**Mini-quiz #29 Chemistry 1114 section 2 (Fong) 14 Nov 2014 3 pts A**

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

**Note: c= speed of light =3\*108 m/s h=6.63\*10-34 Joule\*seconds (J\*s)**

**1) Given that the frequency, f, of a wave of light is 6\*1014, what is the wavelength, λ, of the light in**

**meters (m) ?**

**fλ=3\*108= 6\*1014 λ**

**3\*108/6\*1014 =λ= 5\*10-7 m**

**λ=\_\_\_5\*10-7\_\_\_\_\_\_\_ meters (m)**

**2) A wave is found to have a frequency,f, of 1000/s and a wavelength of 5\*10-5 m. What the**

**speed of the wave, v in /s?**

**f\*λ=v**

**1000\*5\*10-5  =5\*10-2=0.05**

**v = \_\_\_\_0.05\_\_\_\_\_\_\_\_\_\_\_ m/s**

**3) A photon has a wavelength of 3.978\*10-6 m. What is the energy, E, of the photon in Joules (J)?**

**hc/λ=E=6.634\*10‑34\*3\*108/3.978\*10‑6 = 1.989\*10-25/3.978\*10‑6=5\*10-20 J**

**E= 5\*10-20 J**

**Mini-quiz #29 Chemistry 1114 section 2 (Fong) 14 Nov 2014 3 pts B**

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

**Note: c= speed of light =3\*108 m/s h=6.63\*10-34 Joule\*seconds (J\*s)**

**1) Given that the wavelengh of a wave of light is 6\*10-5 m, what is the frequency, f, of the light in**

**s-1 ?**

**fλ=3\*108= f\*6\*10-5**

**3\*108/6\*10-5 =f= 5\*1012 /s**

**f=\_\_\_\_\_5\*1012\_\_\_\_\_\_\_\_\_\_\_ s\_1**

**2) A wave is found to have a frequency, f, of 10,000/s and a wavelength of 2\*10-5 m. What the**

**speed of the wave, v in /s?**

**f\*λ=v**

**10,000\*2\*10‑5 = 0.2**

**v = \_\_\_\_\_0.2\_\_\_\_\_\_\_\_\_\_ m/s**

**3) A photon has a wavelength of 9.945\*10-6 m. What is the energy, E, of the photon in Joules (J)?**

**hc/λ=E=6.634\*10‑34\*3\*108/3.978\*10‑6 = 1.989\*10-25/9.945\*10‑6=2\*10-20 J**

**E= \_\_\_\_2\*10\_20\_\_\_\_\_\_\_\_\_\_ J**