CHEM 1100 Quiz 9 Dr. Stone Spring 2014 Name_____

Show your work.

$E = h\upsilon$	28.35 g = 1 ounce	$\lambda = h/mv$
$\upsilon = c/\lambda$	0.62 mile = km	$1/\lambda = 1.097 \times 10^{-2}\ nm^{-1}(1/m^2 - 1/n^2)$
$h = 6.626 \times 10^{-34}\ J*sec$	$ih\ \delta/\delta t\ \psi = \Re\psi$	$J = kgm^2/sec^2$
$c = 2.997 \times 10^{8}\ m/sec$	$\Delta x \Delta mv = h/4\pi$	

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1. (5 points) A certain laser emits light with a wavelength of 480nm. What is the energy of a single photon of this laser light?

4.137×10^{-19} J

2. (6 points) What is the deBroglie wavelength for a 5.2 ounce baseball that has a velocity of 90 miles/hour.

1.11×10^{-34} m

3. (2 points) What radiation has the most energy per photon?
a. infrared b. green light c. radio waves d. micro waves e. blue light

4. (5 points) What wavelength of light does a hydrogen atom emit based on the Balmer-Rydberg equation, if its electron is initially in the n=4 state and transitions to the n=2 state?

486nm

5. (2 points) Which answer correctly ranks the light frequencies from greatest to least?
a. microwave > infrared > ultraviolet > gamma ray
b. microwave > infrared > gamma ray > ultraviolet
c. infrared > microwave > ultraviolet > gamma ray
d. gamma ray > infrared > ultraviolet > microwave
e. gamma ray > ultraviolet > infrared > microwave