



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**

**5038/01**

Paper 1

**May/June 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 separate 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	
<b>Section A</b>	
<b>Section B</b>	/
<b>Total</b>	

This document consists of **16** printed pages.



## Section A

Answer **all** the questions.

For  
Examiner's  
Use

- 1 Fig. 1.1 shows three bags of fertiliser.

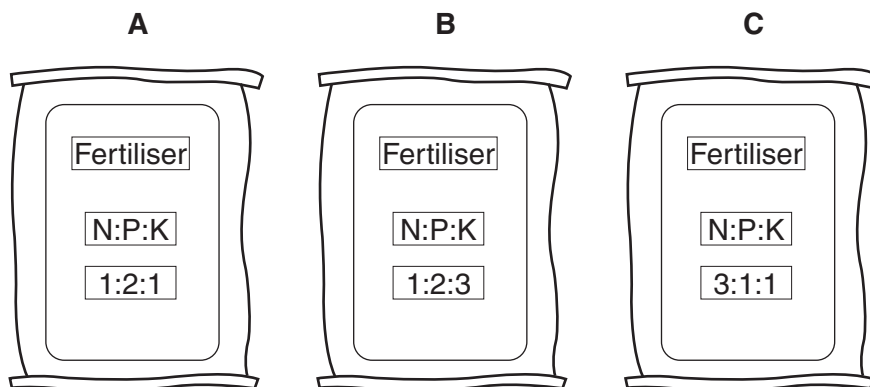


Fig. 1.1

- (a) What do the letters, N, P and K, stand for on the fertiliser bags?

N .....

P .....

K .....

[2]

- (b) Tomato plants are grown for their fruits.  
Which fertiliser, **A**, **B** or **C**, would be used to increase fruit production?  
Give an explanation for your answer.

fertiliser .....

explanation .....

.....

.....[2]

(c) The fertilisers shown in Fig. 1.1 are all compound fertilisers.

For  
Examiner's  
Use

(i) Give the name of a chemical that is used as a straight fertiliser.

..... [1]

(ii) Organic material such as farmyard (kraal) manure or compost can be used as a fertiliser. Suggest **one** advantage and **one** disadvantage of using organic material as a fertiliser.

advantage .....

.....

disadvantage .....

..... [2]

**[Total: 7]**

2 Fig. 2.1 shows housing used for small livestock, such as goats.

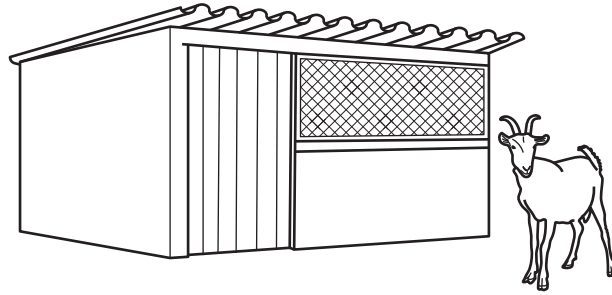


Fig. 2.1

(a) The roof is made of galvanised iron.

(i) Suggest **one** advantage and **one** disadvantage of using this material for the roof.

advantage .....

.....

disadvantage .....

.....[2]

(ii) Name an alternative material that could be used for the roof of the animal house. Give **one** advantage and **one** disadvantage of using this material.

roof material .....

advantage .....

.....

disadvantage .....

.....[2]

(b) The window is made of wire mesh. This allows for ventilation. State **one** reason why ventilation is important in an animal house.

.....

.....[1]

(c) List **three** ways in which a farmer could prevent and control disease in livestock kept in the house.

*For  
Examiner's  
Use*

1 .....

.....

2 .....

.....

3 .....

.....[3]

**[Total: 8]**

- 3 Fig. 3.1 shows two tractors, **A** and **B**, being used on sloping ground. The diagram shows them from the front.

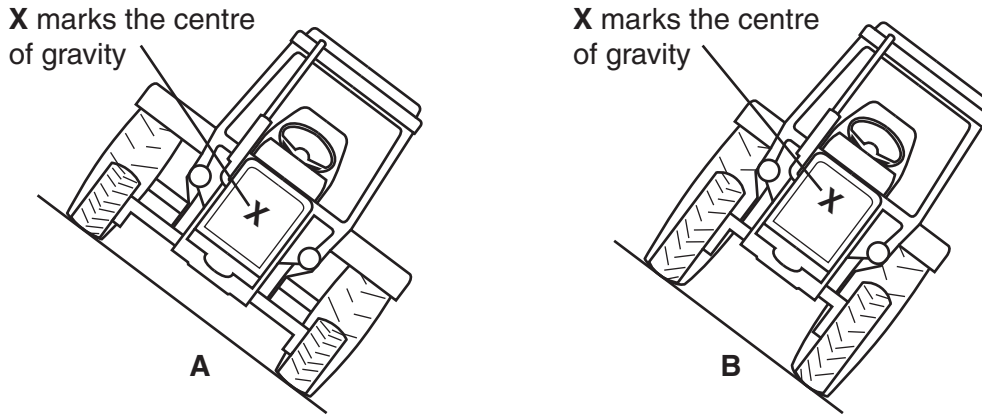


Fig. 3.1

- (a) Using the diagrams in Fig. 3.1, explain why tractor **B** is **more likely** to overturn than tractor **A**.

.....

.....

.....

..... [3]

- (b) Sloping land can be ploughed using animals. Some farmers use animals, rather than tractors, to pull farm implements on **flat** land. Suggest **two** reasons, other than cost, for this.

1 .....

.....

2 .....

..... [2]

(c) Sloping land, used to cultivate crops, is often easily eroded. Soil is washed down the slope when heavy rain falls.

Describe and explain **two** ways in which this erosion can be reduced.

*For  
Examiner's  
Use*

1 .....

.....

.....

2 .....

.....

..... [4]

**[Total: 9]**

4 An experiment was carried out to find the effect of an insecticide on an insect pest that attacks cereal crops.

- The crop was divided into two equal-sized plots.
- One plot was sprayed with insecticide but the other was left untreated.
- Each plot had the same pest population when the insecticide was applied.
- Pest numbers were counted each week after spraying.

The results are shown in Fig. 4.1.

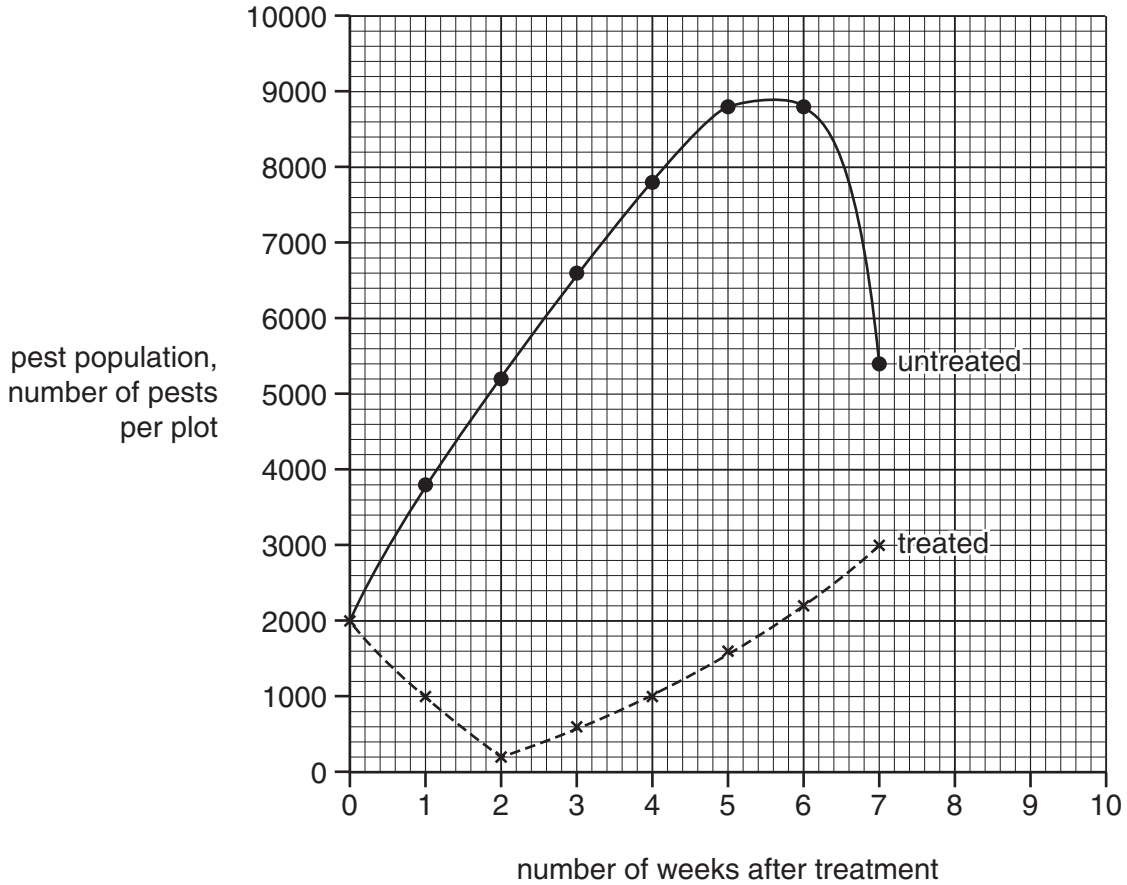


Fig. 4.1

(a) (i) What was the pest population on each plot at the start of the experiment?

.....

[1]

(ii) What was the pest population on each plot three weeks after the start of the experiment?

untreated plot .....

treated plot .....

[2]



(b) (i) Suggest why the pest population fell after week 6 on the untreated plot.

.....  
..... [1]

(ii) Using information from Fig. 4.1, describe what happened to the pest population on the treated plot and suggest an explanation for this.

description .....

.....

.....

explanation .....

..... [4]

(iii) Suggest **one** way in which the insecticide treatment could be made more effective.

.....

..... [1]

(c) Fig. 4.2 shows a sprayer used to apply an insecticide.

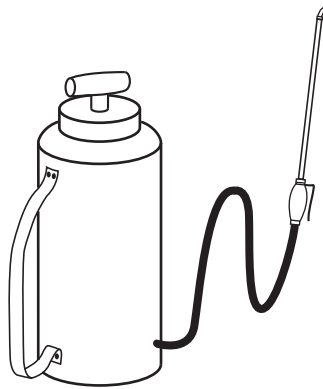


Fig. 4.2

State **two** precautions that should be taken by people, using the sprayer, to protect themselves when applying an insecticide in this way.

1 .....

.....

2 .....

..... [2]

[Total: 11]

- 5 A seed company produces an  $F_1$  hybrid strain of maize by cross-pollinating two pure strains. Fig. 5.1 shows this.

For  
Examiner's  
Use

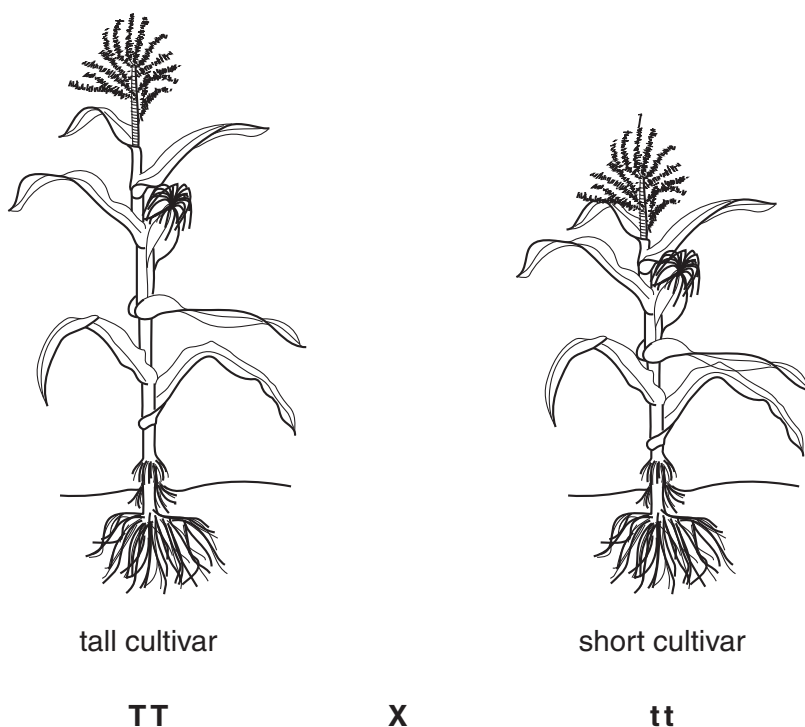


Fig. 5.1

- (a) Give the genotype of the  $F_1$  hybrid seed.

.....

[1]

- (b) A farmer sows the  $F_1$  hybrid seed. He then saves seed from these plants. This is  $F_2$  seed. When he sows the  $F_2$  seed, the plants that grow are not all the same height. Using a genetic diagram, explain a possible reason for this.

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

(c) (i) Suggest **one** advantage of using  $F_1$  hybrid seed.

.....  
..... [1]

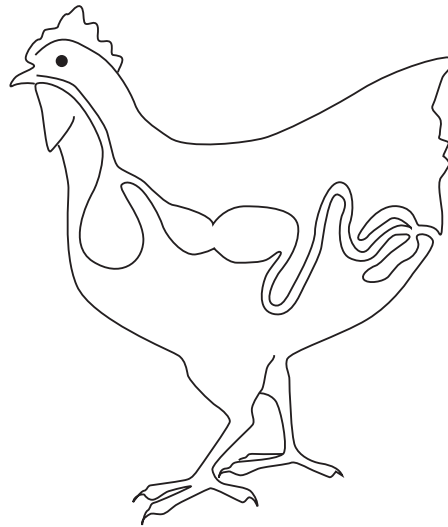
(ii) Suggest **one** advantage of using the  $F_2$  seed.

.....  
..... [1]

**[Total: 6]**

*For  
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6 Fig. 6.1 is a diagram of the digestive system of a chicken.



**Fig. 6.1**

**(a) (i)** On Fig. 6.1 label

- the crop,
- the gizzard.

[1]

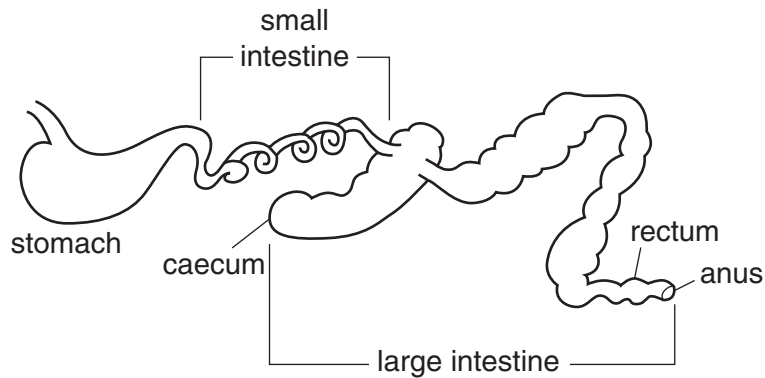
**(ii)** Describe how the gizzard is adapted to carry out its function.

.....

.....

..... [2]

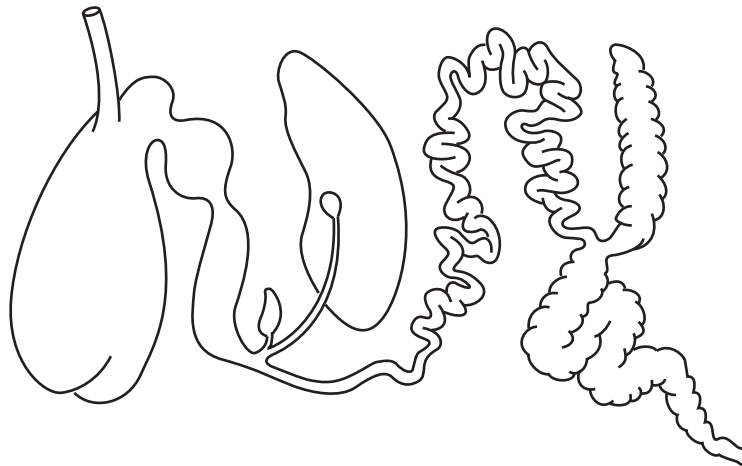
(b) Fig. 6.2 shows the digestive system of a horse.



**Fig. 6.2**

Horses are herbivores with a similar diet to ruminants, such as cattle. The caecum contains bacteria that digest cellulose.

Fig. 6.3 shows the digestive system of a ruminant.



**Fig. 6.3**

(i) On Fig. 6.3 label with **X** the structure that performs the same role as the caecum. [1]

(ii) State the name of this structure.

..... [1]

(iii) Explain why it is important that bacteria are present to digest cellulose.

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

**[Total: 8]**

**[Turn over**

7 Fig. 7.1 shows a tool used in preparing a seed bed.

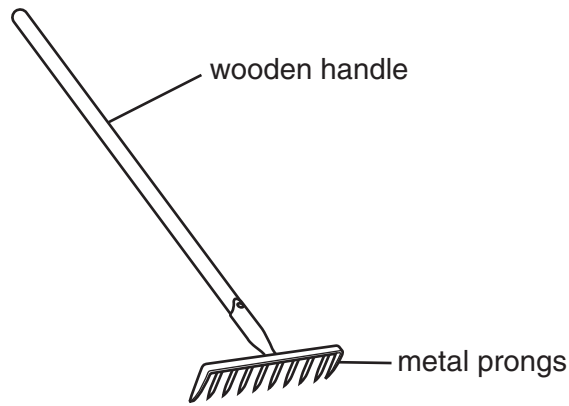


Fig. 7.1

(a) The metal part of the tool is cleaned, dried and oiled after use, before being stored in a dry place.  
Explain why these actions are necessary.

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

(b) Describe and explain the function of this tool in preparing a seed bed.

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

[Total: 6]

**Section B**

Answer any **three** questions.

Write your answers on the separate paper provided.

- 8 (a)** For a crop of local importance in your area
- (i) state the name of the crop,
  - (ii) describe the preparation of the soil for sowing or planting. [4]
- (b)**
- (i) Explain why weed control in crops is important. [6]
  - (ii) Outline methods by which weeds may be controlled in a crop. [5]
- [Total: 15]**
- 
- 9 (a)** Explain what is meant by the terms
- (i) crop rotation,
  - (ii) mixed farming,
  - (iii) monoculture. [6]
- (b)** Describe the advantages of
- (i) crop rotation,
  - (ii) mixed farming. [9]
- [Total: 15]**
- 
- 10 (a)** In managing pasture for grazing animals, explain how and why
- (i) a good cover of palatable grasses is maintained,
  - (ii) soil erosion is avoided,
  - (iii) the spread of weeds is controlled. [9]
- (b)** Explain how pasture usage can be improved by the use of fencing. [6]
- [Total: 15]**

- 11 (a)** Describe the ways in which
- (i) water,
  - (ii) mineral salts,
- are taken up from the soil by plant roots. [9]
- (b)** Outline ways in which a farmer can encourage crop plants to develop good root systems. [6]
- [Total: 15]**

- 12 (a)** For a type of farm livestock
- (i) state the name of the livestock,
  - (ii) state the main product for which the livestock is kept,
  - (iii) describe storage and processing of the product for marketing. [5]
- (b)** A diary of events can be kept for the breeding programme of livestock. Describe and explain the records that should be kept, for the livestock named in **(a)**, from the time of mating until the next mating. [10]
- [Total: 15]**

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