

Centre Number	Candidate Number	Name
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CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**AGRICULTURE**

**5038/03**

Paper 3 Practical Test

May/June 2003

**1 hour 15 minutes**

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

**READ THESE INSTRUCTIONS FIRST**

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

Answer **all** questions.  
The number of marks is given in brackets [ ] at the end of each question or part question.

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

For Examiner's Use	
<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>Total</b>	

This document consists of **5** printed pages, a Supervisor's Report and **2** blank pages.



Answer **all** the questions.

Write your answers in the spaces provided.

1 **AS1** is a sample of soil that has been heated in an oven at 100 °C for two days and then left to cool.

(a) What has been removed from the soil by this process?

.....[1]

20 g of **AS1** has been weighed for you.

- Place the soil on a metal tray, on a tripod and heat strongly over a Bunsen burner until no more smoke comes from the sample.
- Leave the sample to cool.

(b) Complete Table 1.1 with your observations while you wait for the sample to cool.

**Table 1.1**

sample	colour of <b>AS1</b>
before burning	
after burning	

[2]

(c) Describe two safety precautions you have taken during this experiment.

1. ....

2. ....[2]

Make sure that the soil is cool before you continue with this experiment.

- Weigh your cooled sample of **AS1** on the metal tray using a balance.
- Empty the cooled soil sample into the waste soil container provided.
- Weigh the empty metal tray.

(d) Complete Table 1.2 to work out the percentage of organic matter in **AS1**.

**Table 1.2**

weight of <b>AS1</b> before burning	20 g
weight of <b>AS1</b> after burning	
loss in weight	
percentage of organic matter in <b>AS1</b>	

[4]

(e) (i) How can a farmer increase the amount of organic matter in the soil?

.....[1]

(ii) What is the advantage to the farmer of increasing the amount of organic matter in the soil?

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

[Total : 12]

- 2 Table 2.1 describes methods to test a 1 cm<sup>3</sup> sample of a solution for starch, reducing sugar and protein.

**Table 2.1**

	method to test a 1 cm <sup>3</sup> sample of a solution
starch	add 3 or 4 drops of iodine solution to sample in a test-tube
reducing sugar	heat 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 and gently shake

**AS2** and **AS3** are solutions made from livestock food supplements. Each supplement may contain starch, reducing sugar and protein.

- (a) Use the information in Table 2.1 to test **AS2** and **AS3** to complete Table 2.2 with your results.

**Table 2.2**

	<b>AS2</b>	<b>AS3</b>
colour when mixed with iodine solution		
colour when heated with Benedict's solution		
colour when mixed with sodium hydroxide and copper sulphate solutions		

[6]

- (b) What conclusions can you make about **AS2** and **AS3** from your results?

**AS2** .....

.....

**AS3** .....

.....[4]

- (c) Suggest two precautions that should be taken when storing these food supplements on a farm.

1. ....

2. ....[2]

[Total : 12]

3 (a) Make a labelled drawing of **AS4** to show its external features.

[5]

(b) What is the function of **AS4**?

.....

.....[1]

[Total : 6]

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