

Alcohols & Carboxylic Acids

Mark Scheme 1

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Organic Chemistry
Sub-Topic	Alcohols & Carboxylic Acids
Paper Type	Alternative to Practical
Booklet	Mark Scheme 1

Time Allowed: 41 minutes

Score: /34

Percentage: /100

Question	Answer	Marks
1(a)	fractionating column; tripod;	2 1 1
1(b)	<u>water</u> labelled twice;	1
1(c)	heat under (the collecting) beaker;	1
1(d)	M1 ethanol; M2 lowest / lower boiling point;	2 1 1
1(e)	ethanol is flammable;	1

Question	Answer	Marks	Guidance
2(a)(i)		1	
2(a)(ii)	top arrow water and bottom arrow water;	1	
2(b)(i)	to prevent fire / ref. to safety / controlled heating; ethanol is flammable;	2	! dangerous
2(b)(ii)	prevent evaporation / loss of reactants or ethanol;	1	
2(c)	<i>ethanol</i> : sweet / nail varnish remover / alcohol / spirit; <i>ethanoic acid</i> : vinegar / sour / acid / sharp / pungent;	2	! strong / pleasant

3 (c) Table of results for Experiments 1–4

mass of solids correctly recorded (1) 1, 2, 3, 5 g

initial and maximum temperature boxes correctly completed (1)

initial 21, 23, 22, 24

maximum 23, 27, 28, 34

temperature differences correct (1) 2, 4, 6, 10 [3]

(d) results for Experiment 5

initial and final temperatures completed 21 and 13 (1)

temperature change completed correctly and shown as negative –8 (1) [2]**(e)** all points correctly plotted 3–1 for any incorrect

straight line graph drawn with a ruler (1) [4]

(f) (i) value from graph $12^{\circ}\text{C} \pm$ half small square (1)extrapolation shown clearly (1) **allow:** ecf [2]**(ii)** value from graph $4.5\text{g} \pm$ half small square (1)indication shown clearly (1) **allow:** ecf [2]

(g) endothermic (1) [1]

(h) lower temperature change (1)

3 °C (1)

greater volume/more acid (1) any 2 for [2]

(i) room temperature or initial temperature from table 24 °C (1)

reaction finished / owtte (1) [2]

(j) advantage, e.g. comparability of results / fair test (1)

ignore: reference to reliability / accuracy

disadvantage, e.g. reaction not finished / temperature still changing / may not reach maximum temperature (1) [2]