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**Question 21** (3 marks)

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

Why do both solutions have the same pH?

Even though hydrochloric acid is a very strong it is ~~concentrated~~ therefore; its concentration differs from ethanoic acid, ethanoic acid is there for more concentrated to reach the pH 3.0 and become acidic <sup>a</sup> (more)

$$\text{HCl} = -\log(0.001) = 3$$

~~$$\text{pH} = -\log(0.001) = 3$$~~

$$\begin{aligned} \text{ethanoic acid} &= -\log(0.056) \\ &= 1.25 \end{aligned}$$