

Cambridge IGCSE™

COMBINED SCIENCE**0653/63**

Paper 6 Alternative to Practical

October/November 2025**MARK SCHEME**Maximum Mark: 40

Published

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

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Question	Answer	Marks
1(a)(i)	$403 \div 3 = 134.3333$; 134 / answer to 3 sf ;	2
1(a)(ii)	Heart rate varies / people recover at different rates / errors have less impact;	1
1(a)(iii)	allows time for heart rate to return to resting rate / normal	1
1(b)(i)	0.45 ; 2.27 ;	2
1(b)(ii)	as mass of the block lifted increases, heart rate (after exercise) increases ;	1
1(c)(i)	50 ;	1
1(c)(ii)	needed for comparison ; heart rates at rest vary / do not all start at the same value ;	2
1(d)	P (stays) colourless / no change ; Q (turns) milky / cloudy / white precipitate Explanation – Q has / gases breathed out have (more) carbon dioxide ORA ;	3

Question	Answer	Marks
2(a)	102.0 ; 109.5 ;	2
2(b)(i)	Horizontal axis labelled as number of spatulas (of solid H dissolved in the water) AND suitable linear scale such that plots cover more than half the graph grid ; plots correct to within $\pm \frac{1}{2}$ a small square ;	2
2(b)(ii)	point at 5 spatulas and 104 °C circled ;	1
2(b)(iii)	Thin straight line of best fit drawn that ignores the anomalous point, with even distribution of points;	1
2(b)(iv)	as number of spatulas (of solid H dissolved in water) increases, the boiling point (of the water) increases ;	1
2(b)(v)	best-fit line extended and indication of two lines from 8 spatulas to the y axis ; boiling point read off from line to nearest $\pm$ half a small square ;	2
2(c)	(step 1) measure volume of water (at start of experiment) / use a measuring cylinder to measure the water / states a volume of water ; (step 5) measure mass of solid H added / use a balance to measure H / states a mass of H ;	2
2(d)	(error) water volume decreases (each time water is boiled) / difficult to judge when water starts to boil ; (change) do the experiment again using fresh (cold) water each time / tops up water to same volume / identifies method of determining boiling point e.g. number of bubbles / temperature is constant ;	2

Question	Answer	Marks
3(a)	voltmeter P AND Smaller divisions / smaller range / more sensitive (to low voltages) ;	1
3(b)	41 ; 27 ;	2
3(c)(i)	0.015 ;	1
3(c)(ii)	correct calculation of $X/24$;	1
3(d)(i)	zero / systematic (error) ;	1
3(d)(ii)	subtract 2 (mA) from each value of / in Table 3.1 ;	1

Question	Answer	Marks
4	one from each section and any other two marks 1 Apparatus ruler ; clamp (to secure end of beam to bench) / tape or adhesive putty to secure mass to beam ; 2 Method method described clearly such that another student could use it to obtain suitable results, e.g. place mass on beam and measure h for different widths ; 3 Measurements vertical position of (end of) beam, without mass AND with mass / set end of ruler at start to 0 and measure h / other method of measuring h from a zero point ; measure the width / quotes values of widths ; at least 5 different widths ; 4 Control variables thickness of beam ; size / position of mass ; overhanging length of beam ; 5 Processing results and conclusions calculation of $h = \text{difference between two vertical positions}$; product of h and w is constant OR plot a graph of $1 / h$ against w AND straight line through origin confirms statement ;	7