

CLASS X- PHYSICS
LIGHT
ASSIGNMENT-4

MULTIPLE CHOICE QUESTION - 4.1

1. To get a real and inverted image of the same size as that the object should be placed in front of the convex lens at:
(A) F (B) 2F
(C) between F and 2F (D) away from 2F, where F is focal length
2. A spherical mirror and a spherical lens have each focal length of - 10cm. The mirror and lens are :
(A) both convex (B) both concave
(C) mirror is convex and lens is concave (D) mirror is concave and lens is convex
3. The power of lens having focal length 50 cm is :
(A) $\frac{1}{2}$ D (B) 2D (C) 3D (D) 0.2 D
4. The focal length of a lens of power - 2.0 D is :
(A) -2.0 m (B) 0.2 m (C) 0.5 m (D) 0.5 m
5. Two lenses of +5D and -5D are placed in close contact. The focal length of the combination is :
(A) Zero (B) ∞ (C) Zero or ∞ (D) None of these
6. A student needs a lens of power -2.0 dioptre to correct his distant vision. The focal length of the given lens is :
(A) + 50 cm (B) -50 cm (C) 10 cm (D) -10 cm
7. Focal length of coloured goggles (without number) is :
(A) zero (B) infinity
(C) between zero & infinity (D) None of these
8. Where should an object be placed so that a real and inverted image of very large size is obtained, using a convex lens ?
(A) At the focus (B) At 2F (C) Between F & 2F (D) Beyond 2F
9. A convex lens is :
(A) Thicker at the middle, thinner at the edges
(B) Diverging
(C) Thicker at the edges thinner in the middle
(D) Of uniform thickness everywhere
10. A glass rod of refractive index 1.42 is immersed in kerosene. The refractive index of kerosene is 1.42. Then the rod will :
(A) appear bent (B) appear raised above the liquid
(C) become invisible (D) none of the above

11. The power of a lens whose focal length is 25 cm is :
(A) 4 Dioptre (B) 25 Dioptre (C) 0.04 Dioptre (D) 2.5 Dioptre
12. A thin lens is made with a material having refractive index $\mu = 1.5$. Both the side are convex. It is dipped in water ($\mu = 1.33$), it will be have like :
(A) a convergent lens (B) a divergent lens
(C) a rectangular slab (D) a prism
13. Choose the correct option :
(A) If the final rays are converging, we have a real image.
(B) If the incident rays are converging, we have a real image.
(C) If the image is virtual, the corresponding object is called a virtual object.
(D) The image of a virtual object is called a virtual image.
14. A convex lens forms a real image of a point object placed on its principal axis. If the upper half on the lens is painted black :
(A) the image will be shifted backward
(B) the image will not be shifted
(C) the intensity of the image will decrease
(D) both (B) & (C)
15. The minimum distance between an object and its real image formed by a convex lens of focal length f is :
(A) f (B) $2f$ (C) $3f$ (D) $4f$

SUBJECTIVE QUESTION - 4.2

1. A convex lens forms a real and inverted image of a needle at a distance of 50 cm from the lens. Where should the needle be placed in front of the convex lens so that this image is of the same size as the object. Also find the power of lens.
2. It is possible for a lens to act as a convergent lens in one medium and a divergent lens in another ?
3. What is the power of a concave lens of focal length 50 cm ?
4. Two lenses of power + 3.5 D and -2.5 D are placed in contact. Find the power and focal length of the lens combination.