**COSTAATT**

**CHEM092 – Introduction to Concepts in Chemistry II**

**Lesson 7 – Homework**

1. Study the following equations and, in each case, decide whether the substance in bold type has been oxidised or reduced. Explain your choice in terms of either oxygen transfer or electron transfer as appropriate.

(a) **Zn(s)** + CuO(s) ZnO(s) + Cu(s)

(b) **Fe2O3(s)** + 3C(s)2Fe(s) + 3CO(g)

(c) **Mg(s)** + Zn2+(s) Mg2+(s) + Zn(s)

(d) Zn(s) + **Cu2+(s)** Zn2+(s) + Cu(s)

2. Use oxidation numbers to determine if the following reactions are redox reactions. If they are redox reactions, give the reactant which has been oxidised and the reactant which has been reduced:

(a) 2KI(aq) + Cl2(g) 2KCl(aq) + I2(aq)

(b) 2Fe(s) + 3Cl2(g)  2FeCl3(s)

(c) FeCl2(aq) + (NH4)2S(aq)  FeS(s) + 2NH4Cl(aq)

(d) BaCl2(aq) + H2SO4(aq) BaSO4(s) + 2HCl(aq)

3. In each of the following reactions give the reducing and the oxidising agents:

(a) 2Fe2O3(s) + 3C(s) 3CO2(g) + 4Fe(s)

(b) 2NO(g) + 2CO(g) N2(g) + 2CO2(g)

(c) Zn(s) + 2HCl(aq) ZnCl2(aq) + H2(g)

4. Some iron filings were shaken with some copper(II) sulphate solution. The ionic equation for the reaction is:

Fe(s) + Cu2+(aq) Fe2+(aq) + Cu(s)

1. Write down one change that you would observe during this reaction.
2. Which substance has been oxidised in this reaction?
3. Write down the full (not ionic) equation for this reaction.