



***Confidential***

***MARK SCHEME***

***{6888/04}***

***MARKS: 40***

1 (a) pour mixture into filtration apparatus; [1]  
 solution collected as a filtrate while solid remains on filter paper; [1]

(b) (i) white precipitate; [1]  
 (ii) has no chloride ion; removes carbonate ions from solution [1]  
 Which could form a precipitate, thereby contaminating the results; [1]

(c) (i) observation: universal indicator changes (from yellow) to blue / purple / mauve / violet; [1]  
 pH: 9 to 14; [1]  
 (ii) match colour to pH chart read value from the pH chart; [1]  
 (iii) ammonia gas /  $\text{NH}_3$ ; [1]  
 (iv) universal indicator shows alkalinity and the pH value; [1]  
 while litmus paper indicates alkalinity only; [1]  
 (v) to avoid contamination; [1]

(d) (i) gas is produced; [1]  
 (ii) increase the concentration of acid; heating; add a named catalyst; stirring; increase pressure; [max 2] [2]  
 (iii) test: add aqueous sodium hydroxide; [1]  
 result: white precipitate is formed; [1]  
 precipitate insoluble in excess sodium hydroxide solution; [1]

OR

test: add aqueous ammonia;  
 result: no precipitate / slightly white precipitate;  
 no precipitate in excess;

(iv) avoid skin contact / wear goggles / wear protective clothing; [1]  
 (e) calcium carbonate; [1]

2 (a)  ${}^{\circ}\text{C}$ ; [1]  
temperature value  $83^{\circ}\text{C}$ ; [1]

(b) linear scale; [1]  
at least four points correctly plotted for **A**; [1]  
line of best fit; [1]  
at least four points plotted correctly for **B**; [1]  
both graphs labelled; [1]

(c) (i) method shown; [1]  
correct value (and unit); [1]  
(ii) (both) gradients negative; [1]

(d) **B**, has less heat loss per second; [1]

(e) (i) minimises / reduces heat loss; [1]  
(ii) traps air; [1]  
(air) poor conductor; [1]

(f) (i) equal drop in temperature; [1]  
for every second; [1]  
(ii) volume of water (same) / (same) thickness of glass / (same) initial temperature /  
AVP : size of conical flasks / same material [max 2]

(g) times from graphs; [1]  
difference of times; [1]