

**Unit 02****Optics****Book Back**

1. What is refractive index?
2. State Snell's law.
3. Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.
4. Define dispersion of light
5. State Rayleigh's law of scattering
6. Differentiate convex lens and concave lens.
7. What is power of accommodation of eye?
8. What are the causes of 'Myopia'?
9. Why does the sky appear in blue colour?
10. Why are traffic signals red in colour?
11. List all eight properties of light
12. Explain the rules for obtaining images by a convex lens with the help of ray diagram.
13. Differentiate the eye defects: Myopia and Hypermetropia
14. Explain the construction and working of a 'Compound Microscope'.
15. An object is placed at a distance 20cm from a convex lens of focal length 10cm. Find the image distance and nature of the image.
16. An object of height 3cm is placed at 10cm from a concave lens of focal length 15cm. Find the size of the image.
17. While doing an experiment for the determination of focal length of a convex lens, Raja Suddenly dropped the lens. It got broken into two halves along the axis. If he continues his experiment with the same lens, (a) can he get the image? (b) Is there any change in the focal length?
18. The eyes of the nocturnal birds like owl are having a large cornea and a large pupil. How does it help them?

**Advanced**

19. State first law of refraction
20. What do you mean by scattering of light
21. Explain about
  - i) Mie scattering
  - ii) Tyndall effect
  - iii) Raman Scattering
22. Draw various types of convex & concave lenses
23. What are all the three rules to be followed for image formation by convex & concave lenses
24. Explain about refraction through a convex lens when object is @
  - i) infinity
  - ii) beyond C
  - iii) at C
  - iv) between F & C
  - v) at F
  - vi) between F & O

25. List out the applications of convex lenses
26. Explain about refraction through a concave lens when object is placed @
  - i) infinity
  - ii) anywhere on principal axis at finite distance
27. List out the applications of concave lenses
28. Write the lens formula
29. What are all the sign conventions to be followed in optics
30. Write the formula for magnification of lens
31. What do you mean by power of lens
32. Explain in detail about structure and working of eye
33. Explain in detail about hypermetropia
34. Explain about presbyopia & astigmatism
35. Explain about simple microscope
36. Point out the uses of simple microscope
37. Explain about construction of simple & compound microscope
38. Write a note on advantage & disadvantage of telescope

### Numerical

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39. Light rays travel from vacuum into a glass whose refractive index is 1.5. If the angle of incidence is  $30^\circ$ , calculate the angle of refraction inside the glass.
40. A beam of light passing through a diverging lens of focal length 0.3m appear to be focused at a distance 0.2m behind the lens. Find the position of the object.
41. A person with myopia can see objects placed at a distance of 4m. If he wants to see objects at a distance of 20m, what should be the focal length and power of the concave lens he must wear?
42. For a person with hypermetropia, the near point has moved to 1.5m. Calculate the focal length of the correction lens in order to make his eyes normal.

**ALL THE BEST BUT BE THE BEST**