

## Chapter 27 Test Light

**True or False Questions***Circle the correct answer*

- T**     **F**     1. Most of the electromagnetic spectrum consists of visible light.
- T**     **F**     2. Energy emitted by vibrating electric charges is carried by electromagnetic waves.
- T**     **F**     3. To say that a wave is polarized is to say that it is separated into opposite phases.
- T**     **F**     4. Light sometimes acts as a wave and sometimes as a particle.
- T**     **F**     5. Glass transmits ultraviolet and visible light waves but not infrared waves.

**Multiple Choice Questions***Choose the best answer to each question and write the appropriate letter in the space provided.*

- \_\_\_\_\_ 6. Electromagnetic waves are  
a. transverse waves.  
b. longitudinal waves.
- \_\_\_\_\_ 7. Which of the following is NOT an electromagnetic wave?  
a. Sound  
b. Radio  
c. Light  
d. X-ray
- \_\_\_\_\_ 8. Heat lamps give off mostly  
a. radio waves.  
b. microwaves.  
c. infrared waves.  
d. ultraviolet waves.
- \_\_\_\_\_ 9. Glass is transparent to visible light, but not to  
a. infrared.  
b. ultraviolet.  
c. both  
d. neither
- \_\_\_\_\_ 10. Compared to the average speed of light in air, the average speed of light in water is  
a. less.  
b. faster.  
c. the same.
- \_\_\_\_\_ 11. Metals are shiny because  
a. they are opaque to light.  
b. light waves are repelled by metal atoms.  
c. light waves vibrate free electrons in the metal which then reemit the light.

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- \_\_\_\_\_ 12. The reason solar eclipses are seen less commonly than lunar eclipses is that
- solar eclipses don't happen as often as lunar eclipses.
  - the sun is farther from the earth than the moon is.
  - the earth's shadow on the moon is larger than the moon's shadow on the earth.
  - the sun is so much larger than the moon.
- \_\_\_\_\_ 13. If two polarized filters are held with their polarization axes at right angles to each other, the amount of light transmitted compared to when the axes are parallel is
- twice as much.
  - the same.
  - half as much.
  - zero.
- \_\_\_\_\_ 14. Grazing light reflected from a lake surface is polarized
- vertically.
  - horizontally.
  - randomly.
- \_\_\_\_\_ 15. What is the ultimate source of electromagnetic waves?
- TV antennas
  - Vibrating atoms
  - Vibrating charged particles
  - Vibrating molecules

**Essay Question**

*On a separate sheet of paper, answer the following question.*

16. Explain how light is transmitted through glass. Why is ultraviolet radiation not transmitted through glass?