**Chem 1013: mini-quiz # 25: Old and New Light Calculations A 2 pts/problem**

**8 pts total**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**The speed of light, c=3\*108 m/s. Planck’s constant, h=6.63\*10-34 J\*s**

**1) If a wave has a frequency of 1.5\*108 cycles per second, what is the wavelength, λ in meters (m):**

**λ= \_\_\_\_\_\_\_\_\_\_\_\_\_ m**

**2) If a wave has a wavelength of 3\*102 m, what is its frequency f in cycles pers second (1/s)?**

**f= \_\_\_\_\_\_\_\_\_\_\_ cps**

**3) What is the energy of light with a frequency f= 1.508\*1034 ?**

**E= \_\_\_\_\_\_\_\_\_\_\_\_ J**

**4) What is the energy of light with a wavelength of 9.945 meters (m) ?**

**E= \_\_\_\_\_\_\_\_\_\_\_\_ J**

**Chem 1013: mini-quiz # 25: Old and New Light Calculations B 2 pts/problem**

**8 pts total**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**The speed of light, c=3\*108 m/s. Planck’s constant, h=6.63\*10-34 J\*s**

**1) If a wave has a frequency of 3\*107 cycles per second, what is the wavelength, λ in meters (m):**

**λ= \_\_\_\_\_\_\_\_\_\_\_\_\_ m**

**2) If a wave has a wavelength of 150 m, what is its frequency f in cycles pers second (1/s)?**

**f= \_\_\_\_\_\_\_\_\_\_\_ cps**

**3) What is the energy of light with a frequency f= 3.016\*1034 ?**

**E= \_\_\_\_\_\_\_\_\_\_\_\_ J**

**4) What is the energy of light with a wavelength of 19.89 meters (m) ?**

**E= \_\_\_\_\_\_\_\_\_\_\_\_ J**