Chapter: Light- Numerical Practice questions class 10 Paper-1

1 A concave mirror produces a real image 10mm tall, of an object 2.5 mm tall placed at 5 cm from the mirror. Calculate the focal length and position of the image.

2 An object is placed at a large distance in front of a convex mirror of radius of curvature 40cm. How far is the image behind the mirror?

3 An object is placed at 15 cm from a convex mirror of radius of curvature 90 cm. Calculate the position of the image and magnification.

4 The image formed by a convex mirror of a focal length 30 cm is a quarter of the object. What is the distance of the object from the mirror?

5 When an object is placed at a distance of 60cm from convex mirror, the magnification produced is ½. Where should the object be place to get a magnification of 1/3?

6 An object is placed 18 cm from a mirror, if the image is formed at 4cm to the right of the mirror. Calculate its focal length. Is the mirror convex or concave? What is the nature of the image? What is the radius of curvature?

7 A convex mirror is used for mirror view on an automobile has a radius of curvature 3m, if a bus is located 5m from the mirror, find the position, nature and magnification?

8 An object 3cm high is held at a distance of 50cm, from a diverging mirror of focal length 25cm, find the nature, position and size of image

9 A converging mirror of focal length 20 cm forms an image two times the size of an object. Calculate the two possible distances of the object?

10 The linear magnification of a convex mirror of focal length 15cm is 1/3, what is the distance of the object from the focus of the mirror?

11 The focal length of a convex mirror is 12.5cm. Calculate the distance of the center of curvature from the pole and the focus.

12 Find the focal length of the concave mirror of focal length 15cm that produces 4 times larger real image of an object held at 5cm from the mirror.

13 Draw any three ray diagrams to show how the size and nature of image of an object change when it moves from center of curvature of concave mirror towards the pole of the mirror.

	Concave mirror		Convex mirror
	Real image ($u \geq f$)	Virtual image ($u < f$)	
Distance of object	$u \rightarrow -$	$u \rightarrow -$	$u \rightarrow -$
Distance of image	$v \rightarrow -$	$v \rightarrow +$	$v \rightarrow +$
Focal length	$f \rightarrow -$	$f \rightarrow -$	$f \rightarrow +$
Height of object	$O \rightarrow +$	$O \rightarrow +$	$O \rightarrow +$
Height of image	$I \rightarrow -$	$I \rightarrow +$	$I \rightarrow +$
Radius of curvature	$R \rightarrow -$	$R \rightarrow -$	$R \rightarrow +$
Magnification	$m \rightarrow -$	$m \rightarrow +$	$m \rightarrow +$