Grossmont College Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Spring 2016

Chemistry 141 Quiz 3 (23 points) March 4. 2016

1. (12 points) Given the following redox reaction

6 KMnO4 (aq) + KI (aq) + 6 KOH (aq) → 6 K2MnO4 (aq)  + KIO3 (aq) + 3H2O (l)

Determine the following

1. What is the oxidation number for I in KIO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?
2. Which element is being oxidized \_\_\_\_\_\_\_\_ and oxidation number increased per atom \_\_\_\_\_\_\_\_\_\_\_?
3. Which element is being reduced \_\_\_\_\_\_\_\_ and oxidation number decrease per atom \_\_\_\_\_\_\_\_\_\_\_?
4. Which compound is the oxidizing agent? \_\_\_\_\_\_\_\_\_\_
5. Which compound is the reducing agent? \_\_\_\_\_\_\_\_\_\_\_\_\_
6. How many electrons are being transferred in this reaction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. (8 points) Balance the following reaction using the half reaction method under acidic conditions

Br2 (l) + S2O3-2 (aq)  🡪 Br-1 (aq) + SO4-2(aq)

First balanced half reaction (Circle: Oxidization or Reduction half reaction)

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Second balanced half reaction (Circle: Oxidization or Reduction half reaction)

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Overall balanced equation

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1. (3 points) The surrounding cools by 193 kJ of heat and the surrounding do 120 kJ of work on the system. What is the change in internal energy of the system, in kJ?