


## SL & HL Questions on Acid deposition

1. Carbon dioxide is naturally present in rain water as carbonic acid.
  - i. Explain why pure rain water containing dissolved carbon dioxide cannot have a pH lower than 5.6
  - ii. How much more acidic than rain water with a pH of 5.6 is a sample of acid rain with a pH of 4.6?
2.
  - i. Nitrogen oxide,  $\text{NO}$ , is produced in car engines. Give the equations to show how it eventually forms nitric acid,  $\text{HNO}_3$  and nitrous acid,  $\text{HNO}_2$  in the atmosphere.
  - ii. Sulfur dioxide,  $\text{SO}_2$ , is formed when S-containing fossils fuels are combusted. Give the equations to show how it eventually forms sulfuric acid,  $\text{H}_2\text{SO}_4$ , and sulphurous acid,  $\text{H}_2\text{SO}_3$  in the atmosphere.
3. Describe and explain how acid rain affects the growth of trees.
4. The image on the right shows a statue of a lion in Leeds, U.K. that has been badly affected by acid deposition. Give the ionic equation for the reaction of acid with the carbonate ions in the statue.
5. Explain how adding either calcium hydroxide or calcium oxide can counter the effects of acidification of lakes.