

**Vasquez High School -- Physical Science -- S'15 -- Quest #3 -- Chapter 11 -- 80 points**

Write TRUE if the statement is true OR write the word(s) that substitutes for the underlined word(s) that make it true. Writing false earns partial credit. Three points each.

- \_\_\_\_\_ 1) Chemicals called CFCs harm our environment by reducing the carbon dioxide layer.
- \_\_\_\_\_ 2) The M in AM and FM radio stands for magnetic.
- \_\_\_\_\_ 3) Energy transferred by infrared rays will feel warm.
- \_\_\_\_\_ 4) Electromagnetic waves are produced by vibrating photons.
- \_\_\_\_\_ 5) Ultraviolet light allows your body to make blood cells.
- \_\_\_\_\_ 6) Maxwell realized electromagnetic waves were light in about 1856.
- \_\_\_\_\_ 7) All electromagnetic waves travel at 300,000,000 m/s through a vacuum.
- \_\_\_\_\_ 8) The highest energy you can see is violet light.
- \_\_\_\_\_ 9) Analog signals are electrical signals where there are only two possible values: on or off.
- \_\_\_\_\_ 10) Amplitude is measured in cycles per second, or hertz.

Short Answer / Fill-in. Be neat and complete. If I can't read it, you don't score. Three points each.

- 11) A transceiver is a device that is both a \_\_\_\_\_ and a \_\_\_\_\_.
- An example of one is a \_\_\_\_\_.
- 12) What is the complete name for the group of 24 satellites that help us determine where we are on or above the surface of the Earth? \_\_\_\_\_.
- 13) Which type of electromagnetic waves are used to disinfect and kill germs? \_\_\_\_\_
- 14) The remote control for your television uses \_\_\_\_\_ rays to tell it what to do.

Multiple Choice. Write the letter for the choice that best answers each problem. Two points apiece.

- \_\_\_\_\_ 16) What is the chemical symbol for ozone?
- a) O            b) O<sub>2</sub>            c) O<sub>3</sub>            d) Oz
- \_\_\_\_\_ 17) The Dodgers broadcast on KLAC, 570 kHz on the AM dial. 570 kHz is the
- a) carrier wave frequency            c) the signal frequency  
b) electromagnetic wavelength        d) the speed of sound

\_\_\_\_\_ 18) Microwaves transmit most likely in what range of frequencies?

- a) kHz      b) MHz      c) GHz      d) THz      e) It really hertz.

\_\_\_\_\_ 19) A computer uses \_\_\_\_\_ to read CD-ROMs.

- a) microwaves      b) FM radio      c) magnetic waves      d) infrared rays

20) Short Essay. Write three or more sentences about the fundamental mystery of light as discussed in class. Five points.

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21) Place these five parts of a radio broadcast in order placing the numbers 1 thru 5 next to the proper ones.

\_\_\_\_\_ The radio station adds the announcer's voice signal to the carrier wave.

\_\_\_\_\_ Your radio decodes the signal from the carrier and changes the signal into sound energy.

\_\_\_\_\_ The announcer's voice's sound energy is converted into an electrical signal.

\_\_\_\_\_ The sound waves from your radio reach your ears.

\_\_\_\_\_ The antenna sends out the electromagnetic radio waves thru the air.

22) For fifteen points, sketch a NEAT diagram of the electromagnetic spectrum complete with the ten energies and the six labels in their proper places. If it's messy, erase it and do it again...

23) Wolfman Jack, the legendary disc jockey, used to transmit from Mexico's XERB, the "mighty 690." If the AM station he played music from transmitted at 690 kHz, what was the wavelength of the radio waves he sent out to us? Five points.