

Cambridge IGCSE™

COMBINED SCIENCE**0653/62**

Paper 6 Alternative to Practical

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

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

Question	Answer	Marks
1(a)	size: drawing fills more than 50% of available space ; quality: clear continuous outline ; detail: minimum of 3 medullary rays and minimum of 3 circular sections shown and no shading ;	3
1(b)(i)	84 (mm) ;	1
1(b)(ii)	$84 \div 75 = 1.12$; answer to 2 sf = 1.1 ;	2
1(b)(iii)	take additional measurement(s) (of diameter) (using different positions around root) and add together and divide by number of, measurements / diameters ;	1
1(c)(i)	rounded shape / smooth shape / similar shape / skin ;	1
1(c)(ii)	<i>any two differences from:</i> lotus root has holes / carrot does not have holes ; carrot is darker / lotus root is lighter ; (radial) lines in carrot / no lines in lotus root ; carrot has more obvious layers / layers not obvious in lotus root ; carrot has less variation in diameter / lotus root has more variation in diameter ;	2
1(d)	brown recorded for carrot ; blue-black recorded for potato ; correct conclusion for starch presence, i.e. (carrot contains) no starch and (potato contains) starch ;	3

Question	Answer	Marks
2(a)(i)	21.5 ; 41.0 ;	2
2(a)(ii)	19.5 ;	1
2(b)	there is no blue copper chloride solution left ; there is grey solid aluminium left behind ;	2
2(c)	error stated ; with improvement suggested ; e.g. idea of heat loss ; use insulation / use a lid on the cup ; e.g. thermometer touches (base of) cup ; clamp / hold in place ;	2
2(d)(i)	vertical axis labelled temperature increase / °C and horizontal axis labelled concentration / M ; linear scales so that plotted points occupy at least half the grid ; plots correct to $\pm 1/2$ small square ;	3
2(d)(ii)	thin straight line of best fit drawn with even distribution of points ;	1
2(e)	evidence of working out on graph (horizontal line from 20.0 °C and then vertical line down to concentration) ; estimation of concentration to within $\pm 1/2$ a small square ;	2

Question	Answer	Marks
3(a)	correct voltmeter symbol ; drawn correctly connected to the wires across resistor 1 ;	2
3(b)	$V_1 = 0.65(V)$; $V_2 = 0.70(V)$;	2
3(c)	correct calculation of 10%, e.g. ($0.05 / 0.70 \times 100 =$) 7.1 / 7 % or e.g. ($0.05 / 0.65 \times 100 =$) 7.7 / 8 % ; (correct calculation plus statement that) yes / this is within 10% / they are equal (within the limits of experimental accuracy) ;	2
3(d)	prevent (wires or resistors) (over)heating / prevent current being drawn from dry cell ;	1

Question	Answer	Marks
4	One marking point from each section and any <i>two</i> others (if one section is missing max 6 etc.): 1 apparatus balance ; ruler / tape measure ; 2 description of method drop 2 or more masses onto the rod ; make markings (e.g. with marker) on rod level with sand ; repeat for 5 different masses ; 3 control variables and measurements measure mass ; measure initial and final length of rod above sand / distance between markings made on rod ; control height of mass / starting point of mass above rod ; control initial length of rod (above sand) / depth of rod (in sand) ; 4 table mass (of masses) in g / kg ; initial and final length of rod above sand in cm / mm ; or distance between markings in cm / mm ; 5 processing calculate initial length of rod – final length of rod ; graph of distance (moved) against mass ; straight line through origin shows proportional relationship / mass ÷ distance moved = constant supports proportional relationship / describe doubling etc. of both variables ORA ; repeat each mass and identify / exclude anomalous results ;	7