Fundamentals of Optics

Optics · Answer Key · 24 Questions

1. Which phenomenon describes the bouncing back of light rays when they strike a surface?

A) Refraction
B) Diffraction
C) Reflection
D) Dispersion

2. When light passes from one medium to another and changes direction, this is called:

A) Reflection
B) Interference
C) Diffraction
D) Refraction

3. The splitting of white light into its constituent colours when passing through a prism is known as:

A) Diffraction
B) Dispersion
C) Polarization
D) Interference

4. A mirror that curves inward and can form magnified, real images is a:

A) Plane mirror
B) Convex mirror
C) Concave mirror
D) Spherical mirror

5. A mirror that curves outward and always forms virtual, diminished images is a:

A) Plane mirror
B) Concave mirror
C) Convex mirror
D) Parabolic mirror

6. Light travels fastest in which medium?

A) Water
B) Glass
C) Diamond
D) Vacuum

7. What is the unit of luminous flux?

A) Candela
B) Lux
C) Lumen
D) Watt

8. The law of reflection states that the angle of incidence is equal to the:

A) Angle of refraction
B) Angle of diffraction
C) Angle of reflection
D) Angle of dispersion

9. A lens that is thicker in the middle and thinner at the edges, and converges parallel light rays, is a:

A) Diverging lens
B) Concave lens
C) Convex lens
D) Biconcave lens

10. A lens that is thinner in the middle and thicker at the edges, and diverges parallel light rays, is a:

A) Converging lens
B) Convex lens
C) Concave lens
D) Biconvex lens

11. The phenomenon where light bends as it passes through a narrow opening or around an obstacle is called:

A) Reflection
B) Refraction
C) Interference
D) Diffraction

12. What property of light allows us to see colours?

A) Polarization
B) Intensity
C) Wavelength
D) Frequency

13. A ray of light striking a plane mirror perpendicularly will reflect back along the same path. What is the angle of incidence in this case?

A) 90 degrees
B) 45 degrees
C) 0 degrees
D) 180 degrees

14. The point where parallel rays of light converge after passing through a convex lens is called the:

A) Virtual focus
B) Principal axis
C) Optical centre
D) Focal point

15. Which of these is a primary colour of light?

A) Yellow
B) Cyan
C) Green
D) Magenta

16. The bending of light when it enters a denser medium is due to a change in its:

A) Frequency
B) Colour
C) Speed
D) Amplitude

17. A camera obscura works on the principle of:

A) Reflection
B) Diffraction
C) Rectilinear propagation of light
D) Interference

18. What type of image is formed by a convex lens when the object is placed beyond the focal point?

A) Virtual and erect
B) Real and inverted
C) Virtual and inverted
D) Real and erect

19. Which optical instrument uses a combination of lenses to magnify distant objects?

A) Microscope
B) Telescope
C) Periscope
D) Spectacles

20. The phenomenon of light behaving as waves is demonstrated by:

A) Reflection
B) Refraction
C) Diffraction and Interference
D) Rectilinear propagation

21. The colour of an object is determined by the wavelengths of light it:

A) Absorbs
B) Refracts
C) Scatters or reflects
D) Diffracts

22. A pinhole camera produces an image that is:

A) Virtual and erect
B) Real and erect
C) Virtual and inverted
D) Real and inverted

23. When light passes from a rarer medium to a denser medium, it bends:

A) Away from the normal
B) Towards the normal
C) Parallel to the normal
D) Does not bend

24. The optical property that allows light waves to vibrate in only one plane is called:

A) Interference
B) Diffraction
C) Dispersion
D) Polarization