1. Which color of the visible spectrum has the **shortest** wavelength?
   
   (1) violet (3) yellow
   (2) blue (4) red

2. A person in New York State worked outdoors in sunlight for several hours on a day in July. Which type of clothing should the person have worn to absorb the **least** electromagnetic radiation?
   
   (1) dark colored with a rough surface
   (2) dark colored with a smooth surface
   (3) light colored with a rough surface
   (4) light colored with a smooth surface

3. Which of these characteristics identify an Earth surface that is likely to be the best absorber of insolation?
   
   (1) light colored and smooth
   (2) light colored and rough
   (3) dark colored and smooth
   (4) dark colored and rough

4. In which list are the forms of electromagnetic energy arranged in order from longest to shortest wavelengths?
   
   (1) gamma rays, x-rays, ultraviolet rays, visible light
   (2) radio waves, infrared rays, visible light, ultraviolet rays
   (3) x-rays, infrared rays, blue light, gamma rays
   (4) infrared rays, radio waves, blue light, red light

5. What is the basic difference between ultraviolet, visible, and infrared radiation?
   
   (1) half-life (3) wavelength
   (2) temperature (4) wave velocity

6. Compared to the wavelength of ultraviolet radiation, the wavelength of infrared radiation is
   
   (1) shorter (3) the same
   (2) longer

7. When electromagnetic energy travels from air into water, the waves are bent due to the density differences between the air and water. This bending is called
   
   (1) reflection (3) scattering
   (2) refraction (4) absorption

8. Which statement about electromagnetic energy is correct?
   
   (1) Violet light has a longer wavelength than red light.
   (2) X-rays have a longer wavelength than infrared waves.
   (3) Radar waves have a shorter wavelength than ultraviolet rays.
   (4) Gamma rays have a shorter wavelength than visible light.

9. An object that is a good absorber of electromagnetic energy is also a good
   
   (1) reflector of electromagnetic energy
   (2) refractor of electromagnetic energy
   (3) radiator of electromagnetic energy
   (4) convector of electromagnetic energy

10. Infrared, ultraviolet, and visible light are all part of the solar spectrum. The basic difference between them is their
    
    (1) wavelength (3) source
    (2) speed (4) temperature

11. By which process is heat energy transferred when molecules within a substance collide?
    
    (1) conduction (3) radiation
    (2) convection (4) sublimation

12. During which process does heat transfer occur because of density differences?
    
    (1) conduction (3) radiation
    (2) convection (4) reflection

13. Which process transfers energy primarily by electromagnetic waves?
    
    (1) radiation (3) conduction
    (2) evaporation (4) convection
14. Earth’s atmosphere is warmed when
(1) ultraviolet radiation emitted by Earth is absorbed by nitrogen and carbon
dioxide in the atmosphere
(2) x-ray radiation emitted by Earth is absorbed by nitrogen and carbon
dioxide in the atmosphere
(3) infrared radiation emitted by Earth is absorbed by carbon dioxide and water
vapor in the atmosphere
(4) gamma radiation emitted by Earth is absorbed by carbon dioxide and water
vapor in the atmosphere

15. Compared to the wavelength of ultraviolet radiation, the wavelength of infrared radiation is
(1) shorter  (3) the same
(2) longer

16. What happens to most of the sunlight that strikes a dark-colored area of the Earth’s surface?
(1) It is reflected and scattered as potential energy.
(2) It is reflected and diffused as ultraviolet radiation.
(3) It is absorbed and reflected as light.
(4) It is absorbed and reradiated as heat.

17. Changing the shingles on the roof of a house to a lighter color will most likely reduce the amount of solar energy that is
(1) scattered  (3) reflected
(2) absorbed  (4) refracted

18. Which source provides the most energy for atmospheric weather changes?
(1) radiation from the Sun
(2) radioactivity from the Earth’s interior
(3) heat stored in ocean water
(4) heat stored in polar ice caps
1. 1
2. 4
3. 4
4. 2
5. 3
6. 2
7. 2
8. 4
9. 3
10. 1
11. 1
12. 2
13. 1
14. 3
15. 2
16. 4
17. 2
18. 1