

Cambridge IGCSE™

COMBINED SCIENCE**0653/63**

Paper 6 Alternative to Practical

May/June 2025**MARK SCHEME**Maximum Mark: 40

Published

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Question	Answer	Marks
1(a)(i)	number of ungerminated seeds recorded as 18 ; number of germinated seeds recorded as 14 ;	2
1(a)(ii)	flask B = 44% ;	1
1(a)(iii)	x-axis percentage (concentration) of oxygen and y-axis percentage (of seeds) that germinate ; suitable linear scale with plotted points covering at least half the grid ; plots correct to $\pm\frac{1}{2}$ small square ;	3
1(a)(iv)	suitable curve of best fit ;	1
1(a)(v)	as the percentage (concentration) of oxygen increases, the percentage (of seeds) that germinate increases ;	1
1(a)(vi)	do not all start with same number of seeds ;	1
1(a)(vii)	<i>any two from:</i> (germination causes a) temperature increase ; different number of seeds germinate in each flask so <u>different temperature</u> / temperature increase <u>not the same</u> in all flasks ; temperature may affect germination ; more than one variable changed ;	2
1(a)(viii)	time for germination / 3 days ;	1
1(b)	Benedict's (solution) ;	1

Question	Answer	Marks
2(a)	ammonia / a gas is formed and turns (damp red) litmus paper blue ;	1
2(b)	fizzes and makes a gas that gives a white precipitate with limewater ;	1
2(c)(i)	to get a hotter temperature because the blue flame is hotter than the yellow ;	1
2(c)(ii)	14. <u>0</u> ;	1
2(c)(iii)	stops the student from burning, hands / skin owtte ;	1
2(c)(iv)	<u>gas</u> is produced (and lost to atmosphere) ;	1
2(c)(v)	<i>idea of</i> heating to constant mass ;	1

Question	Answer	Marks
3	One marking point from each section and any <i>two</i> others (if one section is missing max 6 etc.): 1 apparatus filter paper and filter funnel ; measuring cylinder / graduated cylinder / graduated pipette / burette ; balance ; 2 method add different volumes of (aqueous) ammonium carbonate to (aqueous) barium nitrate and filter ; do at least five different volumes of aqueous ammonium carbonate ; dry ; 3 measurements and control variables measure mass of barium carbonate ; measure the volume of (aqueous) ammonium carbonate / (aqueous) barium nitrate ; control volume of (aqueous) barium nitrate ; 4 results table headings for (volume of aqueous) ammonium carbonate and (mass of) barium carbonate ; correct units for volume and mass in heading of table ; 5 processing results and conclusions plot a graph of (average) mass (of barium carbonate) against volume (of aqueous ammonium carbonate) ; look to see if mass of barium carbonate increases, decreases or stays the same as the volume of aqueous ammonium carbonate changes ; repeat each volume and identify / exclude, anomalous results ;	7

Question	Answer	Marks
4(a)(i)	6.5 ;	1
4(a)(ii)	32.74375 ; 33 ;	2
4(b)(i)	measuring cylinder / graduated cylinder ;	1
4(b)(ii)	water level in Q below P ; thermometer bulb below water level but not touching sides or bottom of beaker ;	2
4(c)(i)	67.5 ; 55.0 ;	2
4(c)(ii)	12.5 ;	1
4(c)(iii)	ensure all water at same temperature	1
4(d)	both P and Q decrease ; Q decreases faster than P ;	2
4(e)	insulate sides (and base) of the / both, beakers ;	1