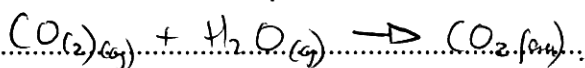


Question 21 (7 marks)

Evaluate the impact of industrial sources of sulfur dioxide and nitrogen oxides on the environment, making use of appropriate chemical equations.

7

Whilst concentrations of sulfur dioxide and nitrogen have only increased slightly, they can have dramatic effects on the environment. Pure rainwater is naturally acidic, with a pH around 6 due to the reaction with CO_2 in the atmosphere to form weak carbonic acid.



However when other compounds such as SO_2 and NO_2 and NO react with atmospheric water acid rain can result. Rain is defined as acidic when its pH falls below 5.

This problem is especially predominate in Europe due to high levels of industrial activity that emit these harmful sulfur oxides.

Acid rain can, and has caused destruction of forests, pollution (poisoning) of waterways resulting in the death of aquatic life & damage to fragile ecosystems and damage to limestone + marble buildings as they react with the acid in the rain.

A concentration of nitrogen oxides can lead to a level of nitrates in waterways causing eutrophication resulting in excessive plant growth and muck in BOD and can eventually cause the destruction of aquatic ecosystems as aquatic life dies due to lack of oxygen.