

PYQSide

NEET RAY OPTICS AND OPTICAL INSTRUMENTS — REFRACTION AT SPHERICAL SURFACES, THIN LENSES AND LENS MAKER'S FORMULA — PYQS

Max. Marks: 44

Questions: 11

Section A (MCQ)

- Q.1** In a concave lens, a ray of light emanating from the object parallel to the principal axis of the lens, after refraction : [NEET (UG) 2026]
- (1) passes through the second principal focus.
 - (2) appears to diverge from the first principal focus.
 - (3) passes through $2F$, which is the radius of curvature of the lens.
 - (4) emerges parallel to the principal axis.

Scan or tap for the full solution

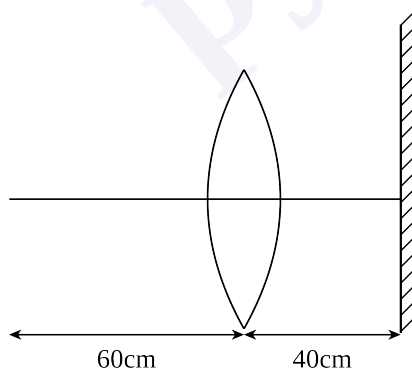


- Q.2** A biconvex lens has radii of curvature, 20 cm each. If the refractive index of the material of the lens is 1.5, the power of the lens is [NEET (UG) 2022]
- (1) +2 D (2) +20 D (3) +5 D (4) Infinity

Scan or tap for the full solution



- Q.3** A point object is placed at a distance of 60 cm from a convex lens of focal length 30 cm. If a plane mirror were put perpendicular to the principal axis of the lens and at a distance of 40 cm from it, the final image would be formed at a distance of - [NEET (UG) 2021]



- (1) 20 cm
from the plane mirror, it would be a virtual image.
- (2) 20 cm
from the lens, it would be a real image.
- (3) 30 cm
from the lens, it would be a real image.
- (4) 30 cm
from the plane mirror, it would be a virtual image.

Scan or tap for the full solution



- Q.4** When a biconvex lens of glass having refractive index 1.47 is dipped in a liquid, it acts as a plane sheet of glass. This implies that the liquid must have refractive index [AIPMT 2012 (Prelims)]
- (1) equal to that of glass
 - (2) less than one
 - (3) greater than that of glass
 - (4) less than that of glass

Scan or tap for the full solution



- Q.5** A converging beam of rays is incident on a diverging lens. Having passed through the lens the rays intersect at a point 15 cm from the lens on the opposite side. If the lens is removed the point where the rays meet will move 5 cm closer to the lens. The focal length of the lens is [AIPMT 2011 (Mains)]
- (1) 5 cm (2) -10 cm (3) 20 cm (4) -30 cm

Scan or tap for the full solution



- Q.6** A biconvex lens has a radius of curvature of magnitude 20 cm. Which one of the following options best describes the image formed of an object of height 2 cm placed 30 cm from the lens ? [AIPMT 2011 (Prelims)]

- (1) Virtual, upright, height = 1 cm
- (2) Virtual, upright, height = 0.5 cm
- (3) Real, inverted, height = 4 cm
- (4) Real, inverted, height = 1 cm

Scan or tap for the full solution



- Q.7** A lens having focal length f and aperture of diameter d forms an image of intensity I . Aperture of diameter $\frac{d}{2}$ in central region of lens is covered by a black paper. Focal length of lens and intensity of image now will be respectively

[AIPMT 2010 (Prelims)]

- (1) f and $\frac{I}{4}$ (2) $\frac{3f}{4}$ and $\frac{I}{2}$
 (3) f and $\frac{3I}{4}$ (4) $\frac{f}{2}$ and $\frac{I}{2}$

Scan or tap for the full solution



- Q.8** A boy is trying to start a fire by focusing sunlight on a piece of paper using an equiconvex lens of focal length 10 cm. The diameter of the sun is 1.39×10^9 m and its mean distance from the earth is 1.5×10^{11} m. What is the diameter of the sun's image on the paper?

[AIPMT 2008]

- (1) 6.5×10^{-5} m (2) 12.4×10^{-4} m
 (3) 9.2×10^{-4} m (4) 6.5×10^{-4} m

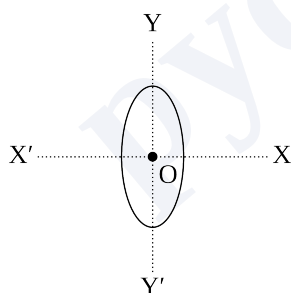
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- Q.9** An equiconvex lens is cut into two halves along (i) XOX' and (ii) YOY' as shown in the figure. Let f , f' , f'' be the focal lengths of the complete lens, of each half in case (i), and of each half in case (ii), respectively.

Choose the correct statement from the following

[AIPMT 2003]



- (1) $f' = f$, $f'' = 2f$ (2) $f' = 2f$, $f'' = f$
 (3) $f' = f$, $f'' = f$ (4) $f' = 2f$, $f'' = 2f$

Scan or tap for the full solution



- Q.10** A convex lens is dipped in a liquid whose refractive index is equal to the refractive index of the lens. Then its focal length will

[AIPMT 2003]

- (1) become zero
 (2) become infinite
 (3) become small, but non-zero
 (4) remain unchanged

Scan or tap for the full solution



- Q.11** A bulb is located on a wall. Its image of the same size is to be obtained on a parallel wall with the help of a convex lens. The lens is placed at a distance d ahead of the second wall, then the required focal length will be

[AIPMT 2002]

- (1) only $\frac{d}{4}$
 (2) only $\frac{d}{2}$
 (3) more than $\frac{d}{4}$ but less than $\frac{d}{2}$
 (4) less than $\frac{d}{4}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	2	3	1	1	4	3	3	3	1	2	2