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**COMBINED SCIENCE**

**0653/52**

Paper 5 Practical Test

**May/June 2017**

MARK SCHEME

Maximum Mark: 30

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**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.

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Question	Answer	Marks
1(a)	quality drawing in pencil using at least half the space ; male parts, anther and filament drawn ; female parts, stigma and ovary drawn ; petals drawn ;	4
1(b)(i)	line drawn edge to edge ; correct measurement of drawing <b>and</b> sensible flower measurement ;	2
1(b)(ii)	correct calculation ;	1
1(c)	benedict's solution; heat; orange / red indicates more sugar <b>or</b> yellow / green indicates less sugar ;	3

Question	Answer	Marks
2(a)(i)	temperature recorded and within 5°C of supervisor's value ; both volumes recorded <b>and</b> $V_2 > V_1$ ;	2
2(a)(ii)	temperature recorded for <b>experiment 2</b> and 8–12 °C above the temperature for <b>experiment 1</b> ; both volumes recorded <b>and</b> both greater than those in <b>(a)(i)</b> ;	2
2(a)(iii)	temperatures for <b>experiment 3</b> recorded <b>and</b> to nearest half degree ; $V_1$ and $V_2$ for <b>experiment 3</b> greater than $V_1$ and $V_2$ for <b>experiment 2</b> ;	2
2(b)(i)	all values of $V$ correct ;	1
2(b)(ii)	the higher the temperature the higher the rate of the reaction ;	1

Question	Answer	Marks
2(c)	bubble into water ; count bubbles in a certain time / time for certain number of bubbles ; <b>or</b> connect delivery tube to a gas syringe ; measure volume in a certain time / time for a certain volume ; <b>or</b> place reaction flask on a balance ; measure mass (decrease) in a certain time / time for certain drop in mass ;	<b>2</b>

Question	Answer	Marks
3(a)(i)	$m$ present <b>and</b> to 0.1 g ;	<b>1</b>
3(a)(ii)	$V_1$ present <b>and</b> $65 \pm 5$ (cm <sup>3</sup> ) ;	<b>1</b>
3(a)(iii)	$V_2$ present ; $V_2 > V_1$ ;	<b>2</b>
3(a)(iv)	calculation correct ;	<b>1</b>
3(a)(v)	calculation correct <b>and</b> 2 / 3 sig fig ; g / cm <sup>3</sup> ;	<b>2</b>
3(b)(i)	<b>any 2 from ;</b>  not reading to bottom of meniscus not reading perpendicular to scale of measuring cylinder / not eye level test tube touching the side of cylinder / how the test-tube floats zero error on balance	<b>max 2</b>
3(b)(ii)	state effect on $V$ or $m$ and hence effect on $d_2$ ;	<b>1</b>