Edexcel Chemistry A-level

Practical 9

Finding Ka for a weak acid.

Method

1. Titrate 25 cm^3 of the acid being tested against NaOH, use phenolphthalein indicator.
2. After titration, add another 25 cm^3 of ethanoic acid to the same flask.
3. Use the pH meter to find pH. pH will equal pKa because exactly half of the acid has been neutralised so this is the half-equivalence point.
   [i.e. $[A^-] = [HA]$, therefore $Ka = [H^+]$, and so pKa = pH.]
4. To convert from pKa to Ka, calculate 10^{-pKa}

Using pH Meter

- Test the pH meter on a buffer solution of known pH or **calibrate** with deionised water and **buffer** solutions of known pH.
- Wash with deionised water between readings to remove ions attached to the bulb.
- pH meter is better than indicators because no ions are added or removed when used, it reads to 2.d.p which is far more accurate than interpreting the colours of indicators and is not subjective.

Errors

- Burette readings, **subjective** end point of titration.