

Fundamentals of Optics

Physics · Practice Test · 18 Questions

1. What is the unit used to measure the power of a lens?

- A) Diopter
- B) Watt
- C) Hertz
- D) Joule

2. Which phenomenon is primarily responsible for the appearance of a rainbow?

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

3. What happens to the speed of light when it passes from air into glass?

- A) It increases
- B) It remains constant
- C) It decreases
- D) It becomes zero

4. Which type of mirror is commonly used as a rear-view mirror on cars to provide a wider field of view?

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

5. The human eye acts most similarly to which type of optical device?

- A) A concave lens
- B) A camera
- C) A microscope
- D) A telescope

6. What is the angle of incidence equal to, according to the law of reflection?

- A) The angle of refraction
- B) The angle of diffraction
- C) The angle of reflection
- D) The critical angle

7. Which color of visible light has the shortest wavelength?

- A) Red
- B) Green
- C) Yellow
- D) Violet

8. Total internal reflection can only occur when light travels from:

- A) A denser medium to a less dense medium
- B) A less dense medium to a denser medium
- C) Air into a vacuum
- D) A vacuum into air

9. What is the primary function of the iris in the human eye?

- A) Focusing light on the retina
- B) Adjusting the size of the pupil
- C) Converting light into nerve impulses
- D) Protecting the cornea

10. Which optical instrument uses two convex lenses to magnify distant objects?

- A) Simple microscope
- B) Refracting telescope
- C) Periscope
- D) Kaleidoscope

11. What term describes the bending of light as it passes around the edge of an obstacle?

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

12. Myopia, or nearsightedness, is typically corrected using which type of lens?

- A) Concave lens
- B) Convex lens
- C) Cylindrical lens
- D) Bifocal lens

13. In optics, what does the 'normal' refer to?

- A) The path of incident light
- B) A line perpendicular to the surface at the point of incidence
- C) The reflected light ray
- D) The point where refraction occurs

14. Which material has the highest refractive index among the following?

- A) Water
- B) Diamond
- C) Glass
- D) Ice

15. What is the name for the point where parallel rays of light converge after passing through a convex lens?

- A) Center of curvature
- B) Optical center
- C) Principal focus
- D) Aperture

16. Which electromagnetic wave has a frequency slightly higher than that of violet light?

- A) Ultraviolet
- B) Infrared
- C) Microwave
- D) Radio wave

17. What is the term for the separation of white light into its component colors?

- A) Reflection
- B) Dispersion
- C) Absorption
- D) Scattering

18. Which part of the eye contains the photoreceptor cells known as rods and cones?

- A) Cornea
- B) Lens
- C) Retina
- D) Iris