



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER



**AGRICULTURE**

**5038/03**

Paper 3 Practical Test

**May/June 2009**  
**1 hour 15 minutes**

Candidates answer on the Question Paper.  
Additional Materials: As listed on 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.  
**DO NOT WRITE IN ANY BARCODES.**

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>	

This document consists of 7 printed pages and 1 Supervisors' Report.

1 **AS1** and **AS2** are parts of a plant grown to be eaten.

(a) (i) Make a labelled drawing of **AS1** and **AS2** to show their external features.

**AS1** external features

[2]

**AS2** external features

[2]

(ii) Carefully cut **AS1** and **AS2** in half, with a sharp knife or scalpel.

Make a labelled drawing to show the internal features of **AS1** and **AS2**.

**AS1** internal features

**AS2** internal features

[2]

[2]



(b) You will now test the food crops, **AS1** and **AS2**, for the presence of the main types.

- Chop up one half of the food **AS1** into small pieces in a petri dish.
- Crush and mix the pieces.
- Label the dish **AS1**.
- From one half of the food **AS2** cut off a piece 2 cm square.
- Chop it up into small pieces in a petri dish.
- Label the dish **AS2**.

(i) Follow the instructions below.

- Place a small amount of **AS1** into a clean, dry test-tube.
- Add 3 cm depth of Benedict's solution.
- Warm the mixture carefully for at least 5 minutes in a water bath.
- Record your result and conclusion in the table below.
- Repeat the procedure with **AS2**.

sample	result	conclusion
<b>AS1</b>		
<b>AS2</b>		

[2]

(ii) Follow the instructions below.

- Place a small amount of **AS1** onto a white tile.
- Use a pipette to add a few drops of iodine solution.
- Record your result and conclusion in the table below.
- Repeat the procedure using **AS2**.

sample	result	conclusion
<b>AS1</b>		
<b>AS2</b>		

[2]

(iii) Follow the instructions below.

- Place a small amount of **AS1** into a clean, dry test-tube.
- Add 3 cm depth of copper sulfate solution and then 3 cm depth of sodium hydroxide solution.
- Record your result and conclusion in the table below.
- Repeat the procedure using **AS2**.

sample	result	conclusion
<b>AS1</b>		
<b>AS2</b>		

[2]

(c) Why were the foods chopped and broken up before carrying out food tests?

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

(d) What **three** precautions should be taken when carrying out these tests

1 ..... [1]  
2 ..... [1]  
3 ..... [1]

[Total: 19]

2 You are provided with **two** soil samples **AS3** and **AS4**.

- Place 1 cm depth of **AS3** into a test tube, label it **AS3**.
- Add 0.5 cm of barium sulfate to the soil.
- Add 2 cm depth of deionised water or distilled water and mark the level with a marker pen.
- Add 1 cm depth of soil indicator.
- Place a cork or bung in the tube and shake the test-tube.
- Allow the contents to settle.
- Use a colour test card to identify the pH of the soil.
- Repeat the procedure using soil **AS4**.

(a) Record your results on the table below.

sample	colour after settling	pH of sample
<b>AS3</b>		
<b>AS4</b>		

[4]

(b) Which soil sample would be best for growing a lime-hating plant?  
Give a reason for your answer.

soil sample .....

reason .....

..... [1]

[Total: 5]

- 3 The table shows wet tests for ammonium ions and sulfate ions.

ion	test	test results
ammonium	add aqueous sodium hydroxide warm carefully	ammonia produced on warming which turns damp litmus paper blue
sulfate	acidify with dilute nitric acid add aqueous barium nitrate	white precipitate forms

**AS5** and **AS6** are samples of well water.

- (a) Test the well water, **AS5** and **AS6** for ammonium and sulfate ions.  
Record your results in the table below.

sample	presence of ammonium ions in sample	presence of sulfate ions in sample
<b>AS5</b>		
<b>AS6</b>		

[4]

- (b) Which sample is most suitable for human consumption?

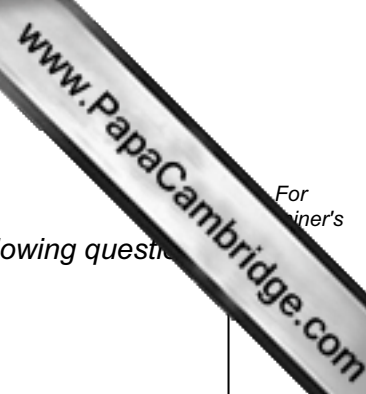
sample .....

explain your answer .....

..... [2]

[Total: 6]

**SUPERVISOR'S REPORT**



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

1 Name the type **AS1** provided.

.....

Name the type **AS2** provided.

.....

2 Please state the soil pH of

**AS3** .....

**AS4** .....

Please outline any problems encountered in providing the soils

.....  
.....  
.....

3 Please record the results for the samples **AS5** and **AS6** in the table below

sample	presence of ammonium ions in sample	presence of sulfate ions in sample
<b>AS5</b>		
<b>AS6</b>		

Please outline any problems encountered in obtaining these results.

.....  
.....

*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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