UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

BIOLOGY **5090/06**

Paper 6 Alternative to Practical **October/November 2008**

1 hour

Candidates answer on the Question Paper.

No Additional Materials are required.

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 in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

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.

For Examiner's Use	
1	
2	
3	
Total	

This document consists of **7** printed pages and **1** blank page.

UNIVERSITY of CAMBRIDGE International Examinations

[Turn over

1 Fig. 1.1 shows the difference between (a) a healthy seedling and (b), one that has wilted.

Fig. 1.1(a)

Fig. 1.1(b)

(a) Suggest two ways in which the seedling shown in Fig. 1.1 (b) could be treated so that it recovers to the state shown in Fig. 1.1 (a).

1. .....

2. ..... [2]

(b)
- Three seedlings of the same species were grown separately in small plant pots.
- They were labelled **D**, **E** and **F**.
- Seedling **D** remained in its pot which was not watered.
- Three days later the seedling had wilted.

(i) Explain why wilting occurred in **D**.

.....

.....

..... [2]

- Seedling **E** was taken from its pot at the start of the investigation and planted in the garden.
- The soil around it was well watered.
- About one hour later the seedling had wilted.
- Next day it had recovered.

(ii) Suggest why wilting occurred in **E** after it was first planted in the garden.

.....

.....

..... [2]

(iii) Suggest what growth had occurred in the seedling to enable it to recover overnight.

.....

..... [1]

- Seedling **F** was left in its pot and was watered with a very concentrated solution of fertiliser.
- In 2–3 hours the seedling wilted.

(iv) Explain why wilting occurred in **F**, referring to the water potentials that are involved.

.....

.....

..... [2]

(v) Suggest how this seedling might be treated to help it to recover.

.....

..... [1]

(c) Describe in outline how you would carry out an experiment to investigate the concentration of fertiliser solution that could be applied to produce maximum growth in this type of seedling.

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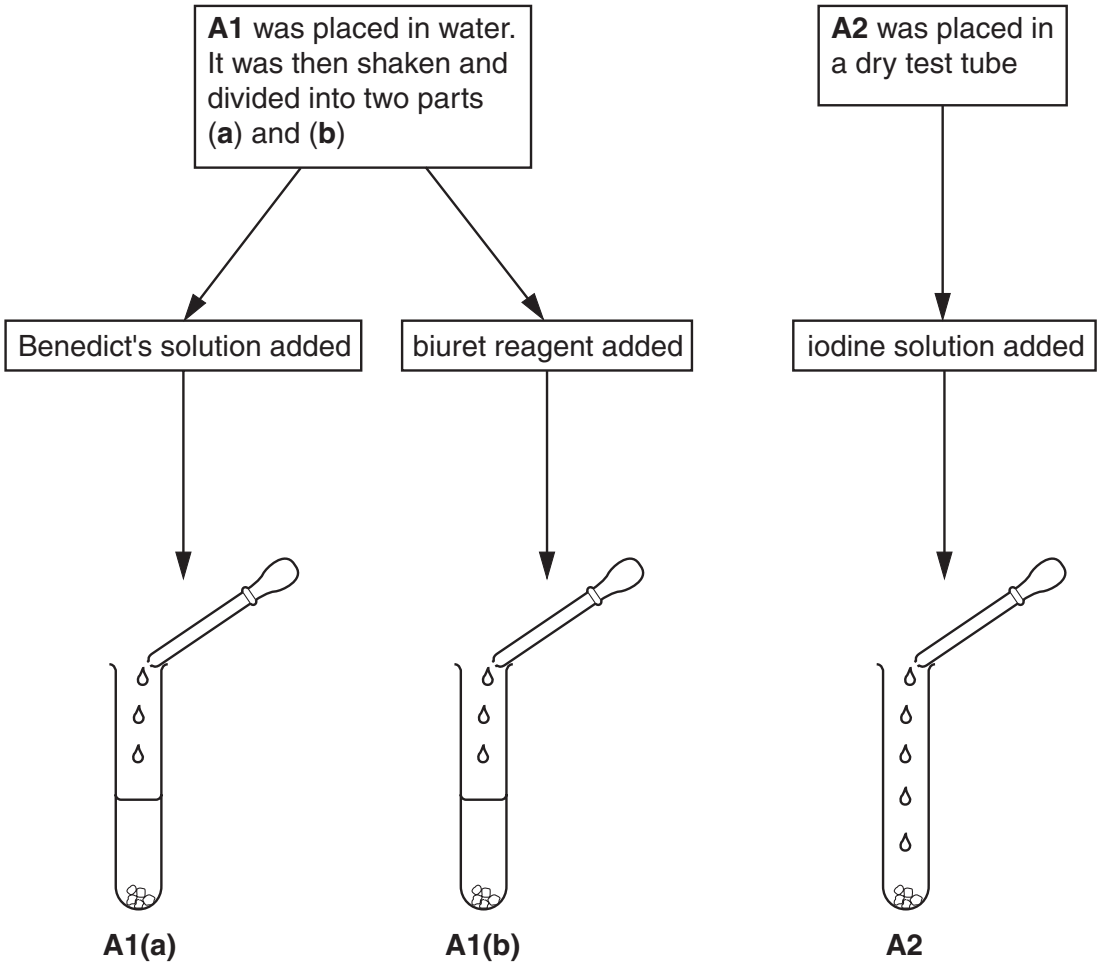
..... [5]

[Total: 15]

2 Food tests were carried out on two food materials, **A** & **B**.

- material **A** was cut into two pieces (**A1** & **A2**) that were sliced and crushed.



(i) State the colour of the contents immediately after the reagents were added.

A1 (a) ..... **A1 (b)** ..... **A2** ..... [3]

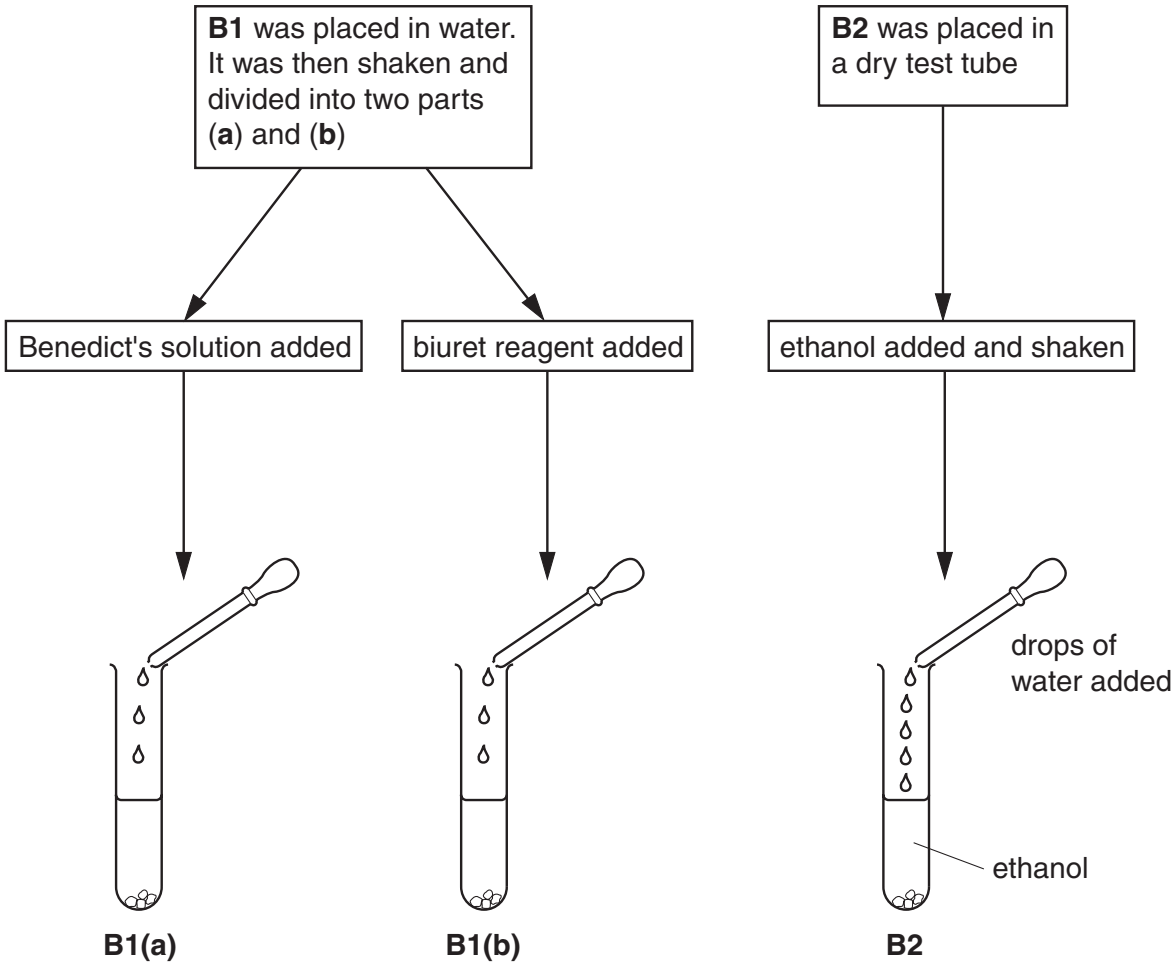
(ii) Complete Table 2.1.

Table 2.1

	Observations at the end of the tests		
	A1(a)	**A1(b)**	**A2**
Observation	orange precipitate	blue solution	blue-black colour
Conclusion			

[3]

- In the same way material **B** was cut into two pieces (**B1** & **B2**) that were sliced and crushed.



(iii) Complete Table 2.2.

Table 2.2

	Observations at the end of the tests		
	B1(a)	**B1(b)**	**B2**
Observation	blue solution	purple (violet) solution	cloudy
Conclusion			

[3]

(iv) Explain why the sample **B2** was cut up and placed in a **dry** test-tube.

.....

.....

..... [2]

[Total: 11]

3 Fig. 3.1 is a photomicrograph of an animal tissue.

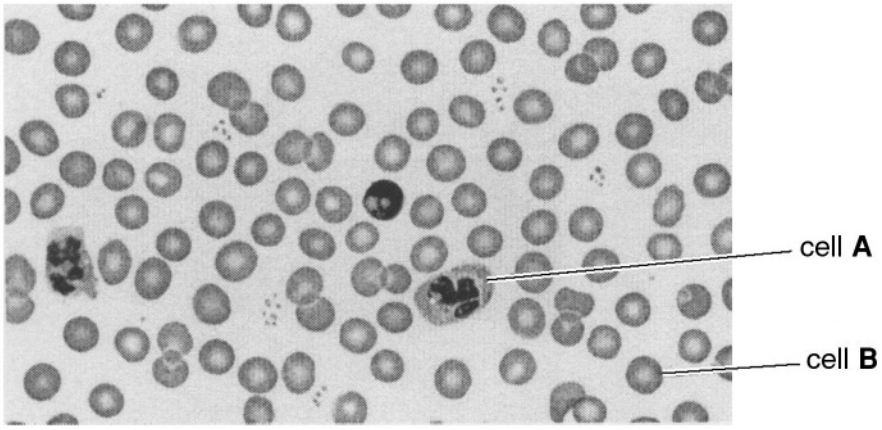


Fig. 3.1 (×750)

(a) (i) Name the tissue shown in Fig. 3.1. ..... [1]

(ii) Using label lines and clearly written labels identify four components of this tissue that are shown in Fig. 3.1. [4]

(iii) Make a large, labelled drawing of cell **A**.

[4]

(iv) Calculate the magnification of your drawing of cell **A** compared with the actual size of the cell that was photographed. Indicate on your drawing where your measurement was taken. Record your measurements and show your working clearly.

Size of cell in drawing = ……..

Size of cell in Fig. 3.1 = ……..

Magnification = …… [4]

(b) State the function of cell **B**.

..... [1]

[Total: 14]

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