



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.

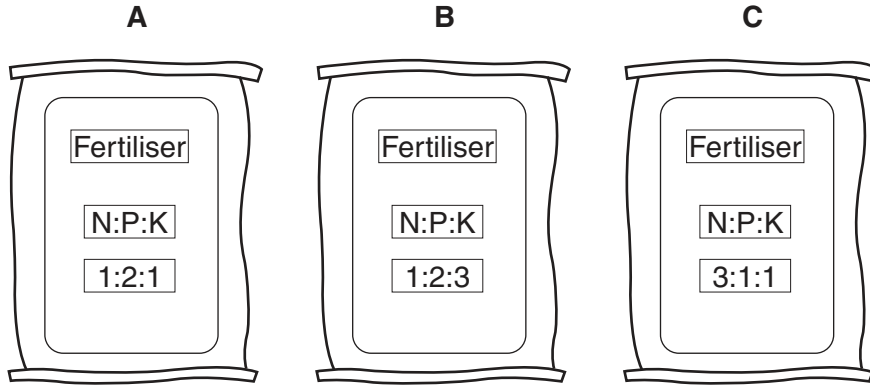


Fig. 1.1

(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.

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(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.

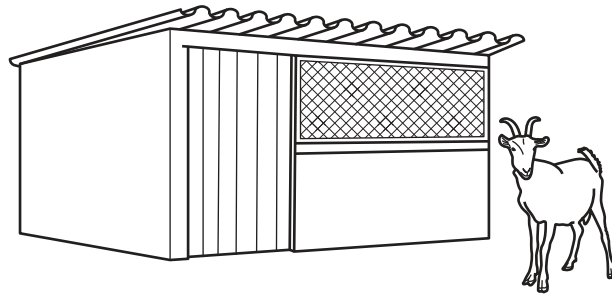


Fig. 2.1

(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.

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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.

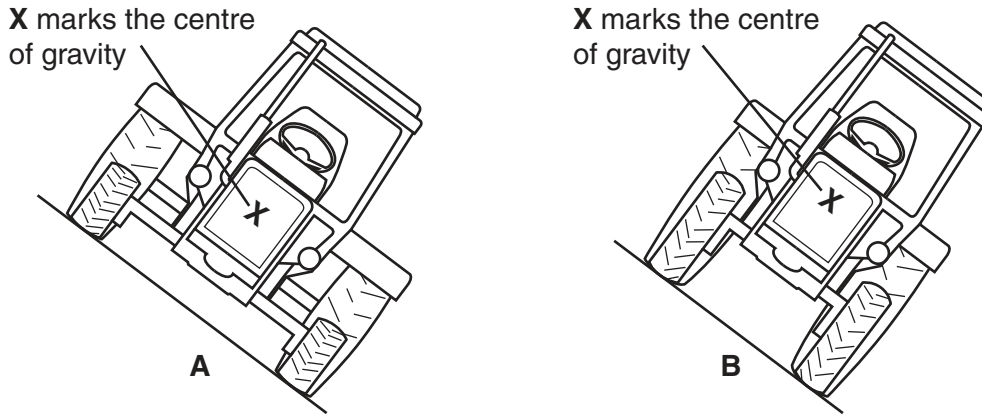


Fig. 3.1

(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 .....

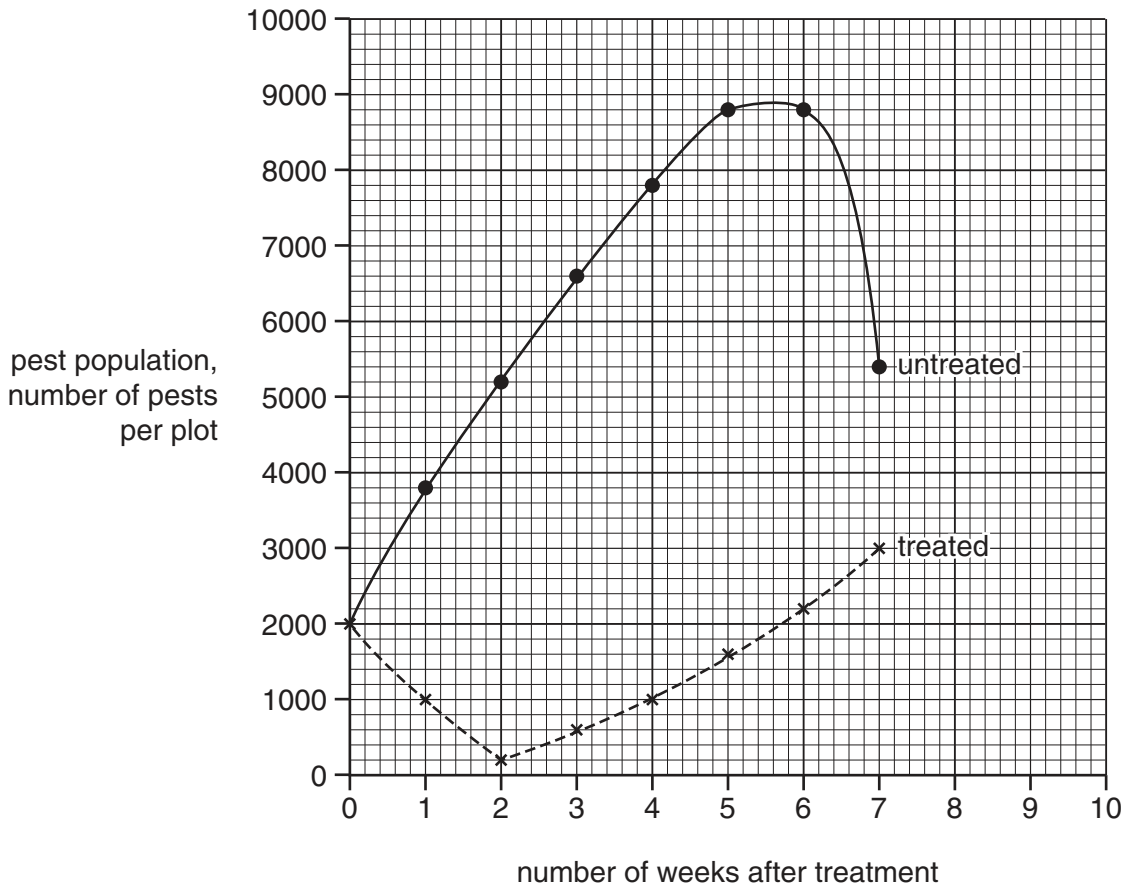
.....

..... [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.

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Use

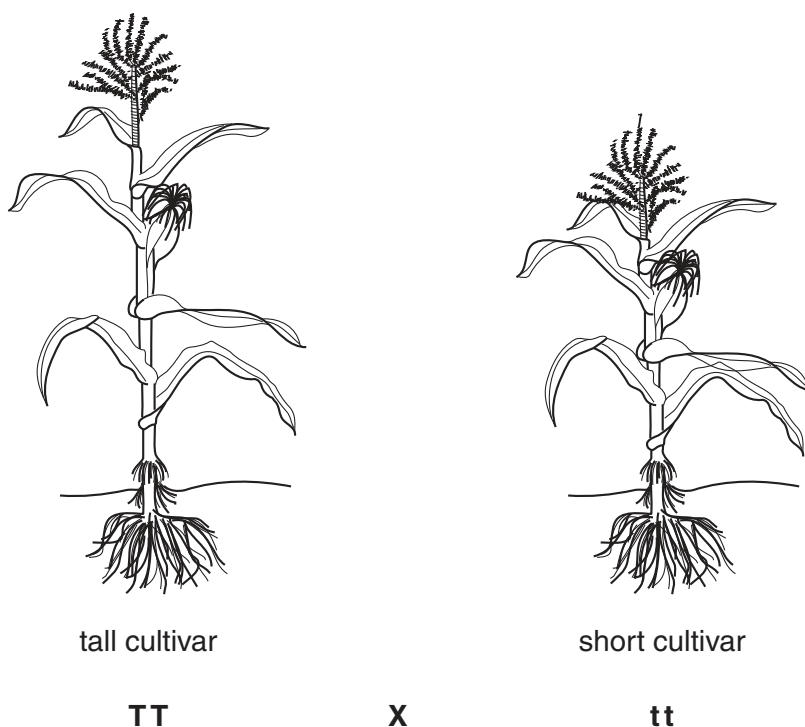


Fig. 5.1

- (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]**

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

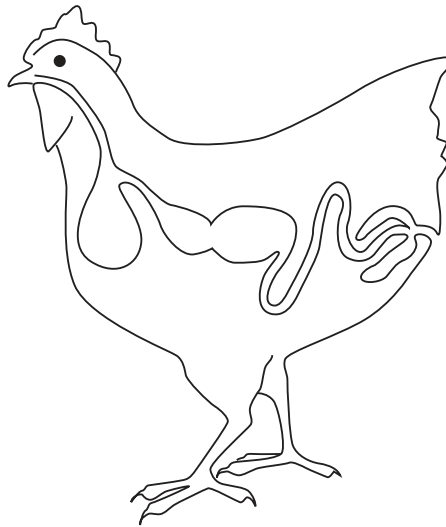


Fig. 6.1

(a) (i) On Fig. 6.1 label

- the crop,
- the gizzard.

[1]

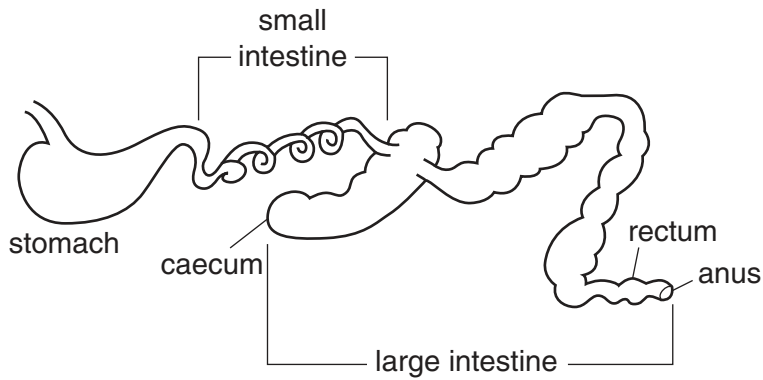
(ii) Describe how the gizzard is adapted to carry out its function.

.....

.....

..... [2]

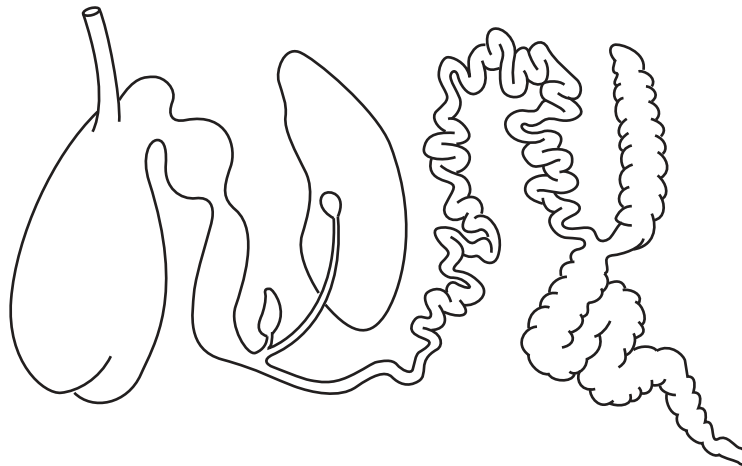
(b) Fig. 6.2 shows the digestive system of a horse.



**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.

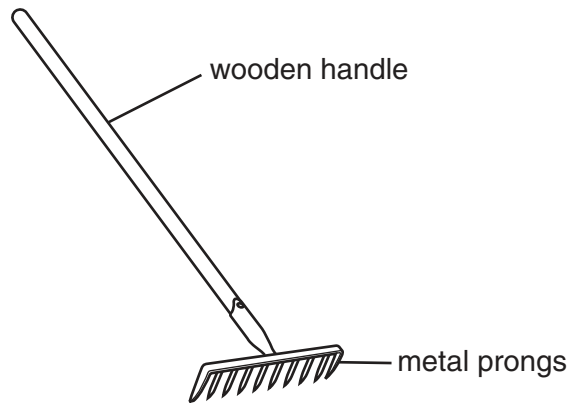


Fig. 7.1

(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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