Fundamentals of Optics

Optics · Answer Key · 25 Questions

1. What is the primary natural source of light for the Earth?

A) The Moon
B) The Sun
C) Stars
D) Fire

2. Which phenomenon occurs when light bounces off a smooth, shiny surface?

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

3. What is the bending of light as it passes from one transparent medium to another called?

A) Refraction
B) Reflection
C) Absorption
D) Polarization

4. Which part of the human eye is responsible for focusing light onto the retina?

A) Iris
B) Pupil
C) Lens
D) Cornea

5. What are the three primary additive colours of light?

A) Red, Yellow, Blue
B) Red, Green, Blue
C) Cyan, Magenta, Yellow
D) Black, White, Grey

6. Which type of mirror has a surface that curves inward like a cave?

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

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7. What is the name of the spectrum of colours formed when white light passes through a prism?

A) The Rainbow
B) The Visible Spectrum
C) Infrared
D) Ultraviolet

8. Which material is most transparent to visible light?

A) Wood
B) Metal
C) Glass
D) Concrete

9. What color does an object appear if it absorbs all visible light?

A) White
B) Black
C) Transparent
D) Grey

10. Which scientist is famously associated with the study of light and the use of prisms in the 17th century?

A) Isaac Newton
B) Albert Einstein
C) Nikola Tesla
D) Galileo Galilei

11. What is the dark area formed behind an opaque object where light is blocked?

A) Reflection
B) Shadow
C) Refraction
D) Focus

12. Which type of lens is thinner in the middle than at the edges?

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

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13. What is the speed of light in a vacuum approximately?

A) 300,000 km/s
B) 1,000 km/s
C) 50,000 km/s
D) 1,000,000 km/s

14. Which part of the eye controls the amount of light entering the pupil?

A) Retina
B) Iris
C) Sclera
D) Optic nerve

15. What happens to light when it hits a rough, uneven surface?

A) Specular reflection
B) Diffuse reflection
C) Total absorption
D) Perfect refraction

16. Which of these is considered an opaque object?

A) Clear water
B) A metal plate
C) Clear plastic wrap
D) Air

17. What is the term for light that cannot be seen by the human eye because it has a wavelength longer than red light?

A) Ultraviolet
B) Infrared
C) X-ray
D) Gamma ray

18. What device uses a series of lenses or mirrors to make distant objects appear closer?

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

19. Which type of lens converges light rays to a single point?

A) Concave lens
B) Convex lens
C) Flat lens
D) Diffuse lens

20. What happens to the pupil of the eye in bright light?

A) It dilates
B) It stays the same size
C) It constricts
D) It disappears

21. What is the fundamental unit of light energy often referred to in quantum optics?

A) Electron
B) Proton
C) Photon
D) Neutron

22. Which phenomenon explains why a straw appears bent in a glass of water?

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

23. What is the study of light and its properties called?

A) Biology
B) Optics
C) Acoustics
D) Thermodynamics

24. Which color of visible light has the longest wavelength?

A) Violet
B) Blue
C) Green
D) Red

25. What is a material called that allows some light to pass through but scatters it?

A) Opaque
B) Transparent
C) Translucent
D) Reflective

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