

- 1) Define oxidation →
- 2) Define reduction →
- 3) Determine the **oxidation numbers** of the bolded element indicated in each of the following:
 

a) **Cr**O<sub>3</sub>

b) **Mn**O<sub>4</sub><sup>-1</sup>

c) **S**O<sub>2</sub>

d) Na<sub>3</sub>**P**O<sub>4</sub>

e) **S**Cl<sub>2</sub>

f) H<sub>2</sub>**S**

f) **S**O<sub>3</sub>

g) H<sub>2</sub>**S**O<sub>4</sub>

- 4) Identify which of the following are oxidation-reduction reactions. If a reaction is a redox reaction, name the element oxidized and the element reduced. (HINT: You may need to assign oxidation numbers to each element to do this!)

| Type: S,<br>D, SD, DD | Reaction                                                                                       | Reduced | Oxidized |
|-----------------------|------------------------------------------------------------------------------------------------|---------|----------|
|                       | a) $\text{Mg} + \text{Br}_2 \rightarrow \text{MgBr}_2$                                         |         |          |
|                       | b) $\text{NH}_4\text{NO}_2 \rightarrow \text{N}_2 + 2 \text{H}_2\text{O}$                      |         |          |
|                       | c) $2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$                                   |         |          |
|                       | d) $\text{CaCO}_3 + 2 \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$ |         |          |
|                       | e) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$                        |         |          |
|                       | f) $\text{BaCl}_2 + 2 \text{KIO}_3 \rightarrow \text{Ba}(\text{IO}_3)_2 + 2 \text{KCl}$        |         |          |
|                       | g) $\text{H}_2\text{CO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2$                        |         |          |

- 5) Describe the role of an oxidizing agent.
- 6) Describe the role of a reducing agent.
- 7) Identify the oxidizing agent (OA) and the reducing agent (RA) in each of the **redox** reactions in #4. Ignore the ones that weren't redox.
 

a) OA:      RA:

b) OA:      RA:

c) OA:      RA:

d) OA:      RA:

e) OA:      RA:

f) OA:      RA:

g) OA:      RA: