Grossmont College Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chemistry 120

Spring 2015, Quiz 6 Date: \_\_\_\_\_\_\_\_\_\_\_\_

1. For the following reactions, predict whether they will tend to be spontaneous at high, low, all temperatures, or non-spontaneous at any temperature and why?
2. H2O(l) H2O(*g*) ΔH = +44 kJ
3. 3S2(*g*) 2S3(*g*) ΔH = +227 kJ
4. For a certain reaction, ∆H°= -89.5 kJ and ∆S°= -138 J/K. Determine ∆Ssurr and ∆Suniv (in J/K) for this reaction at 750 K. Based on these results, is the reaction spontaneous at this temperature? Explain briefly
5. The standard entropy of liquid POCl3 (l) is 264 J/mole·K and the standard entropy of gaseous POCl3 (g) is 370 J/mole·K. The normal boiling point of POCl3 is 106 °C. Determine the heat of vaporization, ∆H°vap, of liquid POCl3 (l) in kJ/mole.