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

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

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt**

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

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

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_<\_\_\_\_\_\_\_\_\_\_\_\_\_< \_\_\_\_\_\_\_\_\_\_\_\_\_\_< \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

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

**\_\_\_\_\_\_\_\_<\_\_\_\_\_\_\_\_\_<\_\_\_\_\_\_\_\_**

**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**

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

1. **s c) d**
2. **p d) f**

**SKIP problems 2.7-2.10….**

**~~2.7 Write the complete and abbreviated ground electronic state configuration for: 2 pts each)~~**

*~~Complete, ground state electronic configuration Abbreviated ground state configuration~~*

1. **~~S~~**
2. **~~Li~~**
3. **~~Ca~~**

**~~2.8 Draw the Lewis dot structures for: (3 pts)~~**

1. **~~O~~**
2. **~~Ca~~**
3. **~~P~~**

**~~2.10 Electron counting (3 pts)~~**

1. **~~How many valence electrons does Cl have ? \_\_\_\_\_\_\_\_~~**
2. **~~How many valence electrons are in the element with the following complete, ground state~~**

**~~electronic configuration ?~~**

**~~1s~~~~2~~~~2s~~~~2~~~~2p~~~~6~~~~3s~~~~2~~~~3p~~~~4~~ ~~\_\_\_\_\_\_\_\_\_\_\_ valence count~~**

1. **~~How many valence electrons does Ga have ? \_\_\_\_\_\_\_~~**