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COMBINED SCIENCE **0653/62**

Paper 6 Alternative to Practical **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	quality of drawing ; larger than original ; root and stem correctly labelled ;	3
1(b)(i)	14 ± 1 ;	1
1(b)(ii)	correct measurement (in mm) ;	1
1(b)(iii)	magnification correctly calculated **and** rounded correctly ;	1
1(c)(i)	(placed in a suitable container with) water ; kept in a warm place ;	2
1(c)(ii)	protein ; starch ;	2

Question	Answer	Marks
2(a)(i)	Different coloured ppts. ; same coloured ppts. as NaOH or ammonia ;	2
2(a)(ii)	(add **H** to) iron(II) sulfate (solution) ;	1
2(a)(iii)	add aqueous sodium hydroxide (and heat) ; (in gas) red litmus turns blue / pungent smell ;	2
2(b)(i)	add (dil) HCl or (dil) nitric acid ; bubbles / effervescence ;	2

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Question	Answer	Marks
2(b)(ii)	test-tube / flask connected to test-tube / beaker with delivery tube ; limewater in correct place labelled ;	2
2(b)(iii)	(limewater goes) milky / white ppt. ;	1

Question	Answer	Marks
3(a)(i)	89.0 ;	1
3(a)(ii)	92.5 ;	1
3(b)(i)	s / second / sec **and** °C ;	1
3(b)(ii)	30, 60, 90, 120, 150, 180 ;	1
3(c)	to allow maximum temperature of hot water to be recorded / let thermometer get to temperature of water / beakers owtte ;	1
3(d)	rate of temperature drop greater at start / wtte ;	1
3(e)	use of table results (e.g. 89 to 80 and 92.5 to 76) ; reference to temperature changes in the same time / same time specified ;	2
3(f)	Any two from: room temperature / initial water temperature / same volumes of water / keep thermometer the same depth ;;	2

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Question	Answer	Marks
4(a)(i)	1.5 **and** 4.9 ;	**1**
4(a)(ii)	3.4 3.2 3.0 all 3 correct is 2 marks ;; 1 or 2 correct is 1 mark	**2**
4(a)(iii)	Low 0.16 **and** High 0.32	**1**
4(a)(iv)	Increase in temperature increases rate / ORA ;	**1**
4(b)	Any two from: Identify anomalies / more reliable / average is more accurate ;;	**2**
4(c)(i)	transpiration ;	**1**
4(c)(ii)	Water stored or produced or used by plant ;	**1**
4(d)	(reduced) because surface area reduced / fewer stomata / less evaporation of water / less transpiration AW ;	**1**

Question	Answer	Marks
5(a)(i)	sulfuric ;	**1**
5(a)(ii)	added solid does not dissolve / no more bubbles ;	**1**
5(a)(iii)	(blue) litmus ; does not go red ;	**2**
5(b)(i)	funnel with filter paper drawn ; (excess) copper carbonate **and** filtrate / copper sulfate labelled ;	**2**

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Question	Answer	Marks
5(b)(ii)	insoluble (in water) ;	**1**
5(c)	to avoid dehydration / to avoid decomposition ;	**1**
5(d)(i)	sodium hydroxide is soluble ;	**1**
5(d)(ii)	use an indicator for neutralisation ;	**1**

Question	Answer	Marks
6(a)	66.2 ;;	**2**
6(b)	6.2 **and** 9.0 ;	**1**
6(c)(i)	suitable choice of scales (⩾ half the grid used) ; plots correct to half a small square, at least 4 correct ; good best fit line judgement ;	**3**
6(c)(ii)	indication <u>on graph</u> of how data obtained AND at least half of line used ; correct calculation for triangle method using data from graph ;	**2**
6(c)(iii)	correct answer using candidate's gradient ;	**1**
6(d)	rule will not balance / balance point is off the scale of the rule ;	**1**

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