

**CHEM 35**  
**General Chemistry**  
**Quiz #3**

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1. For the following reaction\*:



- a. What are the oxidation states for Mn, S, and H in this reaction (both in the reactants and in the products)?

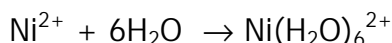
<u>REACTANTS</u>	<u>PRODUCTS</u>
<u>Mn</u> : $x + 4(-2) = -1$ $x = +7$	$+2$
<u>S</u> : $2(+1) + x = 0$ $x = -2$	$x + 4(-2) = -2$ $x = +6$
<u>H</u> : $+1$	$+1$

- b. Which compound undergoes oxidation and which compound undergoes reduction? Be sure to explain how you arrived at your answer!

Oxidation: *loses electrons, incr. in oxidation #*  
S:  $-2 \rightarrow +6$

Reduction: *gains electrons, decr. in oxidation #*  
Mn:  $+7 \rightarrow +2$

2. Identify the Lewis acid and the Lewis base in the following reaction (don't forget to explain how you arrived at your answer):



Lewis Base: *electron pair donor*  $\rightarrow$  the oxygen on **water** has two non-bonded electron pairs, making it a suitable donor

Lewis Acid: *electron pair acceptor*  $\rightarrow$  **Ni<sup>2+</sup>** has the capacity to accept the electron pairs donated by the oxygens on water

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\* Yes, it is unbalanced – don't worry about that . . . .