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5038/01

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	
Section A	
Section B	
Total	

This document consists of **12** printed pages.

Answer **all** the questions

[illegible]

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

B

(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.

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.....

.....

..... [2]

[Total: 8]

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

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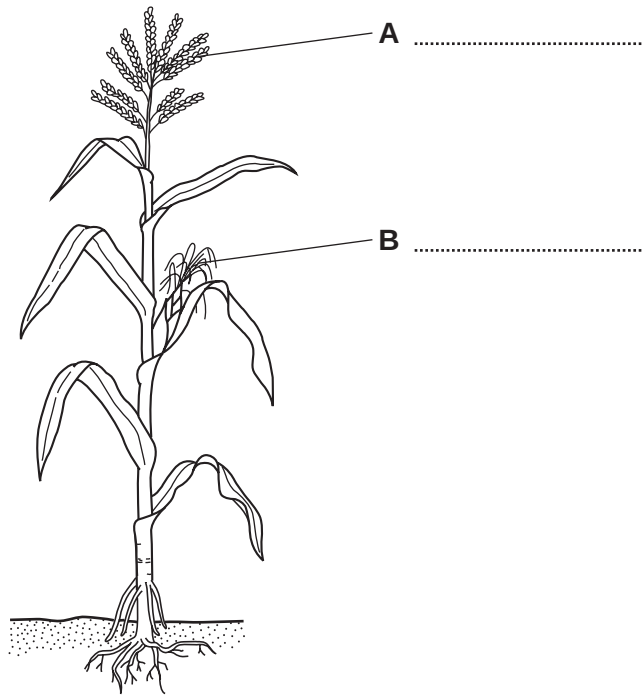


Fig. 2.1

(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.

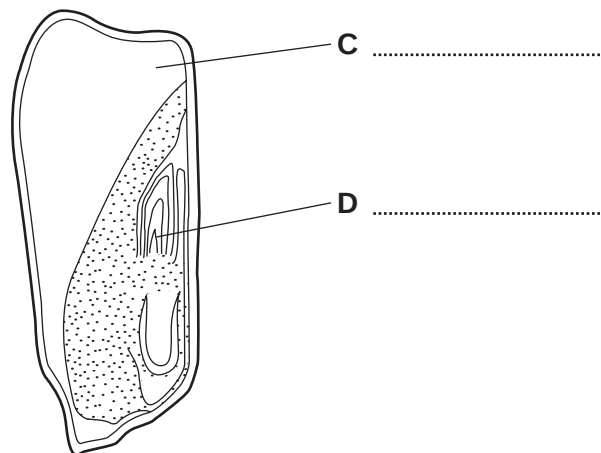


Fig. 2.2

(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

[3]

[Total: 8]

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

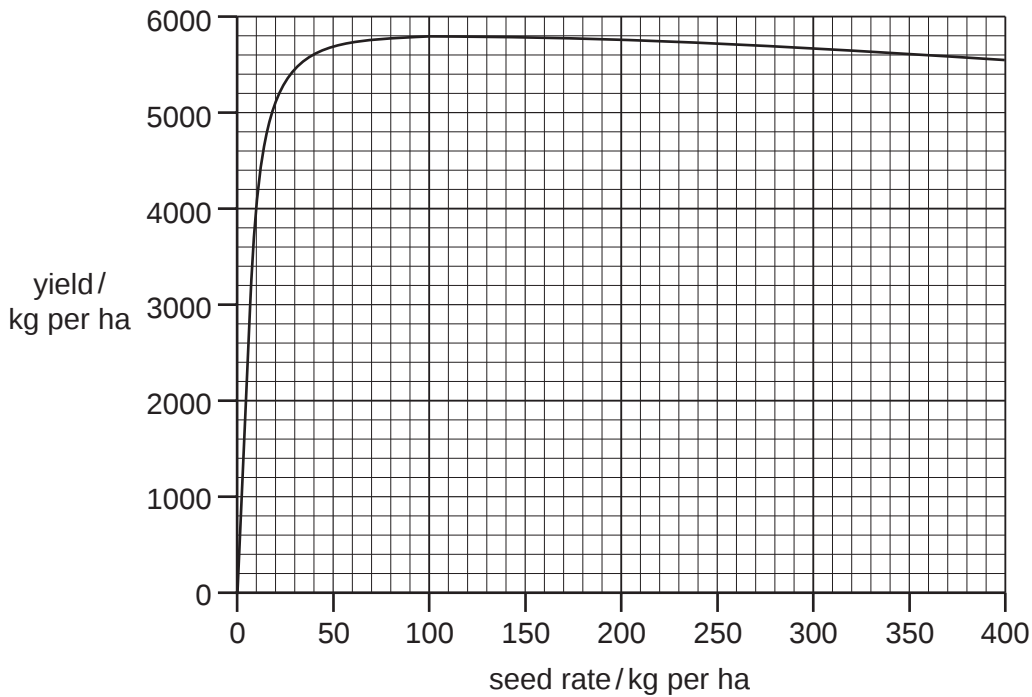


Fig. 3.1

(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

Cattle kept 100 years ago	Cattle kept now
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.

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

[Total: 7]

- 6 Fig 6.1 shows the digestive system of a chicken.

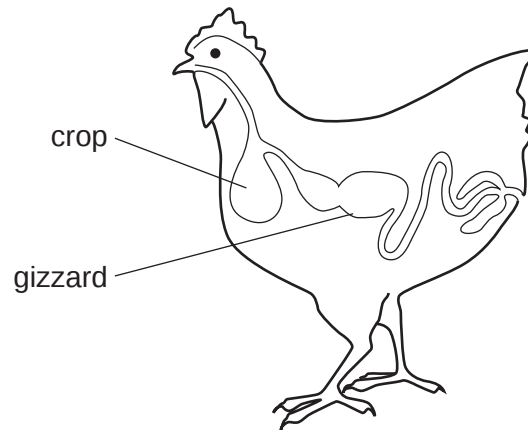


Fig. 6.1

- (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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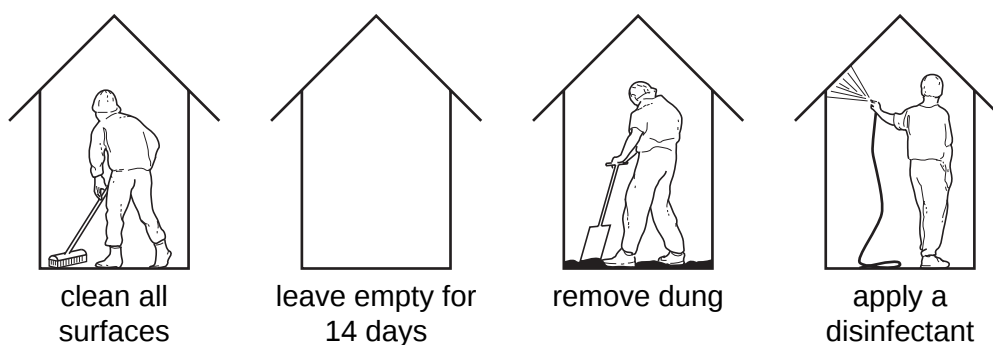


Fig. 6.2

- (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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Examiner's
Use

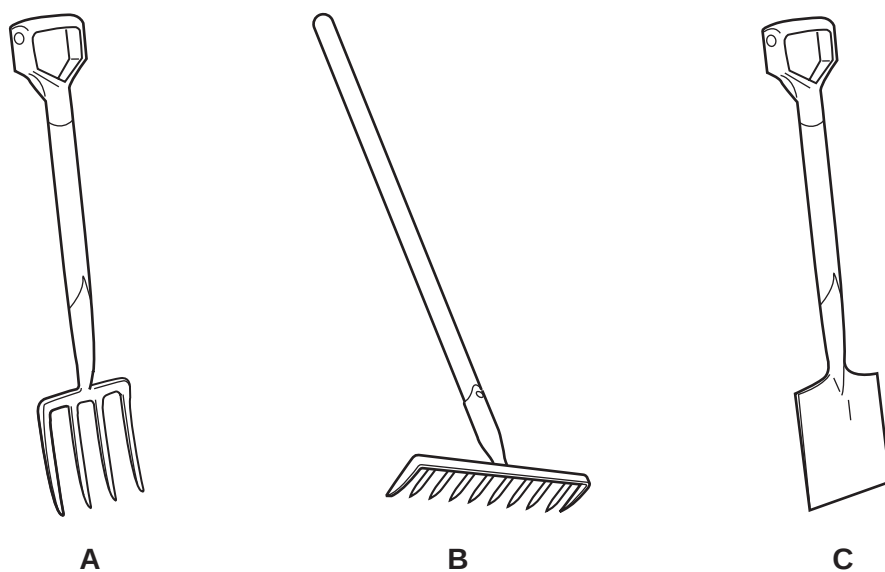


Fig. 7.1

- (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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