Surname		Other Names									
Centre Number						Candidate Number					
Candidate Signature											

For Examiner's Use Total Task 1

General Certificate of Education
June 2009
Advanced Subsidiary Examination

BIOLOGY **BIO3X/PM1**
Unit 3X Externally Marked Practical Assignment
Task Sheet 1

To be completed before Task Sheet 2.

For submission by 15 May 2009

You must have
- a ruler with millimetre measurements
- a calculator.

Pectinase is one of the enzymes involved in fruit ripening. It hydrolyses pectins. This leads to softening of the fruit.

You are going to investigate the effects of pectinase concentration on the breakdown of pectin.

In Task 1, you will investigate a method of measuring the thickness of a pectin solution.

Task 1

A Setting up your investigation

You are provided with

- pectin solution
- 10 cm^3 syringe (plunger removed)
- clamp stand with boss and clamp
- stop watch
- small beaker
- small measuring cylinder

You may ask for any other apparatus you require.

Read these instructions carefully before you begin your investigation.

B Carrying out the investigation

1. Pour 10 cm^3 of the pectin solution into the syringe while keeping your thumb over the nozzle.
2. Remove your thumb and time how long it takes for the 10 cm^3 of pectin solution to drain into a beaker.
3. Repeat steps 1 and 2 so you have five measurements. You should re-use the pectin solution for each measurement.

C Recording your results

Record your results in the table.

Measurement	Time taken to drain / seconds
1	
2	
3	
4	
5	

QUESTIONS ON TASK 1

Answer **all** questions in the spaces provided.

1 In this task you took five measurements. Explain why it is important to take several measurements.

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(2 marks)

2 Give **two** precautions you took when using the syringe to ensure your readings were reliable.

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(2 marks)

3 (a) Use all the data in your table to calculate the mean time taken for 10 cm^3 of the pectin solution to drain from the syringe.

Mean time ..... s *(1 mark)*

3 (b) Use your answer from part (a) to calculate the mean rate of flow of the pectin. Give your answer in $cm^3\ s^{-1}$.

Mean rate of flow .....$cm^3\ s^{-1}$ *(1 mark)*

4 Explain how the following would affect the accuracy of your results

4 (a) measuring the time taken for a larger volume of pectin to drain by using a larger syringe

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(1 mark)

4 (b) using a digital timer that measures to 0.0001 seconds.

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(1 mark)

8

END OF TASK 1