**Chemistry 3.6 AS 91392** Demonstrate understanding of equilibrium principles in aqueous systems



Writing Excellence answers to **pH Calculations** questions

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| **pH Calculations QUESTION 1. (4 steps excellence)** | |
| **Question:**  Calculate the pH of a 0.109 mol L–1 solution of ethanamine.  p*K*a(CH3CH2NH3+) = 10.6  Kw = 1.00×10-14 | |
| **ANSWER** | |
| 1. determine if the solution is acid or base (will it accept or donate H+) – strong or weak  And write down all available information |  |
| 2. convert pKa to Ka  Ka = 10-pKa |  |
| 3. calculate [H3O+]  [H3O+] = √ Ka x Kw  [base]  *3sgf and units* |  |
| 4. calculate pH  pH = -log [H3O+]    *3sgf*  *Double check answer against expected pH for your solution* |  |
| **pH Calculations QUESTION 2. (3 steps Merit)** | |
| **Question:**  Calculate the pH of 0.0152 mol L–1 CH3NH3Cl solution.  *K*a(CH3NH3+) = 2.29 × 10–11 | |
| **ANSWER** | |
| 1. determine if the solution is acid or base (will it accept or donate H+) – strong or weak  And write down all available information |  |
| 2. calculate [H3O+]  [H3O+] = √ Ka x c(HA)  *3sgf and units* |  |
| 3. calculate pH  pH = -log [H3O+]    *3sgf*  *Double check answer against expected pH for your solution* |  |

NOTE: The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.