MORE QUESTIONS AND ANSWERS

1. Which is the correct figure?

1

(a) Air / Water

(b) Glass / Water

(c) 45° Water / Air

(d) 45° Glass / Air
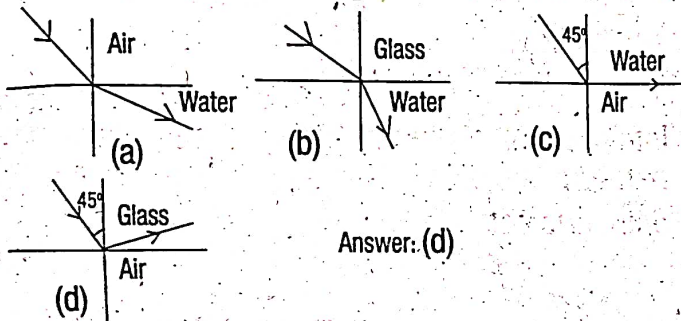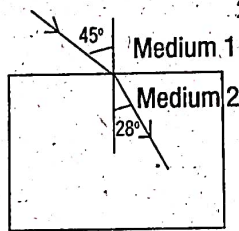
Answer: (d)

2. Calculate the absolute refractive index of medium 2.

2

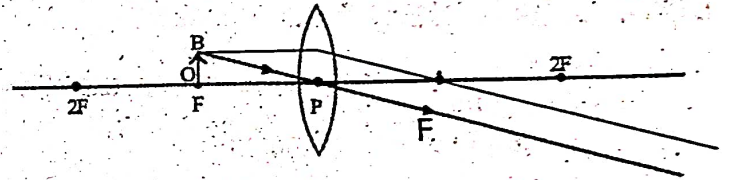$\sin 45° = 0.7$, $\sin 28° = 0.47$

45° Medium 1 / Medium 2 / 28°

$$n_{12} = \frac{\sin i}{\sin r} = \frac{\sin 45°}{\sin 28°} = \frac{0.7}{0.47}$$

$$= 1.5$$

3. The absolute refractive index of a medium is 1.62. What is the speed of light in that medium?

2

$$1.62 = \frac{3 \times 10^8 \, m/s}{v}, \quad v = \frac{3}{1.62} \times 10^8 \, m/s \qquad \boxed{n = \frac{c}{v}}$$

4. Image of an object placed at 'F' of a convex lens is not formed. Why? Explain with the help of a diagram.

3

The refracted rays from the lens go in parallel. They do not intersect at any point.

5. An object is placed 20 cm away in front of a concave lens of focal length 10 cm. Where is the image formed? What are its features?

2

$$f = -10 \, cm, \quad u = -20 \, cm, \quad v = \frac{fu}{f+u}$$

$$\frac{-10 \times -20}{-10 + -20} = \frac{200}{-30} = -6.66 \, cm$$

The image is diminished, erect and virtual. Formed at 6.66 cm away from the lens.