

Name here _____ and on the back

Chem 121 Experimental Take Home Quiz 2 (Ch. 2, 7) → Due in class TOMORROW! (Fri, 9/18)
DO AND SHOW ALL THE WORK HERE OR NO CREDIT WILL BE GIVEN.

GRADER _____

Points lost _____

I. What is the wavelength of visible light with frequency of 5×10^{14} Hz ?

- A. 0.6×10^6 B. 0.6×10^{-6} C. 15×10^{22}
D. 3.13×10^{13} E. 6.02×10^{23}

express your answer in nanometers _____

and check in Figure 7.5 of your textbook what color it corresponds to _____

II. What is the energy of light emitted when the hydrogen atom undergoes a transition from level $n_1 = 5$ to level $n_2 = 2$? ($R_H = 2.180 \times 10^{-18}$ J)

Equation to use:
$$\Delta E = R_H \left(\frac{1}{n_2^2} - \frac{1}{n_1^2} \right). \quad R_H = 2.180 \times 10^{-18} \text{ J}$$

Calculations:

Answer : $E =$ _____ (units!!)

EXTRA CREDIT: calculate the wavelength of the light emitted (do the work on the back of the page!)

- a. 663 nm b. 833 nm c. 546 nm d. 521 nm e. 434 nm

III. Fill in the blank with the letter from answers below:

III-1 _____ measured the charge of an electron in oil drop experiment

III-2 _____ postulates account for the line spectrum of an atom

III-3 _____ discovered the nucleus of an atom in gold foil experiment

III-4 _____ brought forth uncertainty principle

- a. Rutherford b. de Broglie c. Bohr d. Milliken e. Heisenberg

IV. Which of the following statements is (are) true?

1. An excited atom can return to a higher energy level by emitting light energy.
2. An atom can be excited to a higher energy level by absorption of light energy.
3. The frequency and wavelength of light are inversely proportional.

- a. 1 only b. 2 only c. 1 and 3 only d. 2 and 3 only e. 1, 2, and 3

V. Consider a compound formed between phosphorus and rubidium:

Would this be ionic or covalent compound? _____

Formula _____

Chemical Name _____

VI. The chemical name of SiF_4 is _____