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

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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

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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]	

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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]	

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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]	

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