| Centre Number | Candidate Number | Name |
|---|---|---|
| | | |

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

**AGRICULTURE** **5038/03**

Paper 3 Practical Test

October/November 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 Centre Number, Candidate Number and Name on all the work you hand in.
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 | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| Total | |

This document consists of **8** printed pages,a Supervisor's Report and **3** blank pages.



UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate
**[Turn over**

Answer **all** the questions.

Write your answers in the spaces provided.

**1** **AS1** has been taken from a broad leaved plant (dicotyledon).

**AS2** has been taken from a grass plant (monocotyledon).
Cobalt chloride paper is a test for the presence of water. It changes from blue to pink when made damp by water vapour leaving stomata.

- Using forceps, dry two squares of cobalt chloride paper over a Bunsen burner flame so that the squares are pale blue. Do **not** allow the paper to burn.
- Stick one square of the cobalt chloride paper to the upper surface of **AS1** and one square to the lower surface using transparent sticky tape, as shown in Fig. 1.1.
- Leave **AS1** for 15 minutes and continue with the rest of the question.

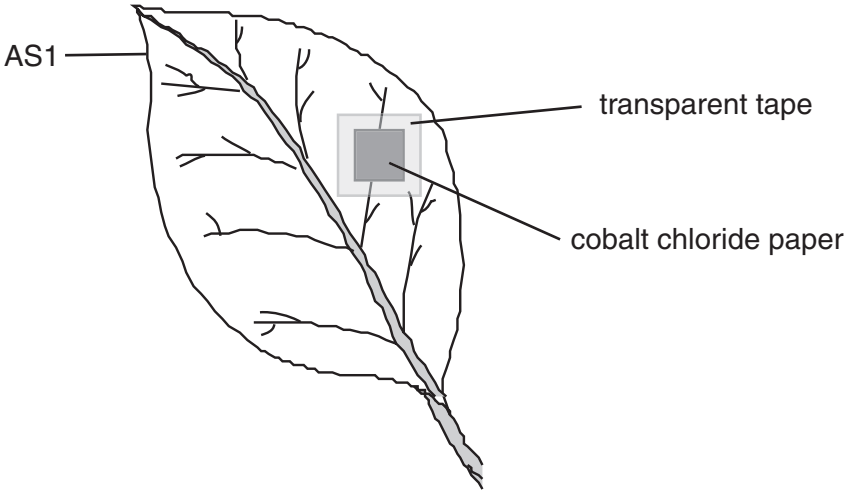


**Fig. 1.1**

**(a)** List two differences you can see between the upper and lower surfaces of **AS1**.

1. .....

2. .....[2]

- Using forceps, dry two more squares of cobalt chloride paper over a Bunsen burner flame so that the squares are pale blue.
- Stick each square of the cobalt chloride paper on to the centre of a square of transparent sticky tape.
- Place **AS2** between the two squares of cobalt chloride paper so that it is held in place by the sticky tape, as shown in Fig. 1.2. One piece of cobalt chloride paper should be stuck to each side of the leaf.
- Leave **AS2** for 15 minutes and continue with the remaining questions.

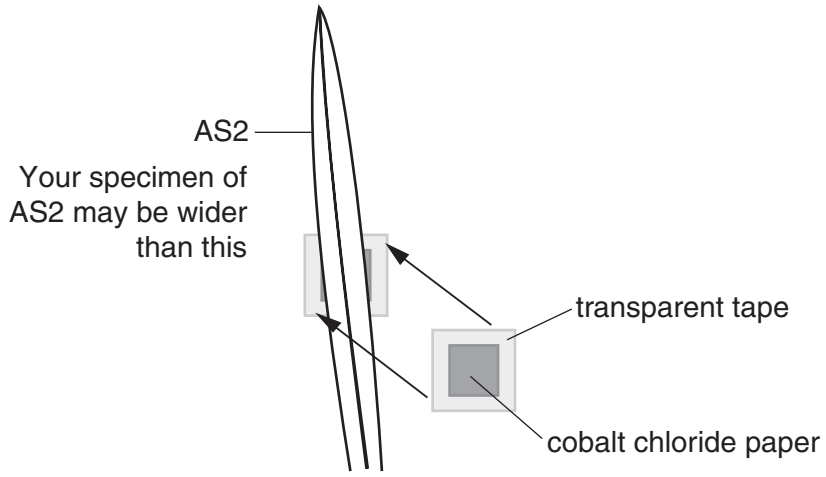


**Fig. 1.2**

**(b)** Complete Table 1.1 with your results.

**Table 1.1**

| | colour of cobalt chloride paper after 15 minutes |
|---|---|
| **AS1** upper surface | |
| **AS1** lower surface | |
| **AS2** first surface | |
| **AS2** second surface | |

[4]

**(c)** **(i)** What do your results tell you about the surfaces of **AS1**?

.....

.....[2]

**(ii)** What do your results tell you about the surfaces of **AS2**?

.....

.....[2]

**(d)** Under which weather conditions would the rate of water loss from leaves be greatest?

.....

.....[2]

[Total : 12]

**2** **AS3** and **AS4** are samples of water taken from two different rivers next to two fields. One of the fields has been fertilised recently with ammonium sulphate fertiliser.

Use the tests in Table 2.1 to discover which of the samples, **AS3** or **AS4**, contains ammonium sulphate.

**Table 2.1**

| ion | test | test result |
|---|---|---|
| carbonate | add dilute hydrochloric acid | fizzing,<br>carbon dioxide produced |
| nitrate | add sodium hydroxide solution then aluminium foil; warm very carefully (do not allow to boil) | ammonia produced |
| sulphate | add dilute hydrochloric acid then add barium chloride solution | white precipitate |
| calcium | add sodium hydroxide solution | white precipitate |
| ammonium | add sodium hydroxide solution; gently warm (do not allow to boil) | ammonia produced |

**(a)** **(i)** Describe how you performed the tests on the samples.

.....

.....

.....

.....

.....[3]

**(ii)** How did you make sure that the experiments were fair tests?

.....

.....

.....[2]



**[Turn over**

**(b)** Complete Table 2.2 with your results.

**Table 2.2**

| sample | presence of ammonium ions in sample | presence of sulphate ions in sample |
|---|---|---|
| **AS3** | | |
| **AS4** | | |

[4]

**(c ) (i)** Suggest how the ammonium sulphate entered the river.

.....

.....

.....[2]

**(ii)** Suggest **one** method of reducing the amount of ammonium sulphate in this river.

.....[1]

[Total : 12]

**3** You are provided with the receipts for the costs and returns for UCLES school farm for September 2003.

| | | |
|---|---|---|
| **UCLES School Farm Sales**<br>4 September 2003<br>300 eggs<br>**$18.00** | **UCLES School Farm Sales**<br>11 September 2003<br>200 eggs<br>**$14.00** | **UCLES School Farm Sales**<br>28 September 2003<br>500 eggs<br>**$38.00** |
| **UCLES School Farm Sales**<br>30 September 2003<br>0.1 tonne farmyard manure<br>**$11.00** | **Poultry Feed Co.**<br>1 September 2003<br>Animal feed<br>**$8.00** | **Poultry Feed Co.**<br>15 September 2003<br>Animal feed<br>**$10.00** |
| **Boxmakers Ltd.**<br>2 September 2003<br>250 Egg trays<br>**$17.00** | **UCLES School Farm**<br>14 September 2003<br>Labour costs<br>**$21.00** | **UCLES School Farm**<br>28 September 2003<br>Labour costs<br>**$21.00** |



[Turn over

**(a)** Use these data to present the financial record for UCLES farm for the month of September 2003 in the space below.

[4]

**(b)** Suggest reasons for the differences in the price of eggs during September 2003.

.....

.....

.....[2]

[Total : 6]

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## 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)** the identity of the specimens AS1 and AS2 supplied to the candidates;

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

*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.**