Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

AGRICULTURE **5038/03**

Paper 3 Practical Test

October/November 2006

1 hour 15 minutes

Candidates answer on the Question Paper
Additional Materials: As listed in the Instructions to Supervisors

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.
You may use a soft pencil for any diagrams or graphs.
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.

For Examiner's Use	
1	
2	
3	
Total	

This document consists of **7** printed pages and **1** Supervisor's Report.

Answer **all** the questions.

Write your answers in the spaces provided.

1 **AS1**, **AS2** and **AS3** are three samples of soil water. You are going to investigate their acidity. Each of the samples has been filtered.

(i) Suggest a reason for filtering the soil water samples before testing their pH.

.....

..... [1]

Determine the pH of each sample using Universal indicator paper or solution.

(ii) Describe, in detail, how you determined the pH of the samples.

.....

.....

.....

.....

..... [3]

(iii) Complete Table 1.1.

Table 1.1

sample	colour with indicator	pH
AS1		
AS2		
AS3		

[5]

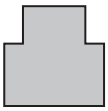
(iv) Identify the most acidic of the samples. Describe a method to make this sample less acidic.

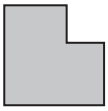
Most acidic sample .....

method ..... [2]

[Total : 11]

2 You are going to find the centre of gravity of two objects.

The shape of the first object you will make will be  .

The shape of the second object will be  .

(a) Draw the rectangle shown in Fig. 1.1 on to card and cut it out, using scissors. Label the corners A B C and D.
Repeat to cut out a second rectangle. Label the corners E F G and H.

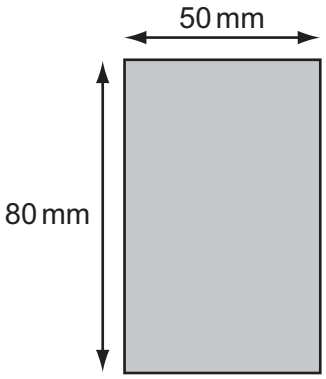


Fig. 1.1

Lay card 1 across card 2 as shown in Fig. 1.2

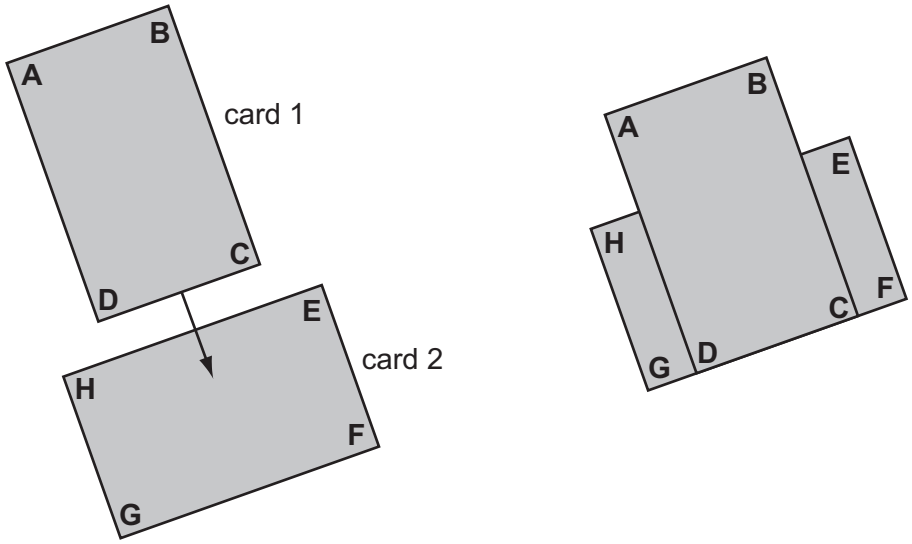


Fig. 1.2

Using tape, join the two pieces of card as shown in Fig. 1.3.

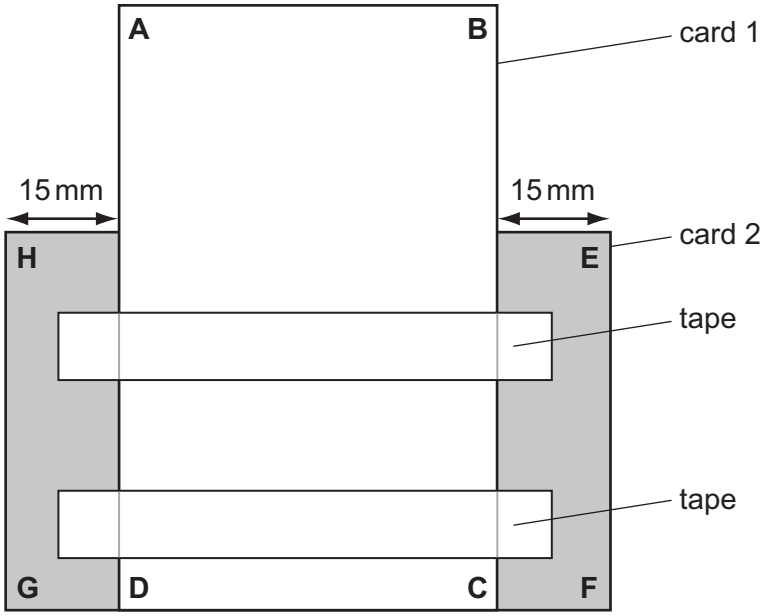
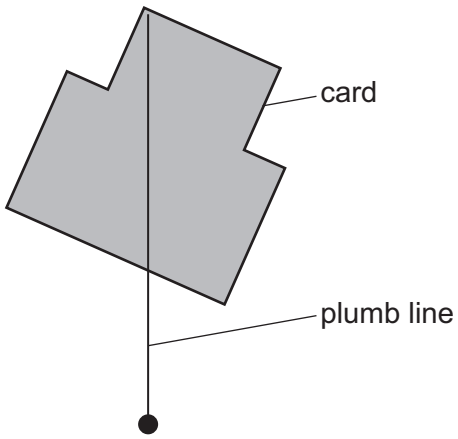


Fig. 1.3

(i) Measure the distance **AF** on your object.

Distance **AF** ..... mm [1]

Use a pin to make a hole within 5 mm of corner **A**. The hole must be just large enough to let the card move easily. Fasten the plumb line to the pin and suspend the cards from a stand by the pin.



Using a pencil, mark your card with **1** where the plumb line crosses the bottom edge of your card.

Use the pin to make a second hole within 5 mm of corner **B**. Attach the plumb line and suspend your card from the stand using the pin. Mark the position **2**, on the card, where the line crosses the bottom edge of your card.

(ii) In the space below, draw around your card. Label the drawing with letters **A** to **H**. Mark **1** and **2** to show the position of where the plumb line crossed the edge of your card. Mark on the positions of the two holes.

[3]

(iii) On your drawing, find and label the centre of gravity. [2]

(b) Carefully separate the two pieces of card and join them into the shape shown in Fig. 1.5.

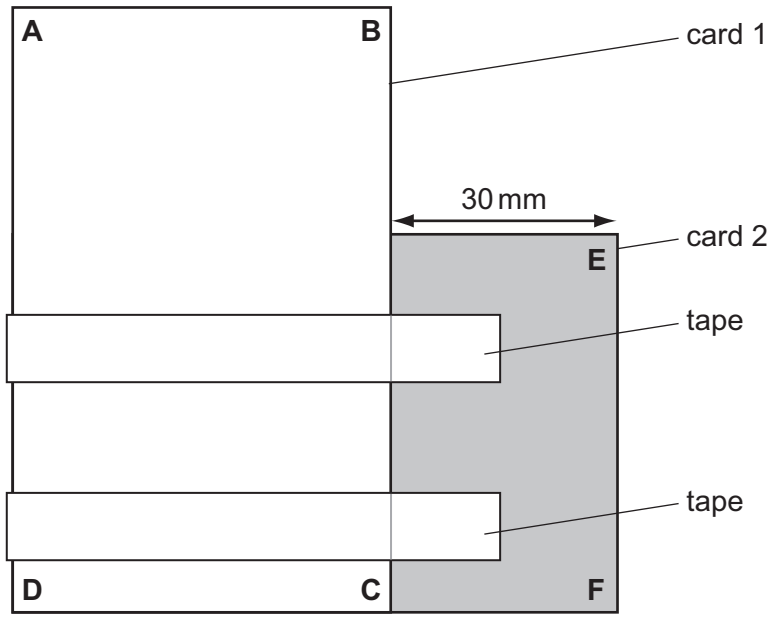


Fig. 1.5

Insert the pin into the hole at **A** and hang the card shape from the stand by the pin again. Mark the card with **3** where the plumb line crosses the bottom edge of the card.

Insert the pin into the hole at **B** and hang the card shape from the stand by the pin again. Mark the card with **4** where the plumb line crosses the bottom edge of the card.

(i) In the space below, draw around your card. Label the drawing with letters **A** to **H**. Mark **3** and **4** to show the position of where the plumb line crossed the edge of your card. Mark the positions of the two holes.

[2]

(ii) On your drawing, find and label the new centre of gravity. [2]

(c) Describe how the centre of gravity of these shapes could be lowered.

.....

.....

..... [1]

[Total : 11]

3 Table. 3.1 describes methods to test for starch, reducing sugar and protein.

Table. 3.1

	method
starch	add 3 or 4 drops of iodine solution to sample in a test tube
reducing sugar	warm sample with 1 cm depth of Benedict's solution in a test tube in a water bath for 3 minutes
protein	add 3 cm depth of sodium hydroxide and 3 cm depth of copper sulphate solution to sample in a test tube

AS4 is a livestock food supplement.

(a) Use the information in Table. 3.1 to test **AS4**.
Fill in your results in Table. 3.2

Table. 3.2

sample	**AS4 results**
colour when mixed with iodine solution	
colour when warmed with Benedict's solution	
colour when mixed with sodium hydroxide and copper sulphate solutions	

[3]

(b) What conclusions can you make about **AS4** from your results?

.....

.....

..... [3]

(c) **(i)** Suggest at which stage of an animal's life a farmer would give **AS4** as a supplement.

.....

(ii) Give a reason for your answer.

..... [2]

[Total : 8]

SUPERVISOR'S REPORT

** The Supervisor or Teacher responsible for the subject is asked to answer the following questions.*

1 Was any difficulty experienced in providing the necessary materials? Give brief details.

2 Did the candidate experience any difficulty during the course of the examination? If so, give brief details. Reference should be made to

(a) difficulties arising from faulty specimens;

(b) accidents to apparatus or materials;

(c) any information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

3 Details of sample **AS4** used .....

Declaration to be signed by the Principal, and completed on the top script from the Centre.

The preparation of the Practical Test has been carried out so as to fully maintain the security of the examination.

Signed .....

Centre Number ..... School .....

*** Information that applies to all candidates need only be given once.**