

**Q5a(i)**

Mark scheme:

**M1** to stop acid (spray) leaving the flask

**ALLOW** so that only gas can escape (from flask)

**ALLOW** so the only cause of mass loss is gas (escaping)

**REJECT** stops gas escaping

**REJECT** references to substances/impurities/gases entering flask

**M2** as (without cotton wool) mass loss would be too large OWTTE

The cotton wool prevents the gas coming out from the flask and ~~prevent~~ air coming into the flask.

Because marble is made up with  $\text{CaCO}_3$  so that when it react with acid, it will produce gas. The cotton wool is to stop the gas go away to get a wrong mass from the balance.

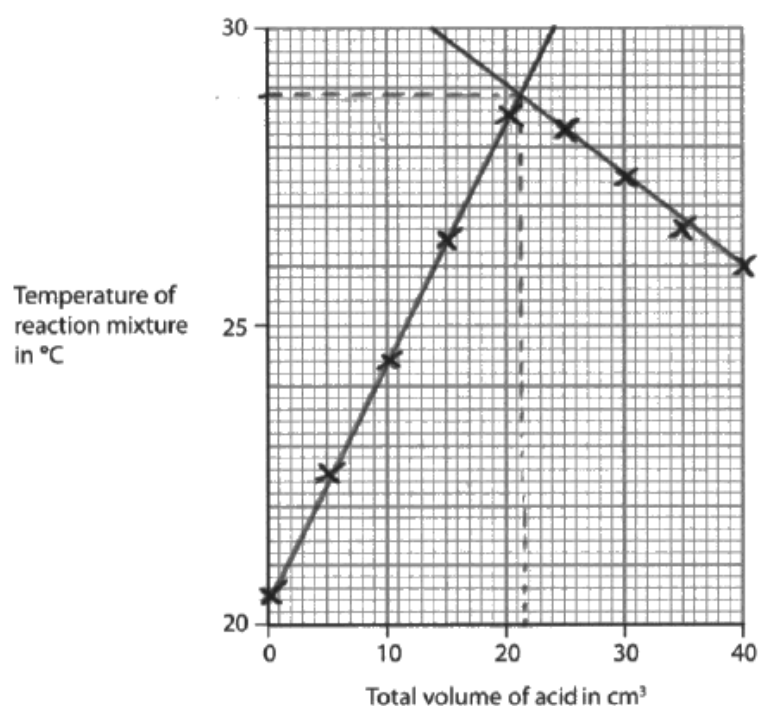
The cotton wool allows carbon dioxide to escape, reducing ~~giving~~ resulting in a more accurate mass reading.

prevents acid splashing out which could decrease the mass.

**Q8b**

Mark scheme:

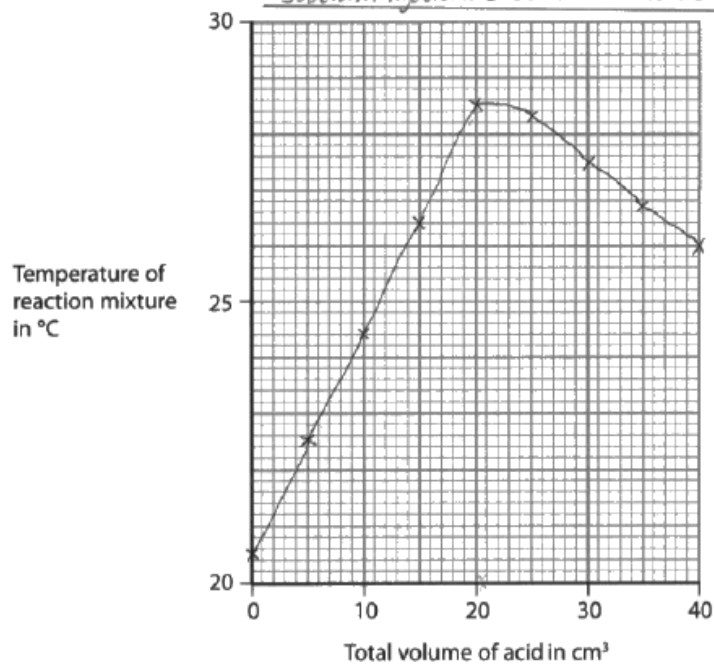
- (i) **M1** all points plotted correctly to  $\pm$  half a square  
**M2** first best fit line drawn with a ruler  
**M3** second best fit line drawn with a ruler
- (ii) **M1** volume reading read from graph  $\pm 0.5$  ( $\text{cm}^3$ )  
**M2** temp reading read from graph to  $\pm 0.1$  ( $^\circ\text{C}$ )



volume of acid = 21.5  $\text{cm}^3$

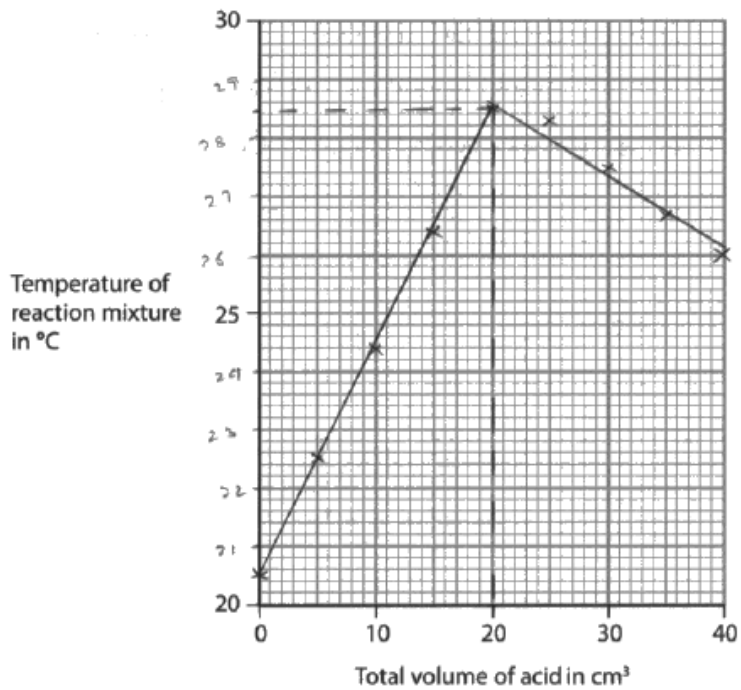
maximum temperature = 28.9  $^\circ\text{C}$

The neutralisation reaction between (3)  
Sodium hydroxide and nitric acid



volume of acid = 20 cm³

maximum temperature = 28.5 °C



volume of acid = 20 cm³

maximum temperature = 28.5 °C