



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 2008**

**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 **12** printed pages.



Section A

Answer **all** the questions

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1 (a) Fig. 1.1 shows part of the nitrogen cycle.

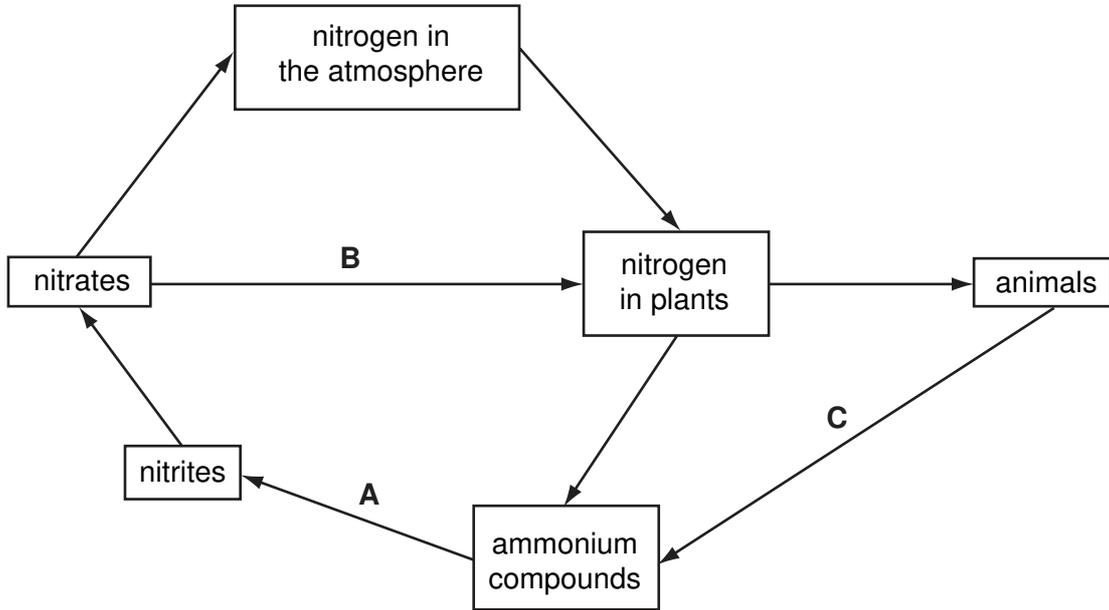


Fig. 1.1

(i) What are the processes in the cycle at **A**, **B** and **C**?

- A .....
- B .....
- C ..... [3]

(ii) Describe the part played by leguminous plants (such as beans and peas) in the nitrogen cycle.

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

(b) Nitrates dissolve easily in water.  
Explain why sandy soils often lack nitrates.

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

**[Total: 8]**

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2 (a) Fig. 2.1 shows a maize plant.

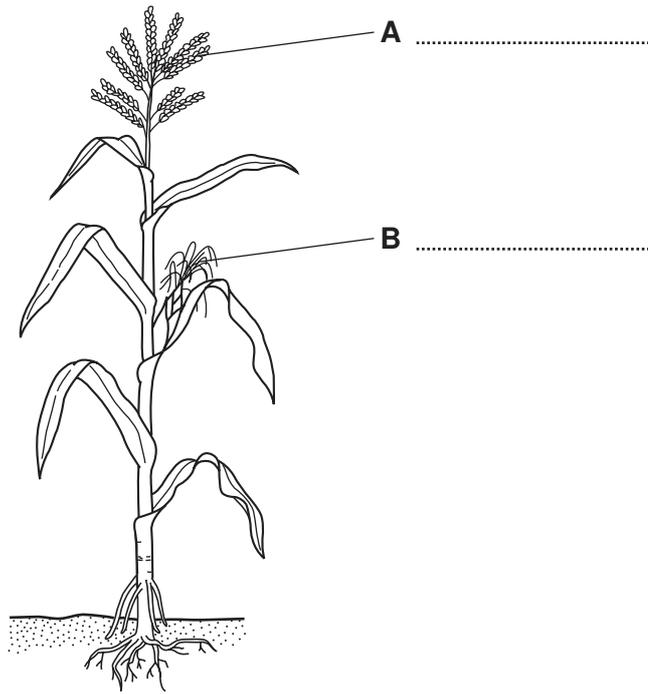


Fig. 2.1

(i) On Fig. 2.1, write the names of parts **A** and **B**. [1]

(ii) State the functions of parts **A** and **B**.

**A** .....

**B** ..... [2]

(b) Fig. 2.2 is a cross-section through a maize grain.

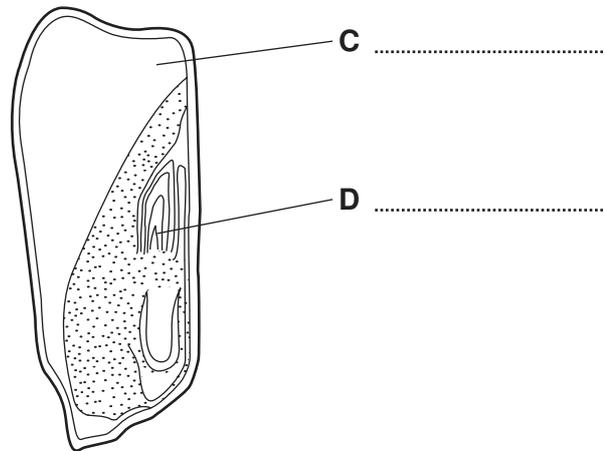


Fig. 2.2

(i) On Fig. 2.2, write the names of parts **C** and **D**. [2]

(ii) List **three** conditions needed for germination of a maize grain.

1 .....

2 .....

3 .....

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[3]

**[Total: 8]**

3 Fig. 3.1 shows the yield of a cereal crop for different seed rates.

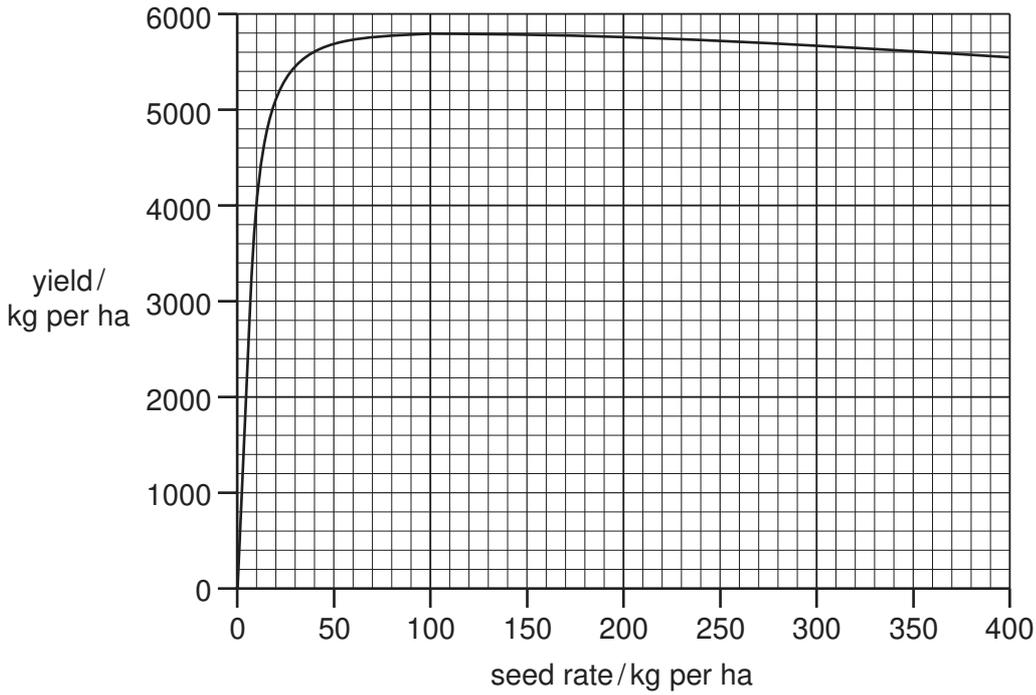


Fig. 3.1

(a) (i) What is the yield when the seed rate is 50 kg per ha?

..... [1]

(ii) The yield is highest at seed rates between 100 kg per hectare and 150 kg per hectare.

Give **one** reason why a farmer would choose to sow seed at 100 kg per hectare rather than 150 kg per hectare.

..... [1]

(iii) Suggest **two** reasons why the yield decreases at seed rates above 150 kg per hectare.

1 .....

.....

2 .....

..... [2]

(b) For the same yield, sowing by broadcasting needs a higher seed rate than when sowing with a seed drill.

Suggest **two** reasons for this.

- 1 .....
- .....
- 2 .....
- ..... [2]

[Total: 6]

4 (a) State **three** reasons why an insecticide should **not** be sprayed on crops in windy conditions.

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

(b) Apart from avoiding windy conditions, state **three** other precautions that should be taken by the operator when insecticides are used.

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

(c) (i) Describe **one** method of controlling insect pests on crops, other than using chemicals.

..... [1]

(ii) Suggest **two** reasons why a farmer might decide not to use chemical control for insect pests.

- 1 .....
- 2 ..... [2]

[Total: 9]

- 5 (a) The dominant allele, **B**, gives a black coat in cattle. The recessive allele, **b**, gives a red coat in cattle. A black bull is mated with a herd of red cows. Calves are produced in the following ratio:

black calves : red calves  
1 : 1

- (i) Give the genotype of:

the black bull .....

the red cows .....

[2]

- (ii) Draw a genetic diagram to explain your answer.

[2]

- (b) Table 5.1 shows differences in uses and products from cattle kept 100 years ago and cattle kept now.

**Table 5.1**

<b>Cattle kept 100 years ago</b>	<b>Cattle kept now</b>
cattle kept mainly as draught animals	cattle kept to produce meat or milk
low milk yield	high milk yield
poor quality meat	high quality meat

- (i) Suggest **two** ways in which breeds of cattle could have been improved over the last 100 years, to give better meat and milk production.

1 .....

2 ..... [2]

(ii) Apart from breeding, suggest **one other** reason that production in cattle has improved.

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

[Total: 7]

6 Fig 6.1 shows the digestive system of a chicken.

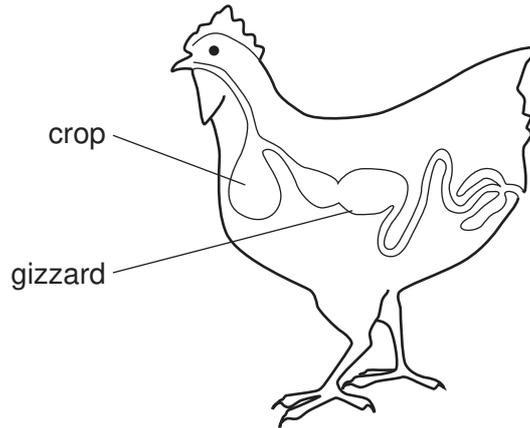


Fig. 6.1

(a) (i) State the functions of the crop and the gizzard.

crop .....

gizzard ..... [2]

(ii) Describe how the gizzard carries out its function.

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

(b) A chicken house is to be re-stocked with a new flock of chickens. Fig. 6.2 shows tasks in cleaning out the chicken house before bringing in the new flock.

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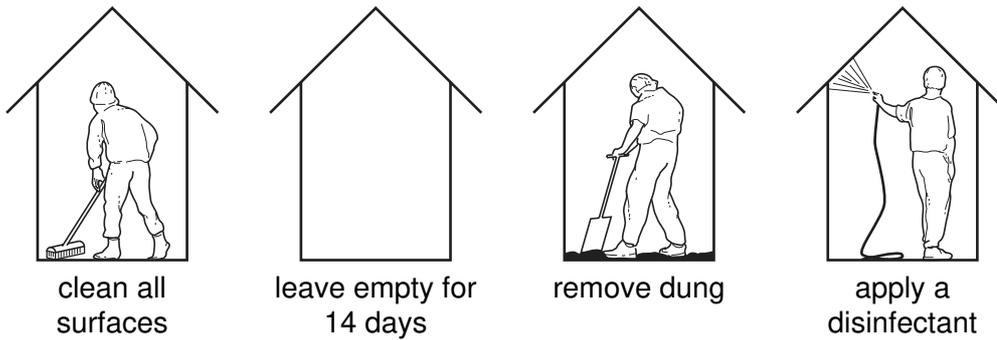


Fig. 6.2

(i) The tasks in Fig. 6.2 are not shown in the correct order. List the tasks in the order in which they should be carried out.

- 1 .....
- 2 .....
- 3 .....
- 4 .....

[2]

(ii) Explain the reasons for:

applying a disinfectant, .....

.....

leaving empty for 14 days. ....

..... [2]

[Total: 8]

7 Fig. 7.1 shows three tools that can be used to prepare a seed bed in an uncultivated vegetable garden.

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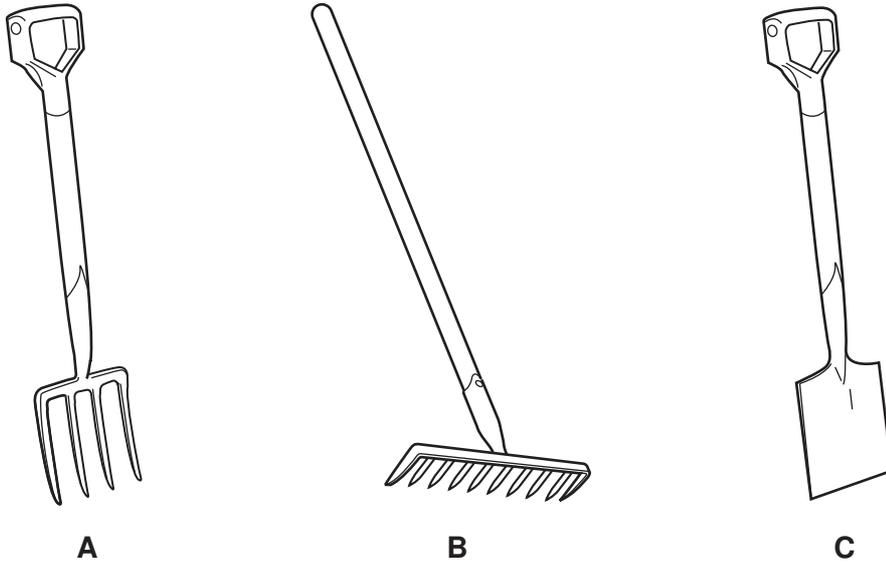


Fig. 7.1

(a) (i) What is the order in which the tools are used to prepare a seed bed?

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

(ii) State the function of each tool in preparing the seed bed.

A .....

B .....

C ..... [3]

(b) Describe how you would look after these tools to keep them in good condition.

.....

.....

.....

.....

.....

..... [5]

[Total: 9]

**Section B**Answer any **three** questions.

Write your answers on the separate paper provided.

- 8 (a) For a **named** ruminant, describe signs that can indicate ill health in the animal. [6]
- (b) Explain how suitable housing and living conditions can help to prevent the outbreak of disease in farm livestock. [9]
- 9 (a) Describe treatments that can be used to improve the quality of pastures on grazing land. [5]
- (b) Describe how fences can be used to improve the productivity of land used for grazing. [7]
- (c) Suggest ways in which fencing and improving grazing land can increase returns for a farmer. [3]
- 10 Describe, **in detail**, the four-stroke cycle in a petrol engine. In your description, include:
- (i) the names of the strokes,
  - (ii) the positions of the valves,
  - (iii) the direction of movement in the piston.
- You may use diagrams to make your answer clearer. [15]
- 11 (a) A small farm is far from the nearest town or city. Suggest reasons why the farmer might decide that mixed farming will be more beneficial than monoculture in this situation. [8]
- (b) Outline the factors that a farmer will consider when deciding on the type of enterprise his farm is best suited to. [7]
- 12 (a) Describe the ways in which different types of weeds are spread. [7]
- (b) Describe the ways in which weeds can be controlled. [8]

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