

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 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.

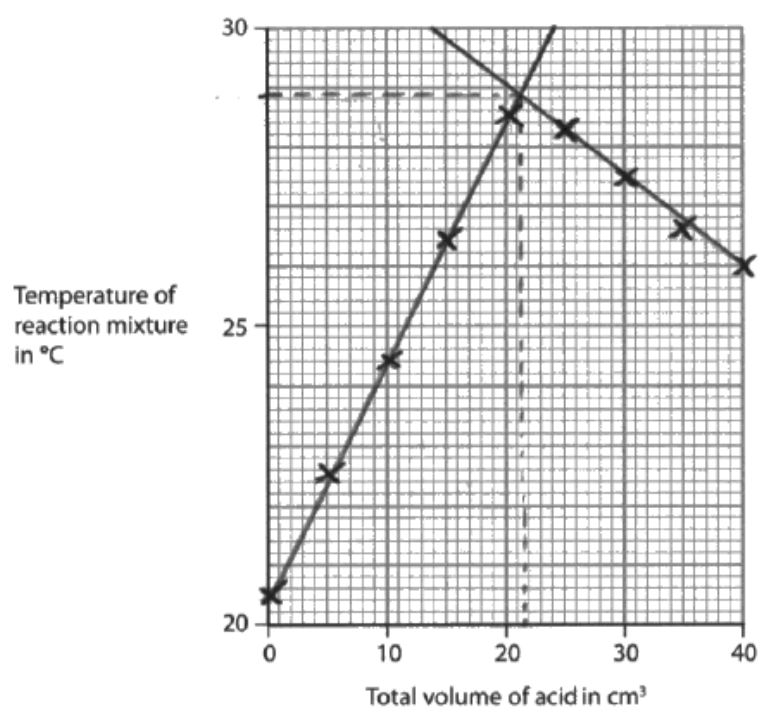
The cotton wool allows carbon dioxide to escape, reducing ~~giving~~ resulting in a more accurate mass reading.

prevents acid splashing out which could decrease the mass.

Q8b

Mark scheme:

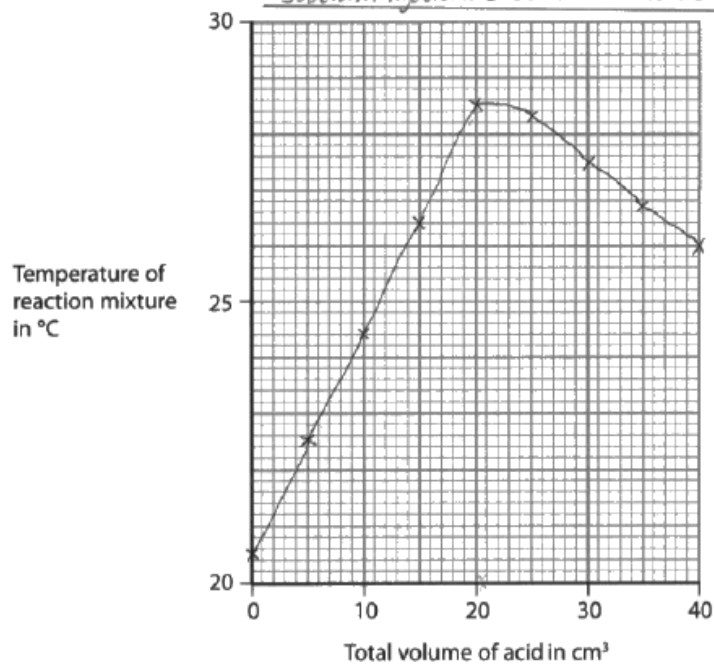
- (i) **M1** all points plotted correctly to \pm half a square
M2 first best fit line drawn with a ruler
M3 second best fit line drawn with a ruler
- (ii) **M1** volume reading read from graph ± 0.5 (cm^3)
M2 temp reading read from graph to ± 0.1 ($^{\circ}\text{C}$)



volume of acid = 21.5 cm^3

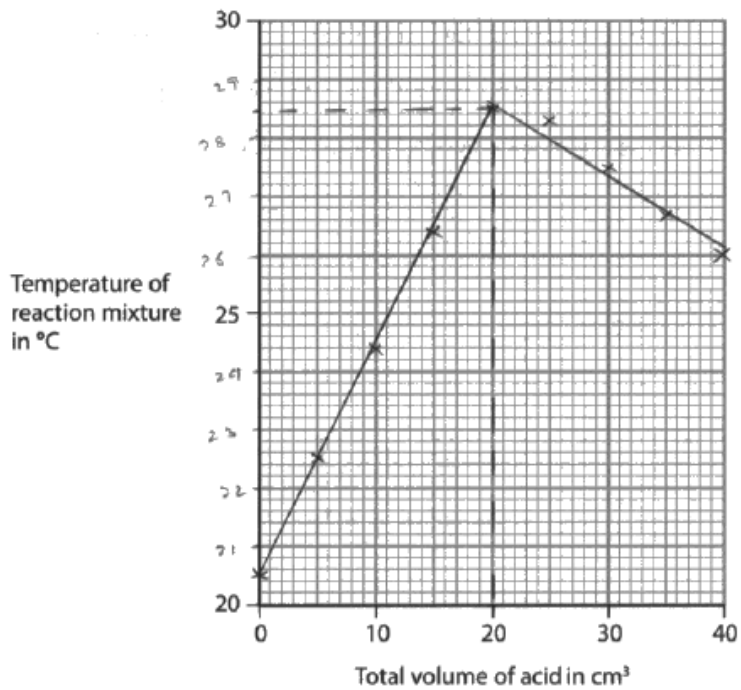
maximum temperature = 28.9 $^{\circ}\text{C}$

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