

REFRACTION THROUGH A LENS

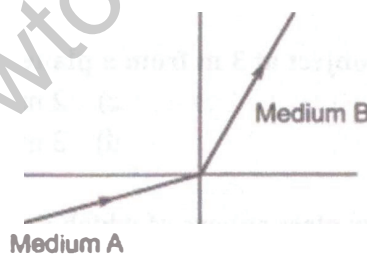
INCLUDED IN THIS SECTION

- ✓ Multiple-Choice Questions (MCQs)
- ✓ Solutions

1. Lens is a

- a) Transparent medium
- b) Reflecting medium
- c) Both a & b
- d) None of the above

2. As shown in figure, a light ray passes from medium A to medium B. Relative to medium A, medium B will have a refractive index of?



- a) greater than 1
- b) less than 1
- c) equal to 1
- d) zero

3. A lens that is thick in the middle and thin at the edges is called _____

- a) Concave lens
- b) Convex lens
- c) Compound lens
- d) None of these

4. A lens that is thin in the middle and thick at the edges is called _____
- a) Concave lens
b) Convex lens
c) Plano-convex lens
d) None of these
5. What kind of lens is used in a door peephole?
- a) Concave
b) Convex
c) Magnifying
d) Both b & c
6. A point object is placed at a distance of 20 cm from a convex mirror with a focal length of 20 cm. The image will appear at
- a) infinity
b) focus
c) behind the mirror
d) at the pole
7. Divergent action is done by
- a) Concave lens only
b) Convex lens only
c) Both (a) and (b)
d) None of these
8. Convergent action is done by
- a) Concave lens only
b) Convex lens only
c) Both (a) and (b)
d) None of these
9. The focal length of a plane mirror is
- a) Zero
b) Infinite
c) Uncertain
d) Equal to the object distance
10. The distance between the object at 3 m from a plane mirror and its image is
- a) 4 m
b) 6 m
c) 2 m
d) 3 m
11. The centre of the imaginary glass sphere of which the lens is a part is known as?
- a) Centre of Curvature
b) Aperture
c) Principal focus of Convex lens
d) Optic Centre
12. The distance between the optical centre of lens and the focal point is called
- a) Plane of incidence
b) Reflective index
c) Focal length
d) None of these
13. A lens has _____ principal foci.
- a) 1
b) 2
c) 3
d) 4

14. An object at a distance of 30 cm from a concave mirror gets its image at the same point. The focal length of the mirror is

- a) 30cm
- b) 15cm
- c) -30cm
- d) -15cm

15. The focal point is imaginary for

- a) Concave lens
- b) Convex lens
- c) Both (a) and (b)
- d) None of these

16. The focal length of a lens depends on the

- a) The refractive index of the material of the prism
- b) The radius of curvature of the two surface of lens
- c) Both a and b
- d) None of these

17. Focal length of a fixed lens is greater when

- a) the lens is emerged in water
- b) the lens is placed in open air
- c) does not depend on medium
- d) none of the above cases

18. Consider two lenses made of same material but one is thin, and another is thicker. For which lens focal length is less?

- a) thin
- b) thick
- c) lens having a fixed focal length does not depend on medium
- d) none of these

19. The focal point is real for

- a) concave lens
- b) convex lens
- c) both (a) and (b)
- d) none of these

20. Which lens is converging?

- a) Equiconcave
- b) Equiconvex
- c) Convexo-concave
- d) None of these

21. You have a concave mirror, a convex mirror, and a concave lens. To obtain an enlarged image of an object you can use either

- a) Concave mirror or concave lens
- b) Concave mirror or convex lens

- c) Concave mirror or convex mirror d) Concave lens or convex lens
22. **What is the condition when a lens is called an equiconvex or equiconvex?**
- a) Radius of curvature of two surfaces are equal c) Optical centre of two surfaces are equal
- b) Focal length of two surfaces equal d) None of these
23. **A convexo-concave lens is:**
- a) thicker in the middle and thinner at the edges
- b) thinner in the middle and thicker at the edges
- c) thicker in the middle with one plane surface
- d) thinner in the middle with one plane surface
24. **A ray of light incident obliquely on a lens does not suffer refraction. The ray is passing through the:**
- a) centre of curvature of lens c) first focus of lens
- b) optical centre of lens d) second focus of lens
25. **A parallel beam of light on passing through a concave lens appears to meet at a point on the principle axis of the lens. The point is called**
- a) optical centre c) second focus
- b) first focus d) centre of curvature of first surface
26. **A point source of light is placed in front of a convex lens such that a divergent beam starting from it on passing through the lens is parallel to the principal axis. The point source of light is situated at:**
- a) first focal point c) centre of curvature of first surface
- b) second focal point d) centre of curvature of second surface
27. **A small bulb is placed at the focal point of a convex lens. When the bulb is switched on, the lens produces :**
- a) a convergent beam of light c) a parallel beam of light
- b) a divergent beam of light d) a patch of coloured light
28. **A ray of light travelling parallel to the principal axis of a convex lens after refraction**
- a) passes through F1 c) appears to pass through F1
- b) passes through F2 d) appears to pass through F2
29. **When an image is formed at 2F2 of a convex lens, the object is:**

- a) decreases
- b) increases
- c) does not change
- d) first increases then decreases

39. A magnifying glass forms:

- a) a real and diminished image
- b) a real and magnified image
- c) a virtual and magnified image
- d) a virtual and diminished image

40. A simple microscope is made of _____ lens.

- a) Concave
- b) Convex
- c) Any of (a) or (b)
- d) None of these

41. What is the least distance of distinct vision for human?

- a) 15 cm
- b) 20 cm
- c) 25 cm
- d) 10 cm

42. Magnification power(m) of a simple microscope is given by (D = Least distance of distinct vision and F = Focal length of the lens)

- a) $m = 1 - DF$
- b) $m = 1 + D/F$
- c) $m = DF - 1$
- d) $m = 1 + F$

43. What type lens is used for a person suffering from long sightness?

- a) Concave lens
- b) Convex lens
- c) Cylindrical lens
- d) None of these

44. What type lens is used for a person suffering from short sightness?

- a) Concave lens
- b) Convex lens
- c) Cylindrical lens
- d) None of these

45. For a people whose both long and short sight ness have, which type of lens is used for distinct vision?

- a) Concave lens
- b) Convex lens
- c) Cylindrical lens
- d) Bifocal lens

46. In the collimator of a spectroscope which type of lens is used?

- a) Concave lens
- b) Convex lens
- c) Cylindrical lens
- d) None of these

47. A Galilean telescope uses _____ lens.

- a) Concave lens
- b) Convex lens
- c) Cylindrical lens
- d) None of these

48. A full length image of a distant tall building can definitely be seen by using?
- a) a concave mirror
 - b) a plane mirror
 - c) a convex mirror
 - d) both concave as well as plane mirror
49. Kerosene, orange juice, mustard oil and water are given to you. In which of these media would a ray of light incident obliquely at the same angle bend the most?
- a) Kerosene
 - b) Orange juice
 - c) Mustard oil
 - d) Water
50. When you keep a Lens near a printed page, the letters appear magnified. This is a
- a) Concave lens
 - b) Convex lens
 - c) Complex lens
 - d) None of these
51. If you are looking a distant object through a lens X, an upright image is seen. Can you say what type of lens is it?
- a) Concave lens
 - b) Convex lens
 - c) Can't say
 - d) None of these
52. The maximum magnifying power of convex lens of focal length 5 cm can be
- a) 25
 - b) 10
 - c) 1
 - d) 6
53. A magnifying glass forms
- a) A real and diminished image
 - b) A real and magnified image
 - c) A virtual and magnified image
 - d) A virtual and diminished image