Chapter: Light- Numerical Practice questions class 10 Paper-3

1 Q. What is minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.

2 Q. (a) A concave mirror produces three times enlarged image of an object placed at 10cm. in front of it. Calculate the focal length of the mirror.

(b) Show the formation of the image with the help of a ray diagram when object is placed 6 cm away from the pole of a convex mirror.

3 Q. (a) The refractive index of diamond is 2.42. What is the meaning of this statement?

(b) What is the difference between virtual images produced by concave, plane and convex mirrors ?

(c) What does the negative sign in the value of magnification produced by a mirror indicates about a image ?

Q. (a) Write one use of concave mirror as well as convex mirror.

4. (a) Draw ray diagrams for the following cases when a ray of light

(i) passing through centre of curvature of a concave mirror is incident on it.

(ii) parallel to principal axis is incident on convex mirror (iii) is incident at the pole of a convex mirror

(iv) passing through focus of a concave mirror incident on it.

(b). Differentiate between a real and virtual image. Write any two points.

5. Q. A student focused the image of a candle flame on a white screen by placing the flame at various distances from a convex lens. He noted his observations :

Distance of flame from the lens (cm)	distance of the screen from the lens(cm)
(i) 60	20
(ii) 40	24
(iii) 30	30
(iv) 24	40
(v) 15	70

(a) From the above table find the focal length of lens without using lens formula.

(b) Which set of observations is incorrect and why?

(c) In which case the size of object and image will be same ? Give reason for your answer.

6. Q. A glass slab made of a material of refractive index n1 is kept in a medium of refractive index n2.

A light ray is incident on the slab. Complete the path of rays of light emerging from the glass slab,

if (a) n1 > n2 (b) n1 = n2 (c) n1< n2

7. Q. (a) State Snell's law of refraction. Express refractive index of a medium as a mathematical formula.

(b) An object 4 cm. in size, is placed at 25 cm. in front of concave mirror of focal length 15 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image ? Find the nature and the size of the image.

8. Q. (a) What are laws of refraction of light ? (b) A convex mirror used for rear view on an automobile has a radius of curvature 3.00 m. If a bus is located at 5 m from the mirror, find position, nature and relative size of the image.

9. Q. Distinguish between optical density and mass density.

10. Q. A ray of light is incident to the interface of two media A and B. Write two conditions for no refraction.