Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/53**

Paper 5 Practical Test **May/June 2016**

MARK SCHEME

Maximum Mark: 40

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.

Cambridge will not enter into discussions about these mark schemes.

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Mark schemes will use these abbreviations

- ; separates marking points
- / alternatives
- **R** reject
- **A** accept (for answers correctly cued by the question)
- **I** ignore as irrelevant
- **ecf** error carried forward
- **AW** alternative wording (where responses vary more than usual)
- **AVP** alternative valid point
- underline actual word given must be used by candidate (grammatical variants excepted)
- ( ) the word / phrase in brackets is not required but sets the context
- **D, L, T, Q** quality of: drawing / labelling / table / detail as indicated
- max indicates the maximum number of marks

Question	Mark scheme	Mark	Guidance
1 (a)	**one** table drawn with rows and (3) columns ; appropriate column headings with units (°C and min) ; table shows starting temperatures ; correct completion of the table ; temperature in both beakers decreases with time ; faster rate of temperature decrease in the beaker with 'ears' ;	[6]	**R** if units in body of table
(b)	wear goggles / gloves / method to reduce spillages / stand up when working ;	[1]	
(c) (i)	may have different starting temperatures ; enables results to be compared / AW ; allows calculation of rate ;	[2]	
(ii)	2.3 ;;	[2]	working 18 ÷ 8
(d) (i)	*suggest* do not fit snugly on the beaker / holes made in the cardboard/more holes in the lid with the ears ; water volume not measured ; squeeze rate not consistent / defined ; difficult to measure both times simultaneously ; *explain* heat may be lost through gaps / more holes so greater heat loss ; different volumes cool at different rates ;	[4]	

Question	Mark scheme	Mark	Guidance
(ii)	improve insulation of beaker ; start temperatures the same ; measure volume of water in beakers ; squeezing regularly / force of squeezing ; stir water ; use digital thermometer ; tape holes ; sequential experiments ;	[1]	**I** control variables, repeats, extended range
(e) (i)	smaller ears ;	[1]	
(ii)	cooler temperature ;	[1]	**I** humid
		[Total: 18]	
2 (a)	O – clear outline of celery ; S – size larger than Fig. 2.2 ; D – detail ; L – label **D** to one coloured part ;	[4]	
(b)	correct measurement of AB ; evidence of line drawn and measurement of that line ; magnification given to the nearest whole number ;	[3]	± 1 mm **R** if units given
(c) (i)	35 (mm) ;	[1]	

Question	Mark scheme	Mark	Guidance
(ii)	measure distance travelled up the stick ; add dye to water ; time started ; change in the number of leaves on the celery ; measure the area of leaves ; need to control temperature / humidity / wind speed ;; repeats ; prediction ;	[max 6]	
		[Total: 14]	
3 (a)	**A** – axes labels with units ; **S** – even scale and plots to fill at least $\frac{1}{2}$ of grid ; **P** – plots ; **L** – line of best fit ;	[4]	
(b)	as heart rate increases, life expectancy decreases ; ORA use of data ;	[2]	
(c)	line drawn from 60 bpm to line of best fit and extended to *x*-axis ; answer to match graph ;	[2]	
		[Total: 8]	