

Ray Optics-1

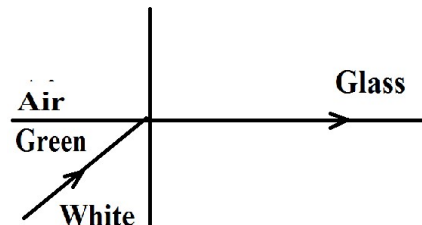
1. A ray is incident at 30° angle on plane mirror. What will be deviation after reflection from mirror.
(A) 120° (B) 60° (C) 30° (D) 45°
2. A man runs towards stationary plane mirror at a speed of 15 m/s. What is the speed of his image with respect to mirror
(A) 7.5 m/s (B) 15 m/s (C) 30 m/s (D) 45 m/s
3. A man is 180cm tall and his eyes are 10cm below the top of his head. In order to see his entire height right from toe to head, he uses a plane mirror kept at a distance of 1m from him. The minimum length of the plane mirror required is
(A) 180 cm (B) 90 cm (C) 85 cm (D) 170 cm
4. Two plane mirrors are at 45° to each other. If an object is placed between them then the number of images will be
(A) 5 (B) 9 (C) 7 (D) 8
5. The focal length of a concave mirror is 50cm. where an object be placed so that its image is two times magnified, real and inverted
(A) 75cm (B) 72cm (C) 63cm (D) 50cm
6. A square of side 3cm is placed at a distance of 25cm from a concave mirror of focal length 10cm. The centre of the square is at the axis of the mirror and the plane is normal to the axis. The area enclosed by the image of the square is
(A) 4 cm^2 (B) 6 cm^2 (C) 16 cm^2 (D) 36 cm^2
7. A point object is moving on the principal axis of a concave mirror of focal length 24cm towards the mirror. When it is at a distance of 60cm from the mirror. Its velocity is 9cm/sec. What is the velocity of the image at that instant
(A) 5cm/sec. (B) 12cm/sec. (C) 4cm/sec. (D) 9cm/sec.
8. The wavelength of light in two liquids 'x' and 'y' is 3500 \AA and 7000 \AA , then the critical angle will be
(A) 60° (B) 45° (C) 30° (D) 15°
9. A microscope is focused on a mark, then glass slab of refractive index 1.5 and thickness of 6cm is placed on the mark to get the mark again in focus, the microscope should moved
(A) 4cm (B) 2cm (C) 6cm (D) 8cm

10. A point source of light is placed 4m below the surface of water of refractive index $5/3$. The minimum diameter of a disc which should be placed over the source on the surface of water to cut-off all light coming out of water is ($\mu=5/3$)

- (A) 2m (B) 6m (C) 4m (D) 3m

11. White light is incident on the interface of glass and air as shown in the figure. If green light is just totally internally reflected then emerging ray in air contains

- (A) Yellow, Orange, Red
 (B) Violet, Indigo, Blue
 (C) All colours
 (D) All colours except green



12. A bubble in glass slab ($\mu=1.5$) when viewed from one side appears at 5cm and 2cm from other side, then thickness of slab is

- (A) 3.75 cm (B) 3 cm (C) 10.5 cm (D) 2.5 cm

13. Match the corresponding entries of column-I with column-II [Where m is the magnification produced by the mirror]

Column-I Column-II

- A. $m = -2$ p. Convex mirror
 B. $m = -\frac{1}{2}$ q. Concave mirror
 C. $m = +2$ r. Real image
 D. $m = +\frac{1}{2}$ s. Virtual image

- (A) A-p,s; B-q,r; C-q,s; D-q,r (B) A-r,s; B-q,s; C-q,r; D-p,s
 (C) A-q,r; B-q,r; C-q,s; D-p,s (D) A-p,r; B-p,s; C-p,q; D-r,s

14. A rod of length 10cm lies along the principal axis of a concave mirror of focal length 10cm in such a way that its end closer to the pole is 20cm away from the mirror. The length of the image is

- (A) 2.5 cm (B) 5 cm (C) 10 cm (D) 15 cm

15. Which of the following is not due to total internal reflection?

- (A) Working of optical fibre.
 (B) Difference between apparent and real depth of a pond.
 (C) Mirage on hot summer days.
 (D) Brilliance of diamond.

Physics Worksheet-22					Ray Optics-1					13-02-2019				
1-A	2-B	3-B	4-C	5-A	6-A	7-C	8-C	9-B	10-B	11-A	12-C	13-C	14-B	15-B