



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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AGRICULTURE

5038/11

Paper 1

October/November 2011

2 hours

Candidates answer Section A on the Question Paper.

Additional Materials: Answer Booklet/Paper

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.

Section A

Answer **all** questions.
Write your answers in the spaces provided on the Question Paper.
You are advised to spend no longer than 1 hour on Section A.

Section B

Answer any **three** questions.
Write your answers on the Answer Booklet/Paper provided.
Enter the numbers of the Section B questions you have answered in the grid below.

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	
Section A	
Section B	/
Total	

This document consists of **14** printed pages and **2** blank pages.



Section A

Answer **all** the questions.

- 1 (a) Fig. 1.1 shows the reproductive system of a male mammal.

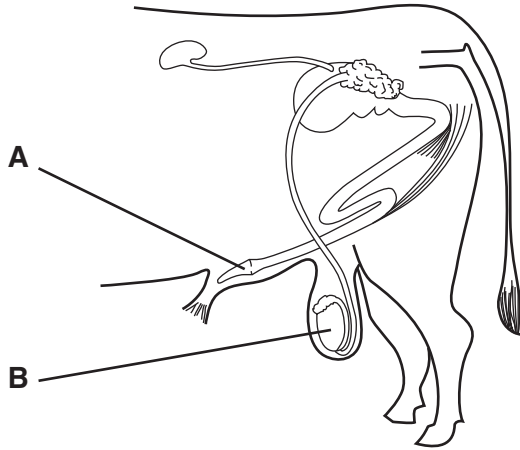


Fig. 1.1

- (i) Name the parts labelled **A** and **B**.

A

B

[2]

- (ii) State **one** function of **B**.

.....
 [1]

- (b) (i) Explain what is meant by *artificial insemination* (AI).

.....

 [2]

- (ii) State **one** advantage, for the farmer, of using AI.

.....
 [1]

[Total: 6]

2 Fig. 2.1 shows three actions taken to prepare soil for sowing seeds.

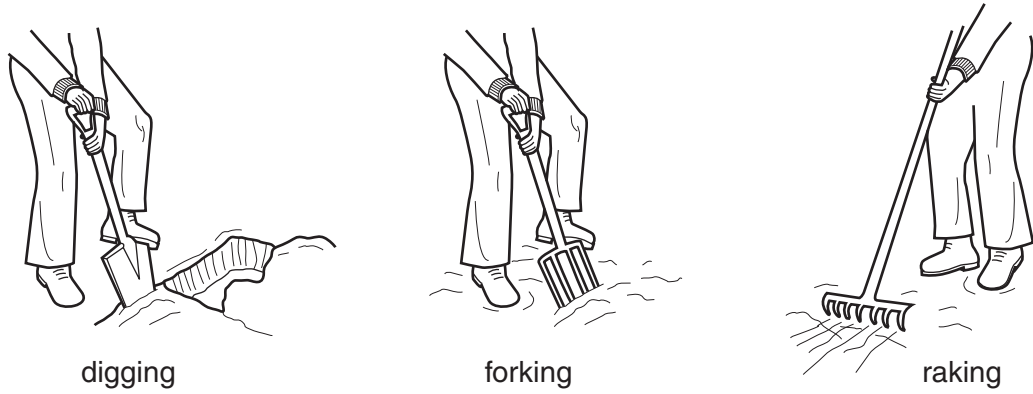


Fig. 2.1

(a) Explain the purpose of each action in preparing a seed bed.

digging

.....

forking

.....

raking

..... [4]

(b) Fig. 2.2 shows drains that have been dug on sloping land. The drains follow the contours of the land.

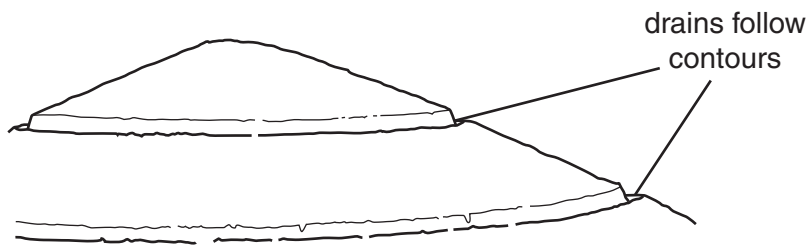


Fig. 2.2

Explain why it is important for the drains to be constructed following the contours rather than down the slope.

.....

.....

..... [2]

(c) Fig. 2.3 shows a plant that has been grown in waterlogged soil.

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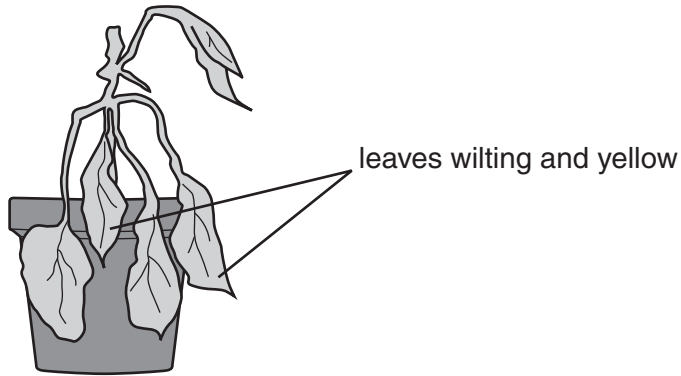


Fig. 2.3

The plant wilts, its leaves turn yellow and it slowly dies.
Explain why the plant does not grow properly, although it has plenty of water.

.....

.....

.....

.....[3]

[Total: 9]

- 3 Fig. 3.1 shows part of a label from a container of insecticide.

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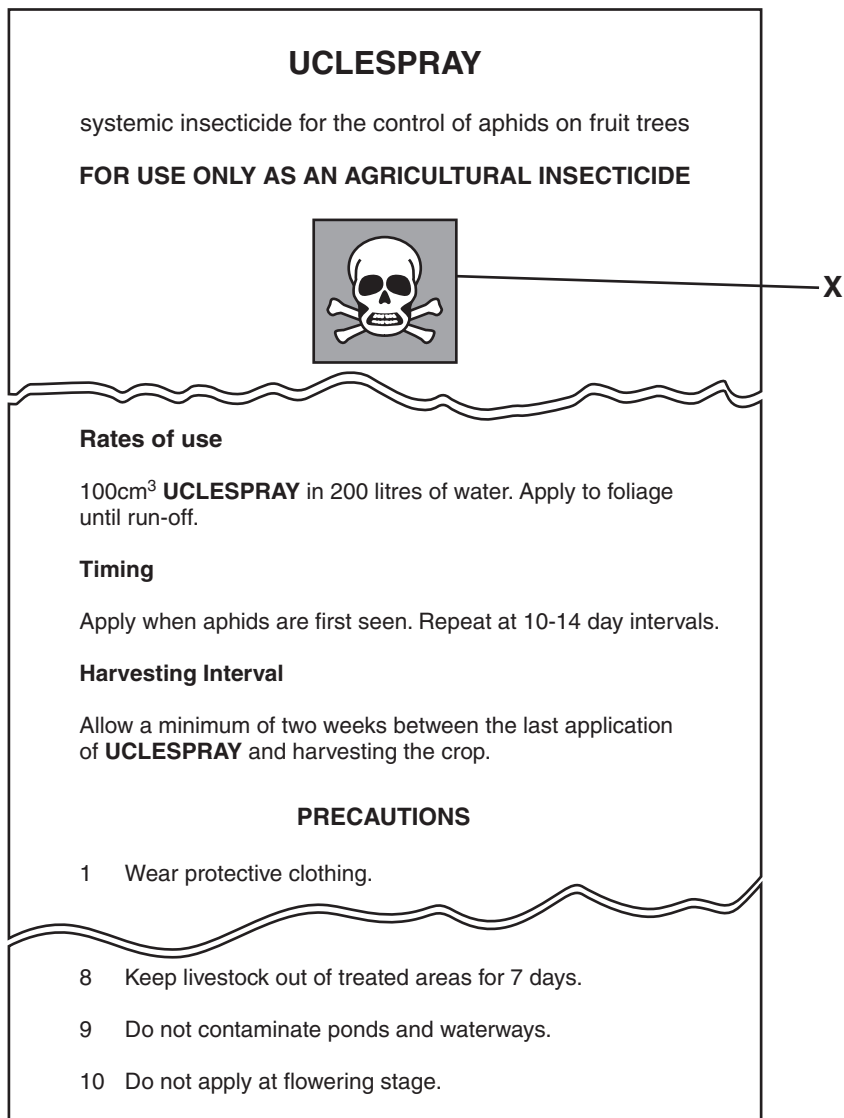


Fig. 3.1

- (a) What is meant by the symbol labelled X?

.....[1]

- (b) How much of this insecticide should be mixed into 10 litres of water?
Show your working.

.....[2]

(c) The harvesting interval is two weeks between the last application of the insecticide and harvesting the crop.
State why this is needed.

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

(d) Explain why the insecticide should **not** be applied when the crop is flowering.

.....
.....
.....
.....[3]

(e) Spraying should be carried out when the weather is **not** windy.
State two reasons for this.

1

.....

2

.....[2]

[Total: 10]

- 4 Research has been carried out into the effect of different types of feed on egg production in hens.
In one experiment, wheat was ground into three particle sizes before being fed to the hens. Egg production was recorded for each of the particle sizes.
Table 4.1 shows the results.

Table 4.1

feed particle size / mm	2	5	8
average feed intake/g per day	87.8	92.1	99.1
average daily egg production	0.92	0.93	0.84
feed cost/£ per tonne	317	302	299
feed cost/£ per 100 eggs	3.03	2.99	3.53

- (a) (i) For which particle size was feed intake highest?
..... mm [1]
- (ii) For which particle size was daily egg production lowest?
..... mm [1]
- (iii) The cost of feed per tonne was lowest for the 8mm particle size.
Using the information in the table, explain why this feed might not be the best choice for a commercial egg producer to feed his hens.
.....
.....
..... [2]

(b) In a further experiment, feed was offered in three different forms, mash, crumbs and pellets. These different feeds had no effect on egg production but did affect the cost of feed per 100 eggs. The results are shown on the graph in Fig. 4.1.

For
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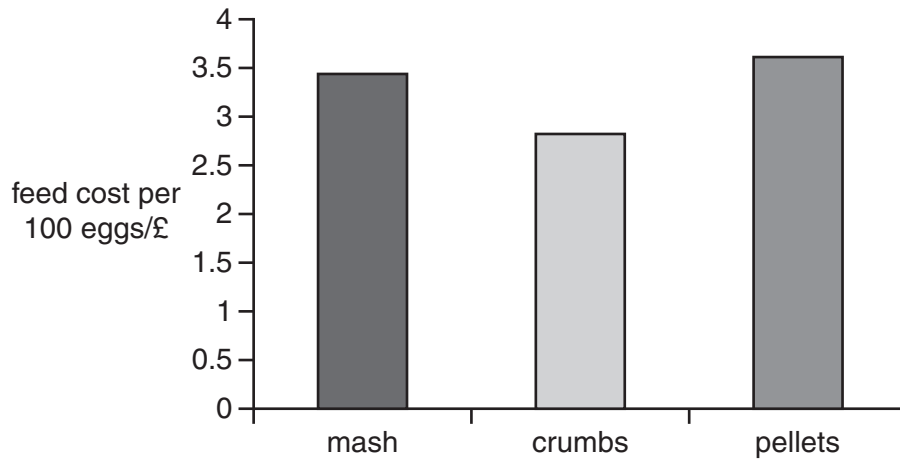


Fig. 4.1

State and explain which form of feed would be the best choice.

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

(c) Give three reasons why agricultural research is important to a country.

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

[Total: 9]

5 Fig. 5.1 shows a wind-pollinated flower.



Fig. 5.1

(a) (i) State the functions of the stigma and the anther.

stigma

anther[2]

(ii) Use the diagram to help explain how the stigma and the anther are adapted for wind pollination.

stigma

.....

anther

.....[4]

(b) Maize is a wind-pollinated crop. Fig. 5.2 shows a trial carried out by students in their school garden. Two plots were planted with maize. The quality of the cobs produced in each plot was compared.

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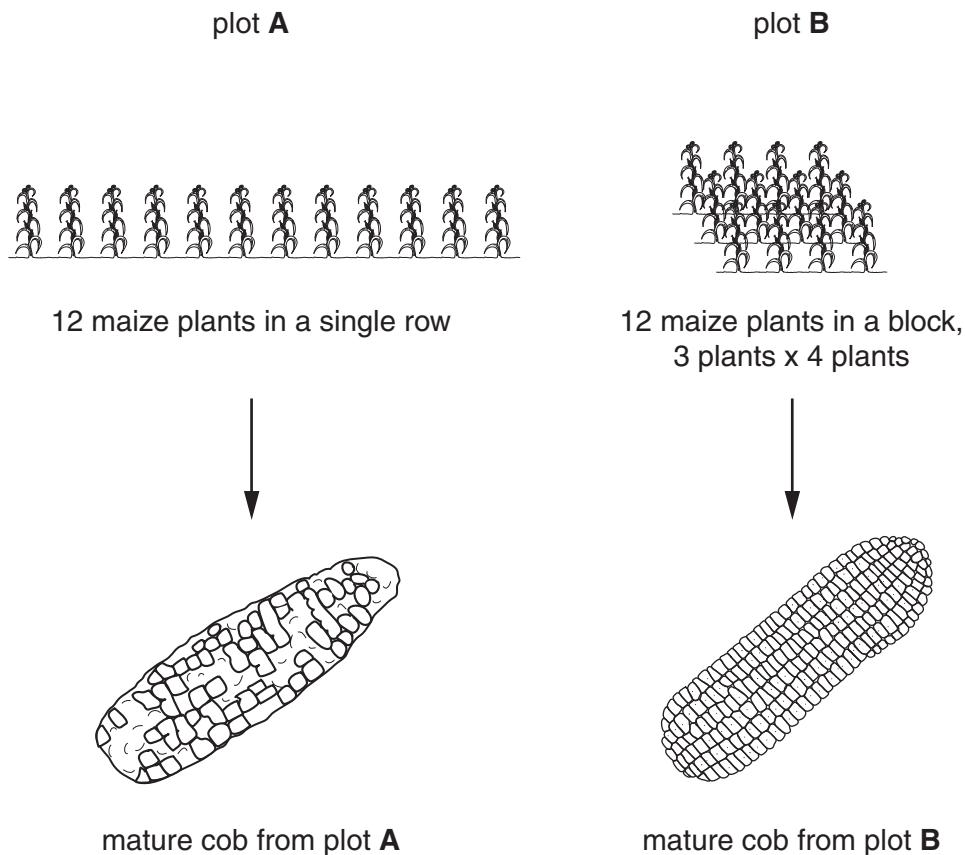


Fig. 5.2

The maize cobs in plot **A** had far fewer grains that developed than those in plot **B**. Suggest why this happened.

.....

.....

.....

.....[3]

[Total: 9]

- 6 Plants lose water from their leaves by transpiration.

Table 6.1 shows different conditions that affect the rate of transpiration.

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Table 6.1

	humidity	temperature	wind strength
1	high	high	high
2	low	high	high
3	low	low	low
4	high	low	low

- (a) State which set of conditions, 1, 2, 3 or 4, will result in

(i) the fastest rate of transpiration,

(ii) the slowest rate of transpiration.

[2]

- (b) Explain the reasons for your answers in (a).

.....

.....

.....

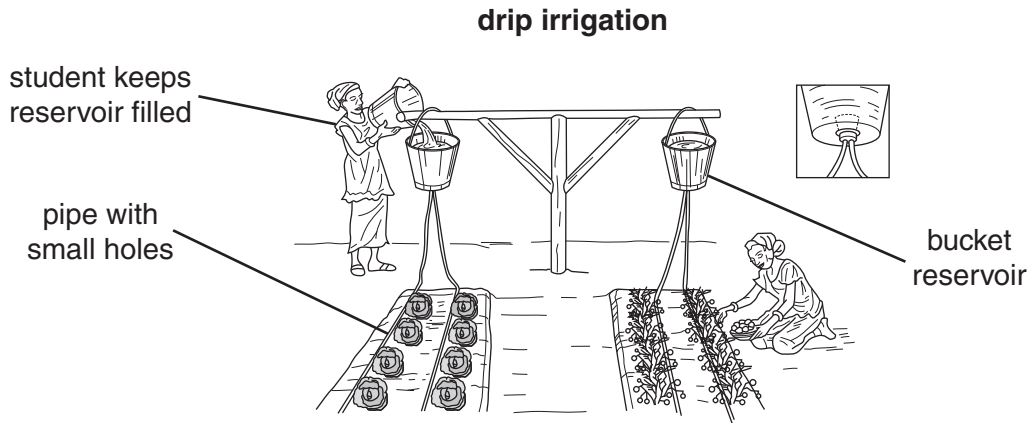
.....

.....

..... [4]

[Total: 6]

7 Fig. 7.1 shows two methods of irrigation used for a small vegetable plot in a school garden.



Water runs from buckets to the pipes and seeps into the soil through the holes.

sprinkler irrigation

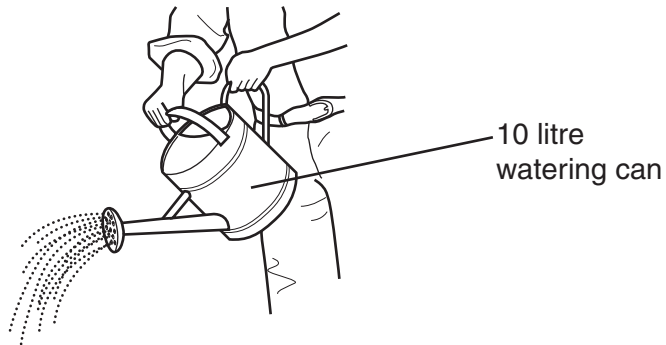


Fig. 7.1

(a) (i) Suggest why drip irrigation could use water more efficiently than sprinkler irrigation using a watering can.

.....

.....

.....

.....[4]

(ii) Suggest **one** reason why someone with a small vegetable plot might continue to use sprinkler irrigation with a watering can, rather than drip irrigation.

.....

.....[1]

(b) The students used a liquid fertiliser, like that in Fig. 7.2, on the vegetable plot.

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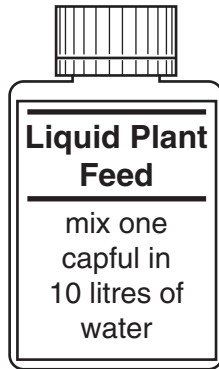


Fig. 7.2

Suggest **one** reason why it might be easier to apply the correct dilution of liquid fertiliser using the watering can, rather than drip irrigation.

.....

.....

.....[1]

[Total: 6]

Section B

Answer any **three** questions.
Write your answers on the separate paper provided.

- 8** Explain the importance of microorganisms in
- (a) the soil, [9]
 - (b) ruminant digestion. [6]
- [Total: 15]**
- 9** (a) Describe the advantages and disadvantages of extensive grazing systems. [5]
- (b) Describe one intensive grazing system and explain its advantages. [5]
 - (c) Describe the ways in which grassland can be improved. [5]
- [Total: 15]**
- 10** (a) Housing for livestock can be constructed from a variety of materials. Compare the advantages and disadvantages of using
- (i) concrete blocks or wood for the walls,
 - (ii) galvanised iron or thatch for the roof,
 - (iii) concrete or earth for the floor. [9]
- (b) Apart from the materials to be used, state and explain the other factors that should be considered when constructing a livestock house. [6]
- [Total: 15]**
- 11** (a) (i) For a named example, describe the production of plants from stem cuttings. [3]
- (ii) Explain the advantages and disadvantages of this type of reproduction. [4]
- (b) Weeds are a problem in crops. Describe, using examples, the ways in which weeds are dispersed and spread into crops. [8]
- [Total: 15]**
- 12** (a) Using named examples, describe and explain the ways in which the agricultural uses of land may be limited by
- (i) topographical factors, [3]
 - (ii) climate. [5]
- (b) Describe other factors that a farmer may consider when deciding on a farming enterprise. [7]
- [Total: 15]**

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