Question 21 (3 marks)

A 0.001 mol L^{-1} solution of hydrochloric acid and a 0.056 mol L^{-1} solution of ethanoic acid both have a pH of 3.0. **3**

Why do both solutions have the same pH?

Both solutions have the same pH as ethanoic acid is a weak acid & is therefore partially ionised, with intact molecules & equilibrium lying somewhere other than on the right. As it is a weak acid it has a higher pH. On the other hand hydrochloric acid is a strong acid & is completely ionised into ions, with equilibrium lying on the right.