
CO-ORDINATED SCIENCES

0654/52

Paper 5 Practical Test

May/June 2017

MARK SCHEME

Maximum Mark: 45

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)(i)	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(a)(ii)	<i>correctly labelled:</i> anther ; stamen ; stigma ; ovary ;	4
1(b)(i)	line drawn edge to edge ; correct measurement of drawing and sensible flower measurement ;	2
1(b)(ii)	correct calculation ;	1
1(c)	stigma circled ;	1
1(d)	Benedict's solution ; heat ; orange / red indicates more sugar or 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 AND $V_2 > V_1$;	2
2(a)(ii)	temperature recorded for experiment 2 and 8–12 °C above the temperature for experiment 1 ; both volumes recorded AND both greater than those in (a)(i) ;	2
2(a)(iii)	temperatures for experiments 3 and 4 recorded AND to nearest half degree ; V_1 for experiments 3 and 4 recorded and increasing compared with experiment 2 ; V_2 for experiments 3 and 4 recorded and increasing compared with experiment 2 ;	3
2(b)(i)	all values of V correct ;	1

Question	Answer	Marks
2(b)(ii)	linear scales using at least half of grid in each direction ; at least three points plotted correctly within half a square ; best straight line or best curve ;	3
2(c)	the higher the temperature the higher the rate of the reaction ;	1
2(d)(i)	removes timing error associated with starting the stopclock and connecting apparatus / could be too fast in first minute (due to powder on chips) / could be too slow in first minute (due to coating) / removes error due to air in measuring cylinder / not enough gas in first minute / less (percentage) error in a larger volume ;	max 1
2(d)(ii)	bubble into water ; count bubbles in a certain time / time for certain number of bubbles ; OR connect delivery tube to a gas syringe ; measure volume in a certain time / time for a certain volume ; OR place reaction flask on a balance ; measure mass (decrease) in a certain time / time for certain drop in mass ;	max 2

Question	Answer	Marks
3(a)(i)	m_1 present AND to 0.1 g ;	1
3(a)(ii)	V_1 present AND 65 ± 5 (cm ³) ;	1
3(a)(iii)	m_2 present AND $> m_1$;	1
3(a)(iv)	calculation correct AND 2 / 3 sig fig ; g / cm ³ ;	2
3(a)(v)	read to bottom of meniscus / avoid parallax error / read perpendicular to scale / read at eye level ;	1
3(b)(i)	m_3 present ;	1

Question	Answer	Marks
3(b)(ii)	V_2 present ; $V_2 > V_1$;	2
3(b)(iii)	calculation correct ;	1
3(b)(iv)	correct substitution of values AND d_2 within 10% of d_1 ; d_1 and d_2 values to 1 dp each 1.0 ± 0.1 (g / cm ³) ;	2
3(c)(i)	test-tube touching the side of cylinder / how the test-tube floats / zero error on balance ;	1
3(c)(ii)	state effect on V or m and hence effect on d_2 ;	1
3(c)(iii)	measuring cylinder otherwise wet / contains some water when its 'dry' mass is measured ;	1