RQ Electromagnetic Spectrum

Name: _____ **Date:** _____

1. Ella is learning about different types of electromagnetic radiation. She makes the following list about one frequency of radiation:

   - Can damage cells of living things
   - Blocked by Earth's ozone layer

   Which type of radiation does Ella's list describe?

   A. Infrared B. Microwave

   C. Ultraviolet D. Visible

2. The figure below shows regions of the electromagnetic spectrum.

   Radio Microwaves Infrared Visible Ultraviolet X-rays Gamma Rays

   Which of the following waves is responsible for heating our atmosphere?

   A. visible light B. microwaves

   C. ultraviolet rays D. infrared radiation

3. What property of electromagnetic waves makes it possible to use these waves to transmit information between a space shuttle and NASA mission control centers on the ground?

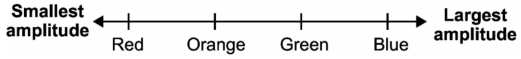
   A. Electromagnetic waves are transverse waves.

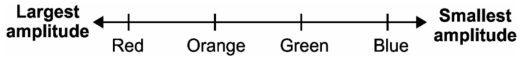
   B. Electromagnetic waves have very low velocity.

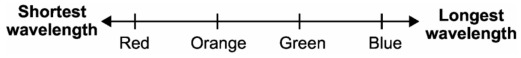
   C. Electromagnetic waves are all visible to human eyes.

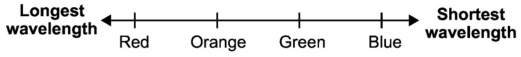
   D. Electromagnetic waves can travel through a vacuum.

4. Which diagram correctly orders different colors of light according to the value of a property?

   A. 

   B. 

   C. 

   D. 

5. Which of the following devices relies on electromagnetic radiation in the radio wave region of the spectrum for operation?

   A. sun tanning lamp B. electric light bulb

   C. cellular telephone D. electric toaster

6. In a vacuum, radio waves, visible light, and x-rays all have the same

   A. wavelength. B. speed.

   C. frequency. D. energy.

7. The figure below shows regions of the electromagnetic spectrum.

   Radio Microwaves Infrared Visible Ultraviolet X-rays Gamma Rays

   Which of the following waves are used by plants to produce energy in the form of carbohydrates?

   A. visible light B. gamma rays

   C. ultraviolet rays D. infrared radiation

8. Which of the following *best* describes the relationship between frequency and wavelength of electromagnetic waves?

   A. If the frequency remains constant, the wavelength increases.

   B. The wavelength decreases as the frequency decreases.

   C. The frequency increases as the wavelength decreases.

   D. If the wavelength remains constant, the frequency increases.

9. A sewer system operator would like to use electromagnetic radiation to destroy bacteria and other organisms in filtered wastewater before it is released into the environment.

   Which type of electromagnetic radiation is capable of treating the wastewater?

   A. Ultraviolet B. Infrared

   C. Visible D. Radio

10. Which of the following explains why an apple looks red?

    A. The apple is reflecting red light and absorbing all other colors of light.

    B. The apple is absorbing red light and reflecting all other colors of light.

    C. The apple is absorbing all colors of light, but it absorbs the red light better.

    D. The apple is reflecting all the light.