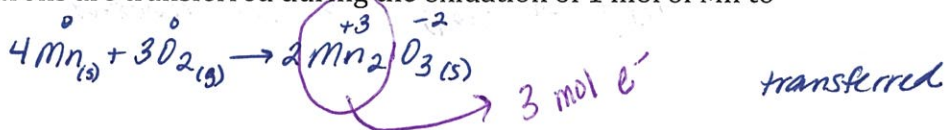
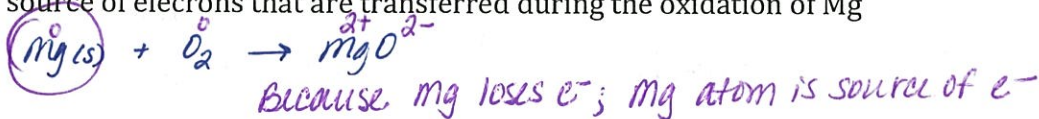


Chapter 21 Study Guide:

1. How many electrons are transferred during the oxidation of 1 mol of Mn to form Mn_2O_3 ?



2. What is the source of electrons that are transferred during the oxidation of Mg to MgO?



3. What is the heat of formation of Al_2O_3 given:



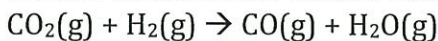
$$\Delta H = -1676 kJ/mol$$

4. Using the table below, determining the reaction that requires the greatest input of energy

Compound	Fe ₂ O ₃	Mg	Au ₂ O ₃	PbO
$\Delta H_f(kJ/mol)$	-826	-602	-81	-218

- +434 • $2PbO(s) \rightarrow 2Pb(s) + O_2(g)$
- +1652 • $2Fe_2O_3(s) \rightarrow 4Fe(s) + 3O_2(g)$
- +1204 • $2MgO(s) \rightarrow 2Mg(s) + O_2(g)$
- 162 • $2Au_2O_3(s) \rightarrow 4Au(s) + 3O_2(g)$

5. What is oxidized and what is reduced in this reaction:



Oxidation = loss of H & gain of O
Reduction = gain of H & loss of O

*Hydrogen oxidized
Carbon reduced*

6. What is the measure of difference in potential energy of the two half-cells of an electrochemical cell?

Voltage - lets you know how much energy is "stored" or how much ~~energy~~ potential to produce electricity

7. Write an example of a redox reaction:



8. Which of the following metals will replace zinc in a single replacement reaction? (circle all that apply)

- a. Potassium
- b. Gallium
- c. Sodium
- d. Magnesium
- e. Tin

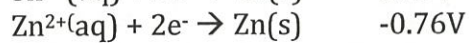
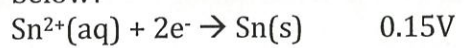
ex of Non-redox reactions:
 $Pb(NO_3)_2 + Na_2S(aq) \rightarrow PbS(s) + 2NaNO_3(aq)$

because everyone has same charges on both sides

9. What would you see if you added silver metal to a solution of zinc chloride?



10. What occurs in an electrochemical cell using the two half-reactions shown below?



to determine cell voltage add absolute value of both 1/2 cells

Sn is reduced, Zn is oxidized; cell is 0.91V