

Year 11 Chemistry Assignment

Redox Reactions 1

1. Determine (with reasons) which of the following reactions are redox, and which are not.
- (a) $\text{Mg} + \text{Br}_2 \rightarrow \text{MgBr}_2$ /2
 - (b) $\text{NaCl} + \text{H}_2\text{CO}_3 \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$ /2
 - (c) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$ /2
 - (d) $\text{KI} \rightarrow \text{K}^+ + \text{I}^-$ /2
2. Use the half-equation method to write balanced ionic equations for the following reactions:
- (a) The rusting of iron in air to become iron III oxide /3
 - (b) Metallic zinc added to a copper (II) nitrate solution, forming copper metal and zinc ions /3
 - (c) Hydrogen peroxide is added to hypochlorite ions (OCl^-) in solution, forming oxygen gas and chloride ions /3
 - (d) Sulfur dioxide placed in an iodate (IO_3^-) solution resulting in iodide ions and sulfate ions /3
 - (e) Solutions of sodium permanganate and iron (II) nitrate react.
Hint: Take out ions you know for sure will spectate, then use the lists of oxidisers and reducers (questions 20-21 in textbook) to find out what the products will be. /3
 - (f) Hydrogen sulfide gas is oxidised to sulfur solid by bubbling through potassium dichromate solution. /3
3. For the reaction in question 2 a:
- (a) State which species is the oxidizing agent. /1
 - (b) State which species is the reducing agent. /1
 - (c) State which species is oxidized. /1
 - (d) State which species is reduced. /1

TOTAL MARKS /30