## Chemguide - answers

## NITRILES: HYDROLYSIS

1. a)

$$
\begin{aligned}
& \text { (i) } \mathrm{CH}_{3} \mathrm{CN}+2 \mathrm{H}_{2} \mathrm{O}+\mathrm{HCl} \longrightarrow \mathrm{CH}_{3} \mathrm{COOH}+\mathrm{NH}_{4} \mathrm{Cl} \\
& \text { ii) } \mathrm{CH}_{3} \mathrm{CN}+\mathrm{H}_{2} \mathrm{O}+\mathrm{NaOH} \longrightarrow \mathrm{CH}_{3} \mathrm{COONa}+\mathrm{NH}_{3}
\end{aligned}
$$

b) Add a strong acid such as dilute hydrochloric acid or dilute sulphuric acid.
(For the equations, remember that you are essentially adding water to the nitrile, and all that changes are the fine details of exactly what products you get under acidic or alkaline conditions. So, for example, under alkaline conditions, you aren't going to get ethanoic acid formed - you will get the salt instead. And neither will you get an ammonium salt, because ammonium salts react with alkalis to give ammonia.)

