

## EXP: 6 FOCAL LENGTH OF CONVEX MIRROR.

AIM: To find the focal length of a convex mirror, using convex lens.

APPARATUS: Meter scale, convex mirror, convex lens, candle, screen, lens holder, mirror holder

### THEORY:

Focal length of the convex mirror,  $f = R/2$   
where  $R$  is the radius of curvature of the mirror

### RAY DIAGRAM:

Refer, phy lab manual.

### PROCEDURE

To determine the rough focal length of the convex lens:

1. Mount the convex lens in the lens holder
2. Face the lens towards a distant object.
3. Obtain the image of the distant object on a screen.
4. Measure the distance between lens and screen as the rough focal length.

To determine the focal length & radius of curvature of convex mirror.

1. Mount the convex lens on the lens holder and place it at a distance <sup>larger than</sup>  $n$  times the focal length from the candle

2. Obtain a sharp image of the object on the screen placed on the opposite side of the convex lens.
3. Measure the distance of the image from the object end and mark it as I.
4. Mount the convex mirror on the mirror holder and place it behind the convex lens.
5. Adjust the position of the mirror to get a sharp image of the object on the screen placed beside the object. Mark the position of the convex mirror from the object end as P.
6. Measure OI and OP
7.  $OI - OP = PI$  — gives the radius of curvature of convex mirror.  
 $f = R/2$  gives the focal length.
8. Repeat the above steps for different values of object distance for the convex lens.

OBSERVATIONS:

Rough focal length of convex lens = \_\_\_\_\_ cm

Table for focal length of convex mirror

S.No	Position of		Radius of curvature PI (cm)	focal length $f = R/2$ (cm)
	Convex Mirror P (cm)	Image I (cm)		
1.				
2.				
3.				