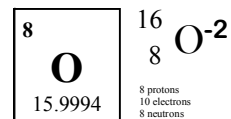


CHEMISTRY HOMEWORK SHEET

NAME _____



Place these forms of electromagnetic energy in order from high frequency to low frequency:

INFRARED, RADIO, ORANGE LIGHT, MICROWAVE, X-RAYS, GREEN LIGHT

HIGH

LOW

A beam of red light has a wavelength of 670 nanometers. Determine its frequency. *Show all work for credit.*

_____ s^{-1}

A beam of ultraviolet light has a frequency of $5.00 \times 10^{15} s^{-1}$. Determine the energy of the photons. *Show all work for credit.*

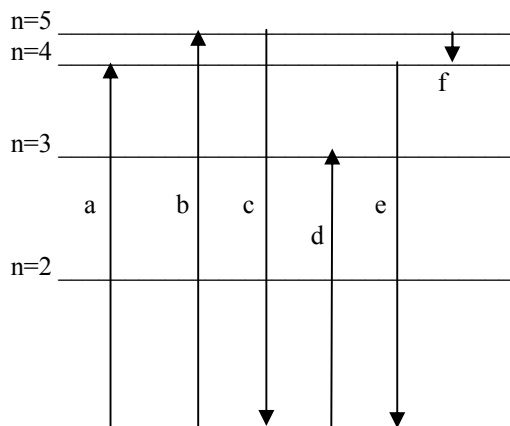
_____ Joules

A mercury lamp emits radiation with a wavelength of $4.63 \times 10^{-7} m$. Calculate the frequency of this radiation.

_____ s^{-1}

What is the energy of a photon of microwave radiation with a frequency of $3.00 \times 10^{11} s^{-1}$?

_____ Joules



Which transitions represent energy emission?

Which transitions represent energy absorption?

If the photons emitted correspond to red light, orange light, and x-rays, which transition represents the orange light?