

Acids, Bases and Salts

Mark Scheme 5

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Acids, Bases and Salts
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Mark Scheme 5

Time Allowed: 53 minutes

Score: /44

Percentage: /100

- 1 (a) arrow must be underneath solid in tube (1) [1]
- (b) red/pink t [1]
- (c) to cool/condense (the water/steam) (1) [1]
- (d) pressure would build up/air or gases needs to escape owtte (1) [1]
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- 2 (a) to speed up the reaction [1]
- (b) solid visible owtte e.g. no more solid will dissol [1]
- (c) filtration / centrifuge **not** decant [1]
- (d) to make sure water (of crystallisation) is not lost / stop dehydration / so crystals do not turn into powder / does not decompose **not** crystals break [1]
- (e) no heat needed / not necessary to warm acid (1)
carbonates react with acid at room temperature (1)
no bubbles would indicate that carbonate is in excess (1) [max 2]

[Total: 6]

- 3 (a) universal indicator / pH paper (1) **not** litmus
pH of 4–6 / yellow / orange (1) **not** red [2]
- (b) sodium hydroxide / carbonate / oxide [1]
- (c) marks can be obtained from diagram
chromatography (1) description of applying E110 to paper (1)
use of solvent (1) results / number of spots (1) [4]
- [Total: 7]**
- 4 (a) balance (1) stirring/(glass) rod/stirrer (1) not thermometer
beaker (1) [3]
- (b) excess (1) not residue [1]
- (ii) filtration/decant (1)
not sieve/strain/centrifuge [1]
- (c) heat/evaporate (1) to crystallising point or description e.g. using glass rod (1) [2]
- 5 (a) to reach room temperature/be at same temperature owtte (1) [1]
- (b) insulator/to minimise heat loss (1) [1]
- (c) exothermic (1) [1]
- (d) (i) 40 cm³ volume of acid (1) [1]
- (ii) two straight lines, missing error point (1) extended to intersect (1) [2]
- (iii) 22.5 +/- 0.5 (1) or read from graph cm³ (1) [2]

6 (a) add water (1)
crush/mix/warm (1)
filter/decant or pipette off liquid/sieve (1) [3]

(b) add indicator solution to acid (and note colour) (1)
add indicator solution to alkali or named alkali (and note colour) (1) not base
conclusion e.g. colours should be different owtte (1) [3]

7 (a) heat/warm the acid (1)
add excess oxide or description of no more solid reacting (1)
filter/decant (1) [3]

(b) heat qualified e.g. to crystallising point or description of e.g. using glass rod/leave it to
evaporate (1)
cool to form crystals (1)
filter off crystals (1)
method of drying crystals e.g. pressed filter papers/oven at low temperature (1) [max 3]

[Total: 6]