 40 / -3$

Magnification is $m = -v/u$
$= -(40/-3) / -8$
$m = -5/3$

Features of an image that is obtained from magnification

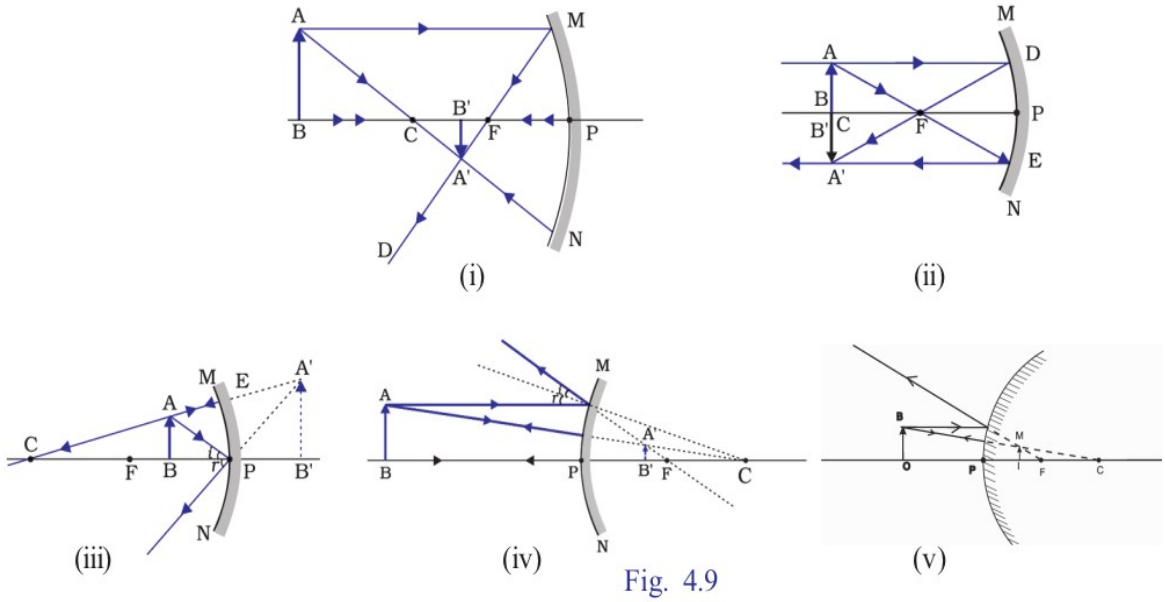

Fig. 4.9

Fig	h_i	h_o	Magnification $m = \frac{h_i}{h_o}$	Erect, virtual/ inverted, real	Size is same as that of the object/ magnified / diminished
Fig 1	Negative	Positive	Negative	inverted, real	diminished
Fig 2	Negative	Positive	Negative	Inverted,real	Same as that of object
Fig 3	Positive	Positive	Positive	Erect,Virtual	Magnified (bigger than object)
Fig 4	Positive	Positive	Positive	Erect,Virtual	Diminished (smaller than object)
Fig 5	Positive	Positive	Positive	Erect,Virtual	Diminished (smaller than object)

1. What are the features of an image that is obtained from magnification?
   - When magnification is 1, the size of the image and the size of the object are equal.
   - When magnification is more than 1, the size of the image is greater than the size of the object.
   - When magnification is less than 1, the size of the image is smaller than the size of the object.
   - When the magnification is positive, image is virtual and erect.
   - When the magnification is negative, image is real and inverted.

2. From the above table, find out which mirror always gives an erect and diminished image and write it down.
   - The image formed by a convex mirror is always erect and diminished.
3. Why it is written on rear view mirrors that "Objects in the mirror are closer than they appear"
   - The image formed by a convex mirror is always erect and diminished. Hence the driver who sees the image of vehicles on the mirror develops a feeling that the vehicles coming from behind are at a greater distance. This may turn out to be dangerous.

Assignment

1. complete the table 4.7
2. Write the uses of concave mirror and convex mirror
3. Draw ray diagrams related to the concave mirror
   a) Object at C
   b) Object at F
4. Let us assess page no. 90