

Chapter 11 – Human Eye and Colorful World (30 Important Q&A)

Human Eye

Q1. Define human eye.

Ans: Organ that detects light and helps in forming images.

Q2. Name the transparent layer at the front of the eye.

Ans: Cornea

Q3. Function of cornea:

Ans: Allows light to enter the eye and helps in focusing.

Q4. Function of iris:

Ans: Controls the amount of light entering the eye by adjusting the pupil size.

Q5. Function of pupil:

Ans: Opening in the center of iris that lets light in.

Lens and Retina

Q6. Function of eye lens:

Ans: Focuses light rays on retina.

Q7. Retina:

Ans: Light-sensitive layer at the back of the eye containing rods and cones.

Q8. Function of rods:

Ans: Detect black and white light; help in dim light.

Q9. Function of cones:

Ans: Detect color and bright light.

Q10. Optic nerve function:

Ans: Carries signals from retina to brain.

Defects of Vision

Q11. Myopia (short-sightedness):

Ans: Cannot see distant objects clearly; corrected using concave lens.

Q12. Hypermetropia (long-sightedness):

Ans: Cannot see nearby objects clearly; corrected using convex lens.

Q13. Presbyopia:

Ans: Age-related inability to see nearby objects; corrected with bifocal lens.

Q14. Cataract:

Ans: Clouding of lens causing blurred vision; treated by surgery.

Q15. Astigmatism:

Ans: Irregular curvature of cornea/lens causing blurred vision; corrected by cylindrical lens.

Refraction and Dispersion

Q16. Refraction:

Ans: Bending of light when it passes from one medium to another.

Q17. Dispersion of light:

Ans: Splitting of white light into its constituent colors.

Q18. Prism used for:

Ans: Dispersion of white light into seven colors.

Q19. Colors of spectrum in order:

Ans: Violet, Indigo, Blue, Green, Yellow, Orange, Red (VIBGYOR)

Q20. Red light has:

Ans: Longest wavelength, least deviation in prism.

Laws of Refraction

Q21. Refraction occurs because:

Ans: Light travels at different speeds in different media.

Q22. Light bends towards normal when:

Ans: Passes from rarer to denser medium.

Q23. Light bends away from normal when:

Ans: Passes from denser to rarer medium.

Q24. Refractive index (n):

Ans: Ratio of speed of light in vacuum to speed in medium.

Q25. Total internal reflection (TIR):

Ans: When light from denser medium strikes rarer medium at angle greater than critical angle and reflects totally.

Applications

Q26. TIR used in:

Ans: Optical fibers, periscopes, binoculars.

Q27. Rainbow formed due to:

Ans: Dispersion and total internal reflection of sunlight in raindrops.

Q28. Lenses in spectacles correct:

Ans: Defects of vision like myopia, hypermetropia, presbyopia.

Q29. Camera lens is:

Ans: Convex lens; focuses light to form real image on film/sensor.

Q30. Microscope uses:

Ans: Convex lenses to magnify tiny objects for better observation.
