

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

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.



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.

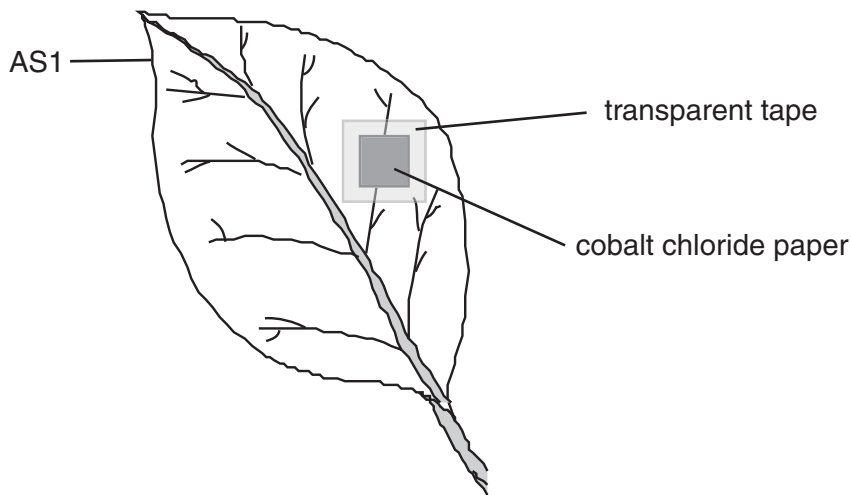


Fig. 1.1

(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.

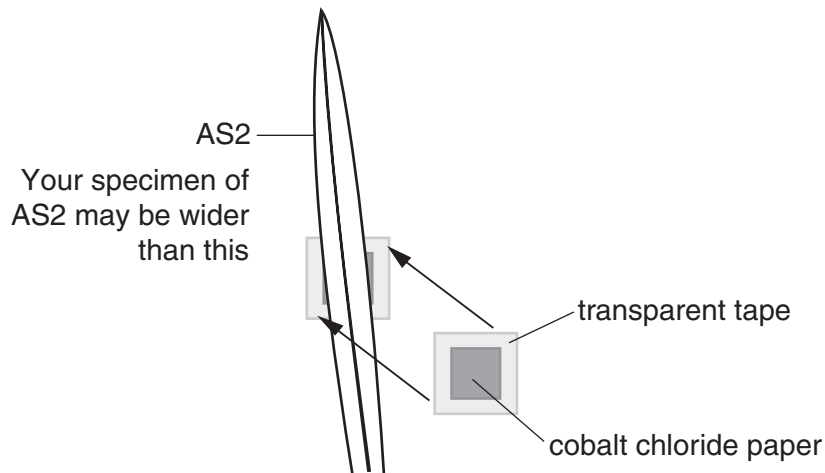


Fig. 1.2

(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, 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]

(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.

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

(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]

