

Centre Number	Candidate Number	Name
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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	
<b>Total</b>	

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
<b>AS1</b>		
<b>AS2</b>		
<b>AS3</b>		

[5]

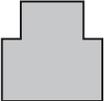
(iv) Identify the most acidic of the samples. Describe a method to make this sample less acidic.

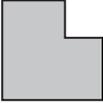
Most acidic sample .....

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.

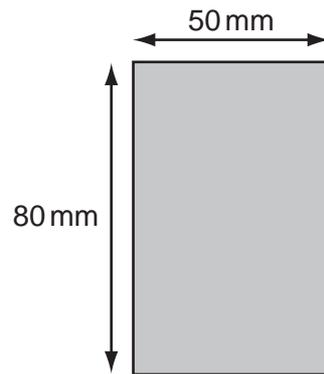


Fig. 1.1

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

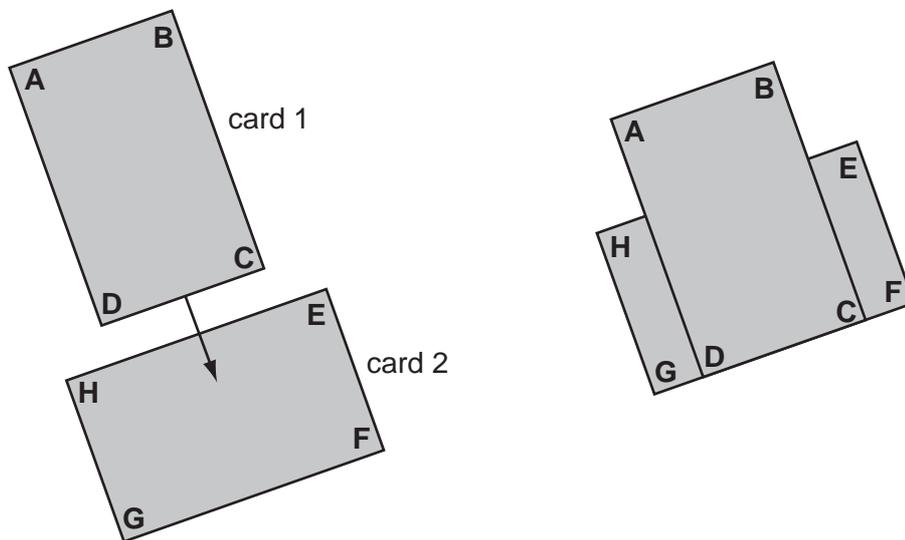


Fig. 1.2

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

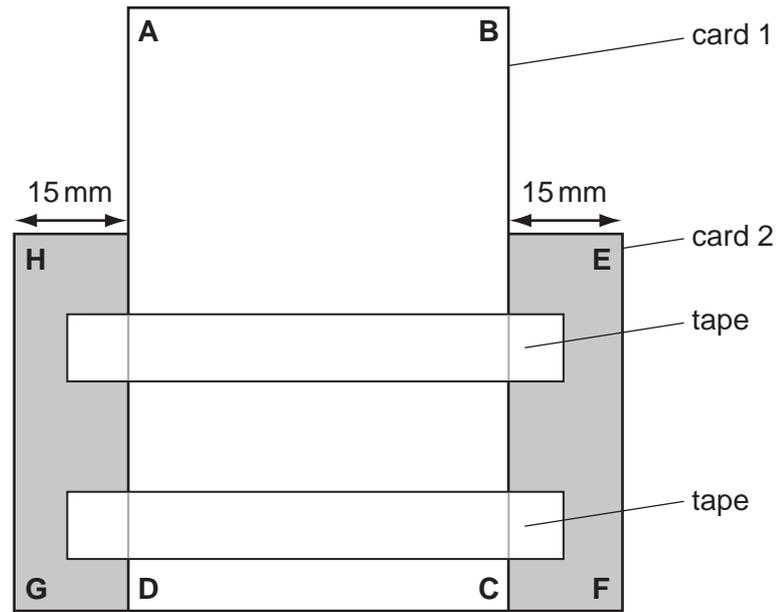
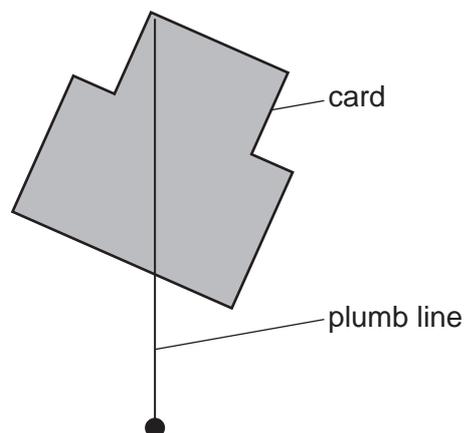


Fig. 1.3

- (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 **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.

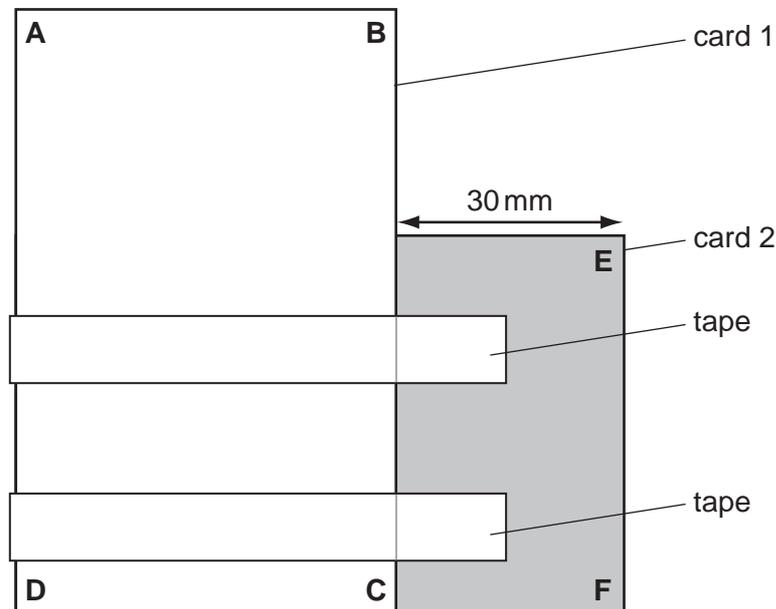


Fig. 1.5

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 **F**. Mark the positions of the two holes with **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.**

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