

Pasadena City College
Physics 10 Test 2

1. Electric charge a) is not a fundamental property b) always experiences an attractive force c) is given an arbitrary sign designation d) is found associated only with electrons
2. An insulator may be electrostatically charged by a) contact b) friction c) induction d) all of these
3. Lightning takes place by a) cloud-to-cloud discharges b) intracloud discharges c) could to ground discharges d) all of these
4. Electric potential is a) the force per charge b) the same as electric potential energy c) the electric potential energy per charge d) given by Coulomb's law
5. Electric charge is measured in units of a) coulombs b) volts c) newtons d) de Graaffs
6. Electric fields are represented graphically by a) lines of force b) dots c) arrows that point in the direction of the force on a negative charge d) a series of straight lines
7. The process of an atom absorbing radiation of one wavelength and emitting another is called a) interference b) incandescence c) fluorescence d) polarization
8. When two waves interfere in phase, the result is a) fluorescence b) destructive interference c) decreased wave amplitude d) none of the preceding
9. Light may be polarized by a) absorption b) reflection c) scattering d) all of these
10. What type of light can be coherent? a) Monochromatic and in phase b) Spontaneous emission c) Monochromatic only d) Narrow beam divergence
11. The excited mercury vapor in a fluorescent lamp emits what type of radiation? a) Ultraviolet b) Infrared c) Visible d) Heat
12. The bending of waves around corners is called a) interference b) diffraction c) reflection d) polarization
13. The law of reflection applies for a) specular reflection b) irregular reflection c) diffuse reflection d) all of these
14. In refraction, which of the following wave properties is unchanged? a) frequency b) wavelength c) speed d) all of these
15. Total internal reflection could occur for light in which of the following media transitions? a) water to air b) vacuum to glass c) glass to water d) both (b) and (c)
16. A spherical converging lens a) is free of aberrations b) cannot form images on a screen c) is thicker at its center than at its periphery
17. Fiber optics is based on a) dispersion b) diffuse reflection c) total internal reflection d) diverging mirrors
18. Dispersion is responsible for a) a diamond's brilliance b) diffuse reflection c) spherical aberration d) chromatic aberration
19. Color vision results from photosensitive cells called a) pupils b) rods c) cones d) none of these
20. Which of the following is not an additive primary color? a) Red b) Green c) Yellow d) Blue
21. An upright image is seen when looking through a) a terrestrial telescope b) an astronomical telescope c) a Galilean telescope d) both (a) and (c)
22. The sky appears blue as a result of a) selective absorption b) selective transmission c) selective reflection d) preferential scattering

23. The film of a camera corresponds to what part of the eye? a) retina b) aperture c) cornea d) iris
24. Rayleigh scattering explains a) color vision b) additive color production c) the blueness of the sky d) subtractive color production

Answer key: 1. C 11. A 21. D
 2. D 12. B 22. D
 3. D 13. D 23. A
 4. C 14. A 24. C
 5. A 15. D
 6. A 16. C
 7. C 17. C
 8. D 18. D
 9. D 19. C
 10. A 20. C

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1. The electric force between two charged particles a) is repulsive for unlike charges b) depends only on the magnitudes of the charges c) varies as $1/r$ d) is much, much greater than the gravitational force
2. Electrostatic charging a) must be done with a conductor b) occurs best on dry days c) does not involve a transfer or movement of charge d) none of the preceding
3. Lightning rods prevent damage by making contact with a) streamers b) return strokes c) stepped leaders d) dart leaders
4. Electric fields are represented graphically by a) dots b) lines of forces c) arrows that points in the direction of the force on a negative charge d) series of straight lines
5. Electric potential energy is given by a) Coulomb's law b) the law of charges c) electric field lines d) charge time voltage
6. Electrostatic charges can be placed on an object by a) friction b) contact c) induction d) all of these
7. White light is a) fluorescent b) ultraviolet c) polychromatic d) waves with only magnetic field
8. What is "destroyed" in destructive interference? a) Wave form b) Electric and magnetic fields c) Energy d) All of the preceding
9. Which type of wave would be diffracted by a door opening? a) Sound waves b) AM radio waves c) FM radio waves d) all of these
10. The dual nature of light refers to the a) quantum properties of light b) wave and particle characteristic properties of light c) frequency and wavelength properties of light d) none of these
11. Light in which the electric field is in only one direction is a) monochromatic b) produced by interference c) polarized d) not an electromagnetic wave
12. What type of diffraction is observed in everyday activities a) sound b) light c) electron d) X-ray
13. A light ray is a line drawn perpendicular to a) a wavelength b) a beam c) a wave front d) none of the preceding
14. A refracted ray is bent away from the normal when entering which type of medium? a) less optically dense b) air to water c) more optically dense d) all of these
15. In most transparent materials, which color of light has the greatest angle of refraction from the incident ray direction? a) red b) green c) yellow d) blue
16. Lens aberrations give rise to a) external reflection b) internal reflections c) a diamond's brilliance d) blurred images
17. Ray optics is a convenient way to represent a) interference b) reflection c) diffraction d) wavelength
18. The "beam" of a flashlight is seen as a result of a) refraction b) diffuse reflection c) dispersion d) internal reflection
19. A visual defect that occurs naturally with age is a) color blindness b) astigmatism c) nearsightedness d) not being able to see near objects clearly
20. Which of the following is not a subtractive primary color? a) Cyan b) Green c) Magenta d) Yellow

21. A simple microscope magnifies by a) internal reflection b) reducing the accommodation c) refractively widening the angle of view d) affecting the rod cells in the retina
22. Rayleigh scattering explains a) color vision b) the blueness of the sky c) additive color production d) subtractive color production
23. Various types of telescope, use a) visible light b) infrared radiation c) radio waves d) all of the preceding
24. In the late evening, no color is seen because of lack of stimulation of a) rods b) cones c) cornea d) crystalline lens

Answer : 1. D 11. C 21. C
 2. B 12. A 22. B
 3. C 13. C 23. D
 4. B 14. A 24. B
 5. D
 6. D
 7. B
 8. A
 9. D
 10. B 15. D
 16. D
 17. B
 18. B
 19. D
 20. B