

Centre Number

Candidate Number

Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education**BIOLOGY****0610/05**

Paper 5 Practical Test

October/November 2006

**1 hour**

Candidates answer on the Question Paper.

Additional Materials: As listed in Instructions to Supervisors.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name in the spaces provided at the top of this page.

Write in dark blue or black pen.

You may use a pencil for any diagrams or graphs.

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

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

- 1** In this question you are going to investigate transport in plants.

You are provided with a length of stem of a flowering plant, **W1**, that has been standing in a coloured solution.

Carefully cut across the stem and examine the freshly cut surfaces with a hand lens.

- (a) (i)** Make a large, labelled drawing of one of the cut surfaces of the stem.

On your drawing, indicate clearly the position of the coloured dye.

[5]

- (ii)** Measure the diameter of your drawing.

diameter of drawing .....

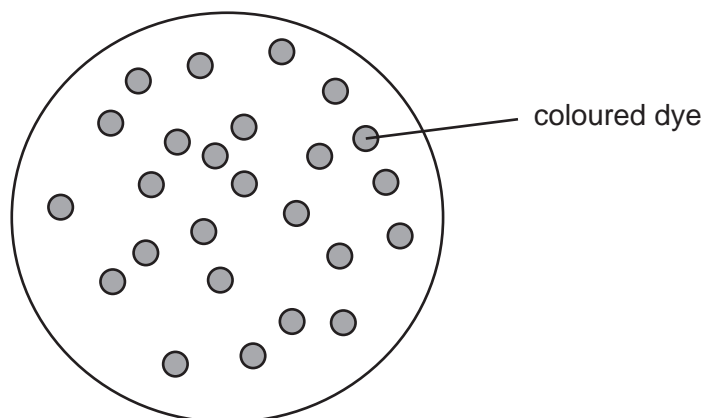
Measure the diameter of the stem.

diameter of stem .....

Calculate the magnification of your drawing.  
Show your working.

magnification = ..... [3]

- (b) Fig. 1.1 is a diagram of a section across the stem of a different flowering plant, **W2**.



**Fig. 1.1**

Describe the differences in the distribution of the coloured dye in the two plant stems.

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.....

..... [2]

- (c) Suggest how you could carry out an experiment to compare the effects of **one named external** factor on the rate at which water moves up through a plant.

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..... [5]

(d) You are provided with a solution, **W3**, that is translocated in the stem of plant **W1**.

(i) State how you would test the solution for the presence of reducing sugars.

.....  
 .....  
 ..... [2]

(ii) State two safety precautions that could be taken when carrying out this test.

1 .....  
 2 ..... [2]

(iii) Test solution **W3** for the presence of reducing sugars.

Record your observations and conclusion.

observations .....  
 conclusion ..... [2]

(iv) Sucrose is not a reducing sugar. Boiling sucrose solution with acid converts the sucrose to reducing sugars. **W4** is a solution of **W3** that has been boiled with acid.

Test solution **W4** for the presence of reducing sugars.

Record your observations and conclusion.

observations .....  
 conclusion ..... [2]

(v) Using the information in (iii) and (iv) and your conclusions, suggest what type of sugar is transported through the stem.

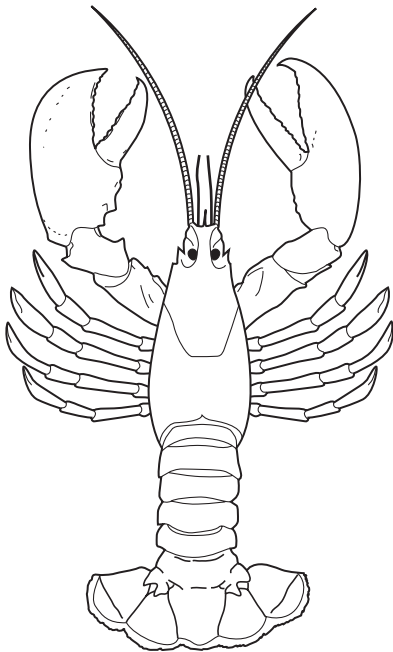
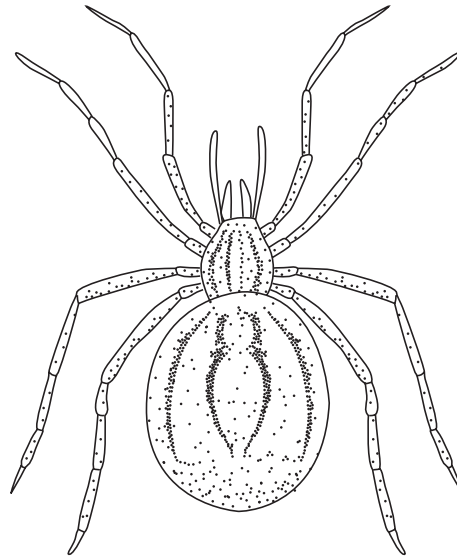
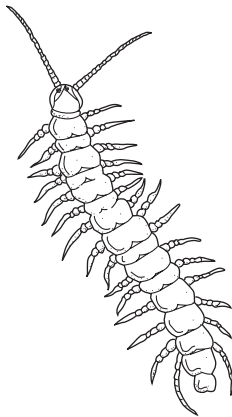
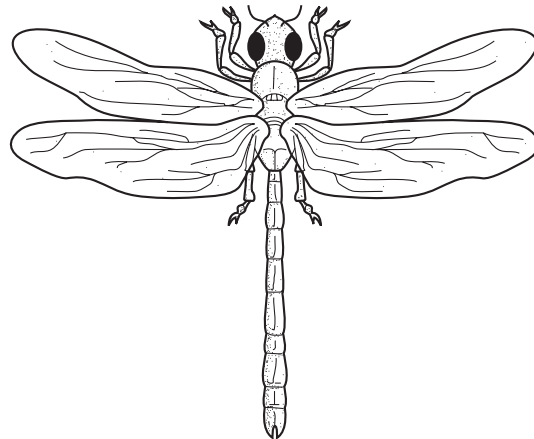
..... [1]

[Total: 24]

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**Question 2 starts on Page 6**

- 2 You are supplied with specimen **W5**.  
Fig. 2.1 shows four other animals belonging to the same main group of invertebrates.

**W6****W7****W8****W9****Fig. 2.1**

- (a) (i) Name the main group (phylum) of invertebrates to which **all** these animals belong.

..... [1]

- (ii) State **one** feature of **W5** that is characteristic of this main group.

..... [1]

(b) (i) Name the sub-group (class) to which **W5** belongs.

..... [1]

(ii) State three features, visible on **W5**, that are characteristic of this group.

1 .....

2 .....

3 ..... [3]

(c) Use the following key to identify each of the animals, **W5 – W9**.

If necessary, remove parts of **W5** to count them. Keep the specimen to use later in the question.

1 More than 4 pairs of legs ..... Lithobiomorpha

4 pairs of legs or less ..... go to 2

2 4 pairs of legs ..... go to 3

3 pairs of legs ..... go to 4

3 2 pairs of jointed antennae ..... Decapoda

No jointed antenna ..... Araneae

4 1 pair of wings ..... Diptera

2 pairs of wings ..... Odonata

**W5** .....

**W6** .....

**W7** .....

**W8** .....

**W9** ..... [5]

- (d) When dilute hydrochloric acid is added to calcium carbonate, carbon dioxide is produced.

**W10** is part of the protective covering of a mollusc.

Add a few drops of dilute hydrochloric acid to **each** of the specimens **W5** and **W10**.

- (i) observations

**W5** .....

.....

**W10** .....

..... [2]

- (ii) Use your observations to explain the conclusions that you can make about the chemical composition of the protective coverings of these animals.

conclusions

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.....

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..... [3]

[Total: 16]