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?

Hydrochlorine is a strong acid, meaning it completely ionises in solution, ethanoic acid is a weak acid and uncompletely ionises in solution. Although the ethanoic acid solution has a higher concentration of 0.056M compared to 0.001M of HCl, due to its incomplete ionisation, it has the same pH as HCl, 0.001M