

PracTest - Light

- Which of the following does not refer to a type of electromagnetic wave?
A. radio C. ultraviolet E. microwave
B. sonar D. X-ray F. gamma
- The wavelength of red light is ? that of blue light; the frequency of red light is ? that of blue light.
A. longer than; higher than C. longer than; lower than E. the same as; higher than
B. shorter than; lower than D. longer than; the same as F. none of these

Consider radio waves (R), ultraviolet light (UV), infrared light (IR), and gamma rays (γ)

- From lowest to highest frequency, these would be ordered
A. R-IR-UV- γ C. γ -IR-UV-R E. IR- γ -R-IR G. R-UV- γ -IR
B. IR-R-UV- γ D. UV-IR- γ -R F. γ -UV-IR-R H. Same for all
- Which station broadcasts with 2.94 m radio waves?
A. KXPR 91.7 MHz C. WGRD 98.5 MHz E. KWOD 106 MHz
B. Y 92.5 MHz D. KSFM 102 MHz F. WLAV 108 MHz
- KFBK AM broadcasts at 1530 kHz. What is the corresponding wavelength of their carrier? (Most nearly)
A. $1\ \mu\text{m}$ C. 1 m E. 1 Mm
B. 1 mm D. 1 km F. 1 Gm
- Diffuse reflection occurs whenever light is incident on
A. a smooth surface
B. a rough surface
C. a boundary between low index of refraction and high index of refraction materials
D. a boundary between high index of refraction and low index of refraction materials
E. a boundary between any two transparent substances, regardless of indices of refraction
- Consider the three objects and mirror shown in the diagram to the right.

mirror

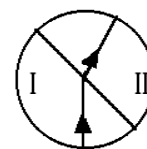
A B C

An observer at position C can see position/s ? in the mirror.

- A. A only C. C only E. A, B, and C
B. B only D. B and C only F. None
- A beam of light travels through air. It then enters a body of water. Upon entering the water
A. its wavelength increases
B. its wavelength decreases
C. its wavelength remains constant

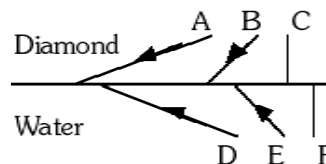
9.

A beam of light passes from medium I to medium II as shown in the diagram to the right. The index of refraction of medium II is ? the index of refraction of medium I.



- A. less than
- B. equal to
- C. greater than
- D. not enough information

Beams A, B, and C are directed toward a diamond to water interface. Beams D, E, and F are directed toward a water to diamond interface. The angles of incidence for beams A and D are equal. The angles of incidence for beams B and E are equal (and less than those for A and D). The angles of incidence for C and F are 0° .



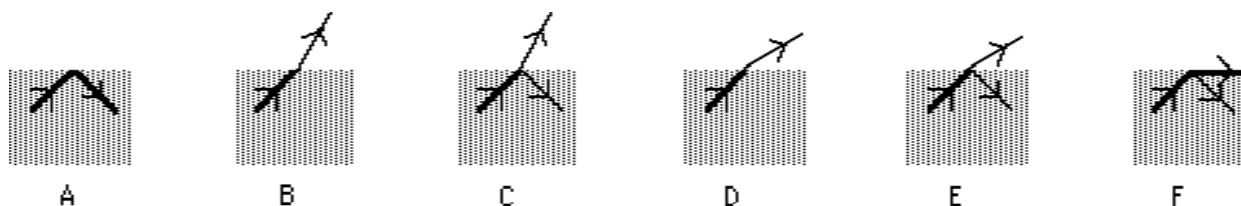
10. Which of the beams is most likely to undergo total internal reflection?

- A. A
- B. B
- C. C
- D. D
- E. E
- F. F

11. Mirages are the result of

- A. reflection
- B. refraction
- C. scattering
- D. diffraction
- E. dispersion
- F. polarization
- G. interference
- H. total internal reflection

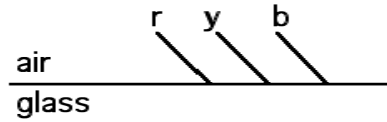
Use the diagrams below to answer the following question/s. Each selection may be used once, more than once, or not at all.



12. A beam of light is directed from crystal Q to air at an angle of incidence of 45° . The critical angle for crystal Q is 40° . Which diagram above most accurately depicts the result?

- A. A
- B. B
- C. C
- D. D
- E. E
- F. F

13. Three parallel beams of light--one red, one yellow, and one blue--are incident at an oblique angle to glass as shown. Upon entering the glass



- I. The red beam bends toward the normal
 II. The yellow beam does not bend
 III. The blue beam bends away from the normal

- A. I only C. III only E. I and III only
 B. II only D. I and II only F. I, II, and III
14. The phenomenon depicted on Pink Floyd's Dark Side of the Moon album cover (light passing through a prism) is referred to as
 A. reflection C. scattering E. dispersion G. interference
 B. refraction D. diffraction F. polarization H. total internal reflection
15. [CPA-Light & Color] The speed of light in glass and water is ? it is in air.
 A. less than B. greater than C. the same as
16. [The Lives of the Stars] A lump of two protons and two neutrons is the nucleus of a helium atom and is very ?.
 A. massive B. radioactive C. stable D. unstable
17. [The Lives of the Stars] The evolution of life on Earth is driven in part, through ?, by the deaths of distant stars.
 A. gene flow B. genetic drift C. mutations D. natural selection
18. [YouTube: Cell Phone Popcorn] The demonstration of popping corn with cell phones
 A. showed the intensity of electromagnetic radiation emitted by cell phones.
 B. showed the importance of friendship and beverages.
 C. was a fabrication: you can't pop corn with cells phones.
 D. was misleading: aiming active cell phones at each other can start fires.
19. [YouTube: Chromatophores] Chromatophores come in the following colors:
 A. red, yellow, and blue C. orange, green, and violet E. cyan, yellow, and magenta
 B. red, green, and blue D. yellow, red, and brown F. violet, green, and black
20. [YouTube: Trichromats] Birds that are sensitive to four primary colors are called
 A. bichromats C. quadchromats E. pentachromats
 B. trichromats D. tetrachromats F. hexachromats

PracTest - Light Answer Section

MULTIPLE CHOICE

- | | | |
|------------|----------------------------------|---------------|
| 1. ANS: B | TOP: Electromagnetic Waves | NOT: PracTest |
| 2. ANS: C | TOP: Electromagnetic Waves | NOT: PracTest |
| 3. ANS: A | TOP: Electromagnetic Waves | NOT: PracTest |
| 4. ANS: D | TOP: Electromagnetic Wave Math | NOT: PracTest |
| 5. ANS: C | TOP: Electromagnetic Wave Math | NOT: PracTest |
| 6. ANS: B | TOP: Light Reflection | NOT: PracTest |
| 7. ANS: A | TOP: Light Reflection | NOT: PracTest |
| 8. ANS: B | TOP: Light Refraction | NOT: PracTest |
| 9. ANS: C | TOP: Light Refraction | NOT: PracTest |
| 10. ANS: A | TOP: Total Internal Reflection | NOT: PracTest |
| 11. ANS: B | TOP: Light Phenomena | NOT: PracTest |
| 12. ANS: A | TOP: Total Internal Reflection | NOT: PracTest |
| 13. ANS: A | TOP: Dispersion | NOT: PracTest |
| 14. ANS: E | TOP: Light Phenomena | NOT: PracTest |
| 15. ANS: A | TOP: 28. Light & Color | |
| 16. ANS: C | TOP: The Lives of the Stars | |
| 17. ANS: C | TOP: The Lives of the Stars | |
| 18. ANS: C | TOP: YouTube: Cell Phone Popcorn | |
| 19. ANS: D | TOP: YouTube: Chromatophores | |
| 20. ANS: D | TOP: YouTube: Trichromats | |