

Name: _____

Period: _____

Seat#: _____

Directions: Answer the questions below. Remember that individual elements are oxidized/reduced, but the reactant molecule as a whole is the “oxidizing agent” or the “reducing agent.”

1) What is at least one mnemonic (or other memory device) you can use to help you with Redox topics?

2) Consider the following redox reaction: $\text{KMnO}_4(\text{aq}) + \text{NO}(\text{g}) \rightarrow \text{MnO}_2(\text{s}) + \text{KNO}_3(\text{aq})$

a. Give the **oxidation number** for each element in the compounds below:

KMnO_4 : K = _____, Mn = _____, O = _____ MnO_2 : Mn = _____, O = _____

NO : N = _____, O = _____ KNO_3 : K = _____, N = _____, O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

3) Consider the following redox reaction: $\text{Fe}_2\text{O}_3(\text{s}) + 3 \text{CO}(\text{g}) \rightarrow 2 \text{Fe}(\text{s}) + 3 \text{CO}_2(\text{g})$

a. Give the **oxidation number** for each element in the compounds below:

Fe_2O_3 : Fe = _____, O = _____ Fe : Fe = _____

CO : C = _____, O = _____ CO_2 : C = _____, O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

4) Consider the following : $\text{H}_2\text{SO}_3(\text{aq}) + 2 \text{Mn}(\text{s}) + 4 \text{HCl}(\text{aq}) \rightarrow \text{S}(\text{s}) + 2 \text{MnCl}_2(\text{aq}) + 3 \text{H}_2\text{O}(\text{l})$

a. Give the **oxidation number** for each element in the compounds below:

H_2SO_3 : H = _____, S = _____, O = _____ S : S = _____

Mn : Mn = _____ MnCl_2 : Mn = _____, Cl = _____

HCl : H = _____, Cl = _____ H_2O : H = _____, O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

Dougherty Valley HS Chemistry
Redox – Redox Reaction Practice

5) Consider the following reaction: $\text{Pb}(s) + \text{PbO}_2(s) + \text{H}_2\text{SO}_4(aq) \rightarrow 2 \text{PbSO}_4(s) + 2 \text{H}_2\text{O}(l)$

a. Give the **oxidation number** for each element in the compounds below:

Pb: Pb = _____

PbSO₄: Pb = _____, S = _____, O = _____

PbO₂: Pb = _____, O = _____

H₂O: H = _____, O = _____

H₂SO₄: H = _____, S = _____, O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

6) Consider the following reaction: $2 \text{H}_2\text{O}_2(aq) \rightarrow 2 \text{H}_2\text{O}(l) + \text{O}_2(aq)$

a. Give the **oxidation number** for each element in the compounds below:

H₂O₂: H = _____, O = _____

H₂O: H = _____, O = _____

O₂: O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

7) Consider the following reaction: $3 \text{HNO}_2(aq) \rightarrow \text{H}_2\text{O}(l) + \text{HNO}_3(aq) + 2\text{NO}(g)$

a. Give the **oxidation number** for each element in the compounds below:

HNO₂: H = _____, N = _____, O = _____

H₂O: H = _____, O = _____

HNO₃: H = _____, N = _____, O = _____

NO: N = _____, O = _____

b. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

c. The total number of electrons transferred in this reaction is _____.

8) Consider the following reaction: $\text{Zn} + 2\text{MnO}_2 + 2\text{NH}_4\text{Cl} \rightarrow \text{ZnCl}_2 + \text{Mn}_2\text{O}_3 + 2\text{NH}_3 + \text{H}_2\text{O}$

a. The element oxidized is _____, and the oxidizing agent is _____.

The element reduced is _____, and the reducing agent is _____.

b. The total number of electrons transferred in this reaction is _____.