

**VIDYA BHAVAN, BALIKA VIDYAPEETH**  
**SHAKTI UTTAN ASHRAM, LAKHISARAI, PIN:-811311**

**SUBJECT:- PHYSICS**

**CLASS:- XTH**

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**SUBJECT TEACHER:- MR. NEEL NIRANJAN**

**CHAPTER 5. (LIGHT - REFRACTION) (BASED ON NCERT PATTERN)**

**Q1.** Find the focal length of a lens of power 2.0 D. What type of lens is this?

Ans.  $P = 2.0 \text{ D}$

$$P = \frac{1}{f}$$

$$f = \frac{1}{P} = \frac{1}{-2.0\text{D}} = -0.5 \text{ m.}$$

∴ The lens is concave lens as  $f = -ve$ .

**Q2.** A doctor has prescribed a corrective lens of power +1.5 D. Find the focal length of the lens. Is the prescribed lens diverging or converging?

Ans.  $P = +1.5\text{D}$ ,  $P = \frac{1}{f}$

$$\text{Focal length of the lens } f = \frac{1}{P} = \frac{1}{+1.5\text{D}} = +0.67 \text{ m}$$

Power of the lens is +ve, and it is converging lens i.e., convex lens.

**Q3.** Which of the following lenses would you prefer to use while reading small letters found in a dictionary?

- (a) A convex lens of focal length 50 cm.      (b) A concave lens of focal length 50 cm.  
(c) A convex- lens of focal length 5 cm.      (d) A concave lens of focal length 5 cm.

Ans. (c) A convex lens of focal length 5 cm.

**Q4.** A spherical mirror and a thin spherical lens have each a focal length of  $\pm 15 \text{ cm}$ . The mirror and the lens are likely to be

- (a) both concave      (b) both convex  
(c) the mirror is concave and the lens is convex.  
(d) the mirror is convex but the lens is concave.

Ans. (a) Both concave.