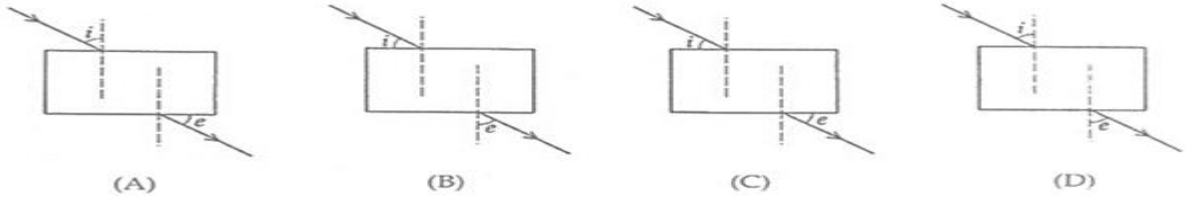
Chapter- 13

Light: REFLECTION AND REFRACTION

WORKSHEET

1. Focal length of plane mirror is
   a. At infinity
   b. Zero
   c. Negative
   d. None of these
2. Power of the lens is -40, its focal length is
   a. 4m
   b. -40m
   c. -0.25m
   d. -25m
3. Magnifying power of a concave lens is
   (a) always > 1
   (b) always < 1
   (c) always = 1
   (d) can have any value
4. A point object is placed at a distance of 20 cm from a convex mirror of focal length 20 cm. The image will form at:
   (a) at infinity
   (b) at focus
   (c) at the pole
   (d) behind the mirror
5. A student does the experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. He can get a correct measure of the angle of incidence and the angle of emergence by following the labeling indicated in figure:



   (a) A

(b) B

(c) C

(d) D

6. Light enters from air to glass having refractive index 1.50. What is the speed of light in the glass? The speed of light in vacuum is 3×10^8 ms^{-1}.
7. The magnification produced by a spherical mirror is positive. Explain whether the image formed by the mirror is erect or inverted?

8. Write three reasons for using a convex mirror as rear view mirror in vehicles.

9. If an object of 7 cm height is placed at a distance of 12 cm from a convex lens of focal length 8 cm, find the position, nature and height of the image.

10. The magnification produced by a spherical lens is +2.5. What is the nature of image and lens?

11. Define Snell's law.
12. Draw any three ray diagrams to show how the size and nature of image of an object change when it moves from centre of curvature of concave mirror towards the pole of the mirror.
13. An object is placed 15cm from a convex mirror of radius of curvature 90 cm. Calculate positions of the image and its magnification.

14. An object 2cm high is placed at a distance of 16cm from a concave mirror, which produces 3cm high inverted image. What is the focal length of the mirror? Also, find the position of the image.

15. An erect image 3 times the size of the object is obtained with a concave mirror of radius of curvature 36cm. What is the position of the object?