## AMINO ACIDS: ACID-BASE BEHAVIOUR

- 1. a)  $NH_3^+$ R-CH-COO<sup>-</sup>
  - b) NH<sub>2</sub>

R-CH-COO<sup>-</sup>

c)  $NH_{3}^{+}$ R-CH-COOH

d) You would have a piece of moist filter paper supported on a microscope slide, connected to a battery via two crocodile clips at each end of the paper. Put a spot of the solution containing the ion you are investigating at the centre of the paper, and leave it for a while.

The paper is then sprayed with ninhydrin solution, dried and warmed gently. This converts the invisible ions into a coloured spot, which will probably have moved from where you put the original spot of solution.

e) The direction of movement gives you information about the charge. The ion in part (b) is negatively charged, and so will move towards the anode (positive electrode). The ion in part (c) is positively charged and so will move towards the cathode (negative electrode).

f) The spot wouldn't move at all.