Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS General Certificate of Education Advanced Subsidiary Level and Advanced Level

BIOLOGY 9700/05

Paper 5 Planning, Analysis and Evaluation

For Examination from 2007

Specimen Paper

Candidates answer on the Question Paper. No Additional Materials are required.

1 hour 15 minutes

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in. Write in dark blue or black pen.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer all questions.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

1 (a) The rate of respiration in two tissues, **A** and **B** was measured using DCPIP as an indicator. 50 g of each tissue was ground into paste using 10 cm³ of ice cold buffer and made into a suspension with 250 cm³ of buffer solution. The two suspensions were placed into a water bath at 20 °C.

Two sets of ten tubes, each containing 10 $\rm cm^3$ of buffer and 1 $\rm cm^3$ of DCPIP, were placed into separate water baths at 20 $\rm ^{\circ}C$ and left for 10 minutes.

To one set of ten tubes, $0.5~{\rm cm}^3$ of suspension **A** was added. To the other set of ten tubes, $0.5~{\rm cm}^3$ of suspension B was added. The time taken for DCPIP to become colourless was measured separately in each tube.

(i)	State the dependent and independent variable in this investigation.
	independent variable
	dependent variable [1]
(ii)	Identify the key variables that have been controlled in this investigation.
	For each variable, describe how it has been controlled.
	[3]
(iii)	Suggest how the colourless end point of the DCPIP might have been standardised.
	[1]

(b) The results of this investigation are shown in Table 1.1.

Table 1.1

	time	taken	for DC	PIP to I	oecome	colou	rless/s			
	1	2	3	4	5	6	7	8	9	10
Tissue A	55	56	59	54	52	56	55	55	59	59
Tissue B	125	126	122	126	122	119	121	123	124	125

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[Turn over

[Total 13]

2 Fig. 2.1 shows the structure of a root tip.

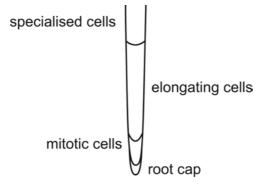


Fig. 2.1

Radicles of seedlings constantly produce new cells by mitosis. As these cells develop they become elongated by absorbing water and the vacuole expanding and causing the cell wall to stretch. Growth regulators control the plasticity of the cell wall so it is able to stretch.

The developing radicles of seedlings placed horizontally respond by curving and growing in the direction of gravity.

One hypothesis to explain this curvature is that the root cap contains gravity receptors that causes changes in the distribution of auxin secreted by the root tip.

Describe how this hypothesis could be tested.
[10]

3 Fig. 3.1 shows genetic fingerprints made from DNA samples of a number of different mammals.

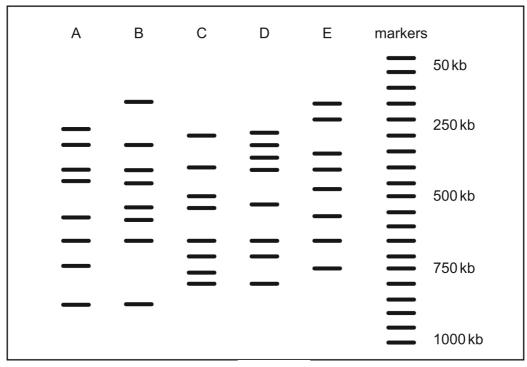


Fig. 3.1

(a)	Explain how the genetic finger print provides evidence that these mammals share a common ancestor.
	[2]
(b)	Use the information in the diagram to explain the evolutionary relationship between these mammals.
	[5]

[Total 7]

6

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