**Homework #2: Chemistry 1013 Fall 2017**

**Due Friday 15 September in class 25 pts**

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

**2.1. Problem 2.2 p. 68 of text (1 pt)**

**Energy is proportional to frequency**

**2.2. Put the following wavelengths in order from lowest to highest energy: (1 pt)**

**670 nm 450 nm 540 nm 300 nm**

**\_\_\_\_\_\_\_670\_nm\_\_\_\_\_\_<\_\_\_\_540\_\_nm\_\_\_\_\_< \_\_\_450\_\_\_nm\_\_\_\_\_\_< \_\_\_\_300\_\_nm\_\_\_\_\_\_\_**

**Energy increasing-------------------------🡪**

**2.3. Problem 2.8 pg. 68 of text ( 1 pt)**

**\_\_\_550 nm\_\_\_\_\_<\_\_450 nm\_\_\_\_\_\_\_<\_\_350 nm\_\_\_\_\_\_**

**Frequency increasing ---🡪**

**2.4. Use the diagram on page 39 of your text to decide whether the following transitions in H**

**produce visible light emission lines. Assume the visible spectrum lies between the red line at**

**the top and purple line at the bottom of the emission spectrum shown. (circle choices below)**

**transition U-circle your pick**

1. **n=6🡪 n=1 visible not visible**
2. **n=5🡪 n=4 visible not visible 3 pts**
3. **n=6🡪 n=3 visible not visible**

**2.5 For each choice in 2.4. for which you circled `not visible’, predict whether the observed**

**emission line is in the infrared (IR) or in the uv ranges, beyond the visible. (put an x or check**

**mark beside the `not visible’ transition(s) under IR or UV. (2 pts)**

**n🡪n’ Transition IR UV**

**n=6🡪 n=1 X**

**n=5🡪 n=4 X**

**2.6. Problem 2.50 pg. 70 of text (4 pts)**

1. **s 2 c) d 10**
2. **p 6 d) f 14**