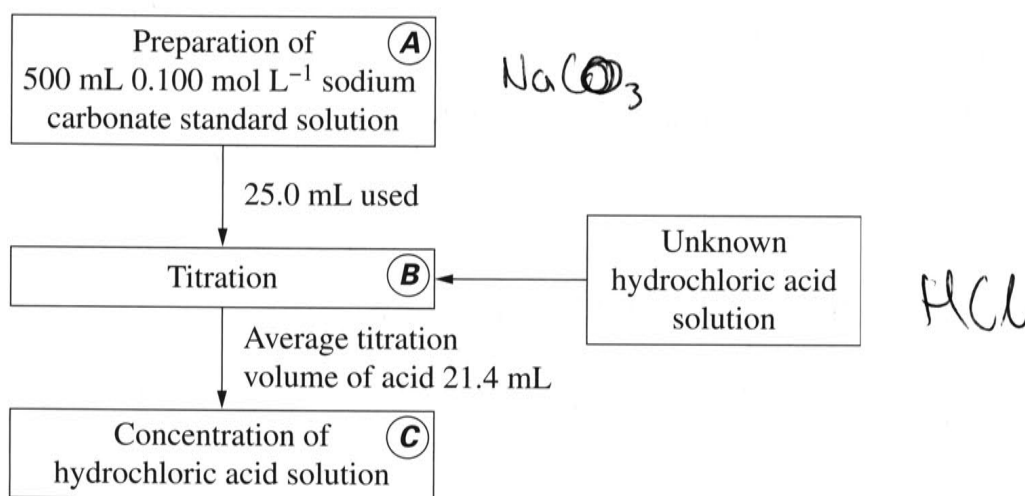


Question 28 (8 marks)

The flowchart shown outlines the sequence of steps used to determine the concentration of an unknown hydrochloric acid solution.

8



Describe steps **A**, **B** and **C** including correct techniques, equipment and appropriate calculations. Determine the concentration of the hydrochloric acid.

In step A, a small amount of indicator would be added to the ~~standard~~ sodium carbonate solution, most likely ~~placed~~ placed in a large beaker. It would then be placed on the base of a retort stand. The hydrochloric acid solution would then be placed in a burette which would have been previously rinsed with the hydrochloric acid solution in order to attain the optimum,

Question 28 continues on page 18

Question 28 (continued)

most accurate results. The hydrochloric acid solution, ~~was~~ contained in the burette would then be clamped to the retort stand above the beaker, ready for part B. ~~The~~ The hydrochloric acid would be let out at a steady rate, not too fast, and then stopped when the colour began to change, the beaker being constantly swilled around. This would then be repeated a number of time but when it got close to the necessary amount, the burette would be tightened, allowing just a drop at a time to be released to attain accurate results. The average amount of ~~the~~ acid used would then be recorded and used in Part C. Stoichiometry would then be used ^{End of Question 28} to calculate the concentration of the Hydrochloric acid used.