The Electromagnetic Spectrum

Multiple Choice
Write the letter of the correct answer.

___ 1. The energy carried by an electromagnetic wave is called
   a. electricity.
   b. sunlight.
   c. electromagnetic radiation.

___ 2. All electromagnetic waves
   a. need a medium to travel through.
   b. travel at the speed of light.
   c. are longitudinal waves.

___ 3. What model of light best explains the photoelectric effect?
   a. particle model
   b. wave model
   c. filter model

___ 4. Electromagnetic waves with the lowest frequencies are
   a. X-rays.
   b. ultraviolet rays.
   c. radio waves.

___ 5. Which color of visible light has the longest wavelengths?
   a. red
   b. violet
   c. green

___ 6. Ultraviolet rays
   a. can be felt as heat.
   b. help the body make vitamin D.
   c. are used to take pictures of bones and teeth.

___ 7. Which type of light bulb uses a filament to produce light?
   a. fluorescent
   b. neon
   c. incandescent
8. Vapor lights contain
   a. sodium or mercury.
   b. iodine or bromine.
   c. nitrogen or helium.

9. Which property of radio waves changes when AM radio stations send signals?
   a. frequency
   b. wavelength
   c. amplitude

10. Which is a use of communications satellites?
    a. making cellular phone calls
    b. using the Global Positioning System
    c. producing visible light

Completion

Read the words in the box. In each sentence below, fill in one of the words.

  infrared  speed  ultraviolet
  telephone  energy  neon

11. All electromagnetic waves travel at the same _________________.

12. The higher the frequency of an electromagnetic wave, the more ________________ it has.

13. Heat lamps give off ________________ rays.

14. Colored lights that are used in signs are ________________ lights.

15. Communications satellites are used for radio, television, and ________________ signals.

True or False

If a statement is true, write true. If it is false, write false.


17. Radar uses reflected gamma rays to detect objects.
The Electromagnetic Spectrum • Adapted Test

_______ 18. Most objects give off some infrared rays.

_______ 19. Fluorescent lights give off less light than incandescent lights.

_______ 20. Television stations use frequency modulation to send signals.

Using Science Skills

The diagram below shows the electromagnetic spectrum. Use the diagram to answer questions 21, 22, and 23.

21. Interpreting Diagrams Which two properties of electromagnetic waves change from one end of the diagram to the other?
   a. frequency and wavelength
   b. frequency and speed
   c. wavelength and speed

22. Applying Concepts Visible light is missing from the diagram. Where does it belong?
   a. between radio waves and infrared rays
   b. between infrared rays and ultraviolet rays
   c. between ultraviolet rays and X-rays

23. Applying Concepts Which arrow shows where microwaves are found in the electromagnetic spectrum?
   a. a
   b. b
   c. c
Using Science Skills

The diagram below shows a type of light. Use the diagram to answer questions 24 and 25.

24. Interpreting Diagrams  What type of light is shown in the diagram?
   a. tungsten-halogen light
   b. vapor light
   c. fluorescent light

25. Applying Concepts  Which part of the light actually produces light?
   a. the gas
   b. the powder
   c. the glass tube