



COMBINED SCIENCE

0653/61

Paper 6 Alternative to Practical

May/June 2017

MARK SCHEME

Maximum Mark: 60

Published

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This document consists of **7** printed pages.

Question	Answer	Marks																
1(a)	Benedict's test ;	1																
1(b)	1 mark per column ;;; <table border="1" data-bbox="349 323 1288 549"> <thead> <tr> <th></th> <th>Benedict's test</th> <th>biuret test</th> <th>iodine test</th> </tr> </thead> <tbody> <tr> <td>banana</td> <td>yellow/green/orange/red</td> <td>blue</td> <td>blue-black</td> </tr> <tr> <td>chickpea</td> <td>blue</td> <td>blue</td> <td>blue-black</td> </tr> <tr> <td>egg white</td> <td>blue</td> <td>purple</td> <td>brown</td> </tr> </tbody> </table>		Benedict's test	biuret test	iodine test	banana	yellow/green/orange/red	blue	blue-black	chickpea	blue	blue	blue-black	egg white	blue	purple	brown	3
	Benedict's test	biuret test	iodine test															
banana	yellow/green/orange/red	blue	blue-black															
chickpea	blue	blue	blue-black															
egg white	blue	purple	brown															
1(c)	same volume of apple juice ; same volume / concentration of Benedict's solution / excess Benedict's ; same temperature / same time ; yellow/green = less (concentrated) / orange/red = more (concentrated) ;	max 3																
1(d)	(dissolve in) ethanol ; (add) water ; cloudy / emulsion ;	3																

Question	Answer	Marks
2(a)	(solution H could be) barium nitrate (or) silver nitrate ; (solution J could be) ammonia (or) sodium hydroxide ;	2
2(b)(i)	add excess copper oxide to sulfuric acid in a beaker (and stir) ; warm ; filter / filtrate is copper sulfate solution ;	3
2(b)(ii)	H is barium nitrate (solution) ; J is ammonia (solution) ;	2
2(c)	(iron(III) sulfate) gives same result / brown ppt. with both sodium hydroxide and ammonia ; so does not test/distinguish between sodium hydroxide and ammonia ; it would identify barium nitrate/ H / still gives white ppt. with H ;	3

Question	Answer	Marks
3(a)	0.36 (V) ;	1
3(b)(i)	2.00 ; 6.78 ;	2
3(b)(ii)	choice of scales and linear ($\geq \frac{1}{2}$ the grid used) ; plots correct to $\frac{1}{2}$ small square ; good best-fit straight line judgement ;	3
3(c)(i)	candidate's R value at $l = 10$ cm ;	1
3(c)(ii)	(directly) proportional (if through origin) ;	1
3(d)	reading meter scale ; observe perpendicularly / repeat / digital meter ; OR measuring the length of wire ; observe perpendicularly / repeat (for decreasing lengths of wire) ; OR wire gets hot / resistance changes ; switch off between readings ;	max 2

Question	Answer	Marks
4(a)	wear gloves / safe disposal of needle / use sterilised/clean needle/equipment ;	1
4(b)(i)	line to a red blood cell and labelled ; line to a platelet and labelled ;	2
4(b)(ii)	quality drawing more than half of box with nucleus ; irregular cell (freehand) with nucleus – 3 lobes ; two of: nucleus labelled ; cytoplasm labelled ; (cell) membrane ;	4
4(c)(i)	measurement 8(.0)/8.5/9(.0)/9.5/10(.0)mm ;	1
4(c)(ii)	measurement to the nearest 0.5 mm AND larger than (c)(i) ;	1
4(c)(iii)	magnification correctly calculated to the nearest whole number ;	1

Question	Answer	Marks
5(a)	label syringe/measuring cylinder/burette ; drawing of gas syringe/burette/up-turned measuring cylinder or graduated test-tube filled with water and in water ;	2
5(b)	6, 13.5, 28, 54.5, 65 ;	1
5(c)	2.5 AND largest volume of gas/most gas (collected in 2 minutes/same amount of time) ;	1
5(d)(i)	stop watch/clock ;	1
5(d)(ii)	pipette/burette ;	1
5(e)(i)	temperature ;	1
5(e)(ii)	reliability / to take an average / spot anomalies ;	1
5(f)	CO ₂ ; turns limewater milky ;	2

Question	Answer	Marks
6(a)	clamp/retort (stand) ;	1
6(b)	don't touch the (hot) lamp ;	1
6(c)(i)	two plots ;	1
6(c)(ii)	smooth curve (through most of the points) ; not through anomalous point / not taking into account anomalous point ;	2
6(c)(iii)	value from graph ; line / marking on graph ;	2
6(c)(iv)	as height increases temperature decreases ; non-linear / T becomes constant ;	2
6(c)(v)	no further decrease in temperature / temperature stayed the same / reached room temperature ;	1