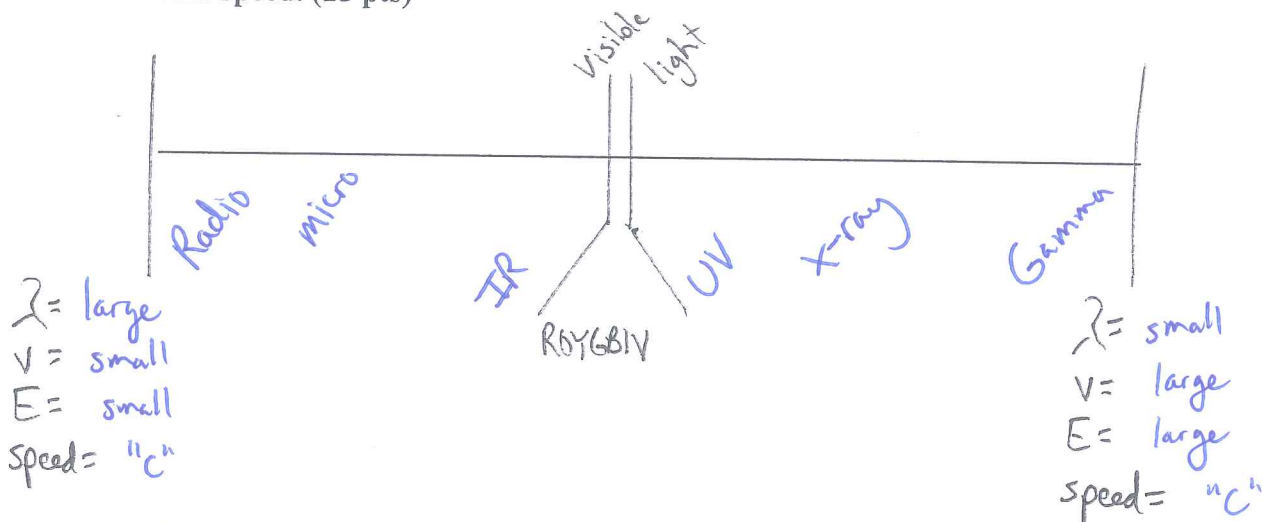


Name: CALVIN
 Date:
 Hour:
 Favorite movie: SSR

Chemistry ~ Ch.5 EM Quiz

- 1) Fill in the electromagnetic spectrum below. Indicate trends in wavelength, frequency, energy and speed. (15 pts)

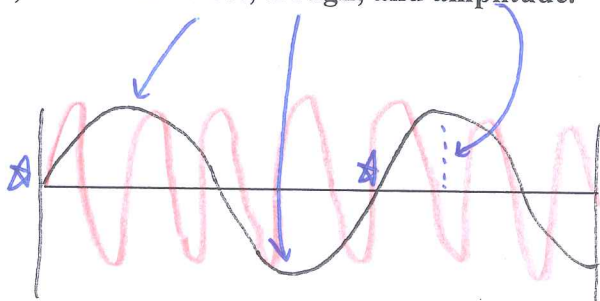


- 2) The wavelength of a wave is 3.25×10^{-7} m. Find the frequency of this wave.
 ($c = 3.00 \times 10^8$ m/s)

$\lambda = 3.25 \times 10^{-7} \text{ m}$
 $c = 3.00 \times 10^8 \text{ m/s}$
 $\nu = ?$

$c = \lambda \cdot \nu$
 $\nu = \frac{c}{\lambda} = \frac{(3.00 \times 10^8 \text{ m/s})}{(3.25 \times 10^{-7} \text{ m})} = 9.23 \times 10^{14} \text{ Hz}$

- 3) Label the crest, trough, and amplitude.



- 4) In a different color/dashed line/etc, draw a second wave above that has a smaller wavelength than the one drawn.
- 5) CLEARLY indicate with a (*) one wavelength away from the other star given.

Circle the best answer

- 6) Frequency and wavelength are (directly, inversely) proportional.
- 7) Energy and frequency are (directly, inversely) proportional.
- 8) Orange light has a (lower, higher) frequency than Blue light.
- 9) Radio waves have a (larger, smaller) wavelength than x-rays.
- 10) Light will (speed up, slow down) when it travels from air to glass.
- 11) Micro waves are (faster, slower, the same speed) when compared to Infrared radiation.

Short Answer

13) Give one example that shows that the speed of light is faster than the speed of sound.

Reasonable...

14) In one sentence explain how a person could "see" the Infrared radiation emitted when a remote control button is pressed.

Use video camera/phone

15) Element X has an electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$

- a) Identify the element (Symbol) *Se*
- b) Which group and which period does it belong to? *group 16, period 4*
- c) Is it a metal, nonmetal, or metalloid?
- d) Draw a Lewis dot diagram for this element *Se:*
- e) List TWO other elements likely to have similar properties *O, S, Te, Po, etc...*
- f) Would this element be likely to gain or lose electrons? Why?

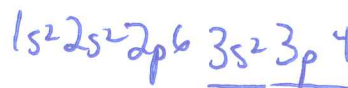
gain two to reach octet

16) Write a noble gas configuration for:

a) Calcium



17) Use a Lewis Dot structure to explain the Sulfur ion. Be sure to show that an octet is created...
(Hint ~ start with electron configuration)



Add 2 e's to reach octet

BONUS ~ Draw a rhinoceros