



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 **October/November 2009**  
**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 **13** printed pages and **3** blank pages.

Section A

Answer **all** the questions.

1 Fig.1.1 shows an insect pest feeding on a plant.

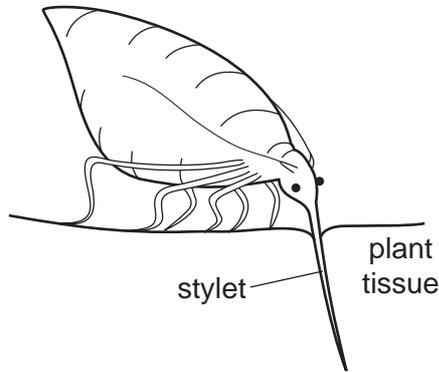


Fig. 1.1

(a) (i) Describe how this type of insect feeds on the plant.

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

(ii) Name **one** insect pest that feeds in this way.

..... [1]

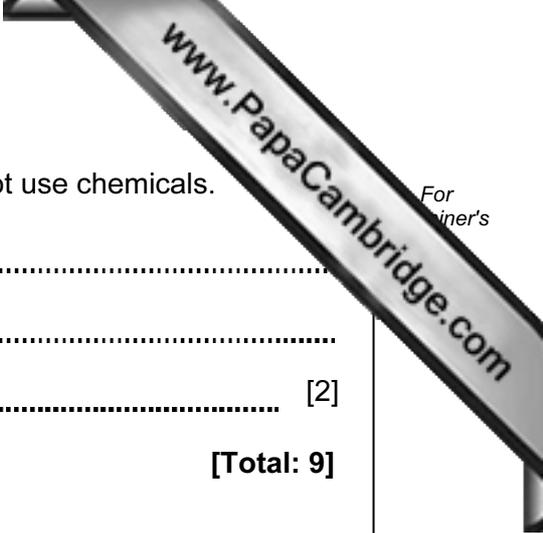
(b) Explain why:

(i) controlling this type of pest helps to prevent virus diseases in plants;

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

(ii) a systemic insecticide is often used to control this type of pest.

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



(c) State and explain a method of control of this pest that does not use chemicals.

.....

.....

..... [2]

**[Total: 9]**

2 Soil erosion is the removal and loss of topsoil. Some agricultural practices can cause soil erosion.

Explain how the following actions could cause soil erosion and describe how erosion could be prevented in each case.

(a) Sloping land is ploughed up and down the slope so that furrows run from the top to the bottom.

(i) How could this cause erosion?

.....  
.....

(ii) How could this erosion be prevented?

.....  
.....

[3]

(b) A crop is harvested from a field. The field is then left bare for two months after harvest so that the soil is exposed.

(i) How could this cause erosion?

.....  
.....

(ii) How could this erosion be prevented?

.....  
.....

[3]

(c) An area of pasture land is overstocked with grazing animals, which feed on the grasses until they are used up.

(i) How could this cause erosion?

.....  
.....

(ii) How could this erosion be prevented?

.....  
.....

[3]

[Total: 9]

3 (a) In Hereford cattle a white face is dominant over all other face colours.

A heterozygous white-faced bull is mated with a herd of heterozygous white-faced cows.

(i) What percentage (%) of the offspring would be expected to have white faces?

..... % [1]

(ii) Using a genetic diagram, explain how you arrived at this answer.

[4]

(b) Ankole cattle are kept in East Africa. They are not very productive for milk or meat but can be crossed with productive breeds, brought from other countries.

Suggest **one** reason why these cross-bred cattle are used for production rather than the very productive imported breeds.

..... [1]

[Total: 6]

4 (a) (i) Mulch is used to protect a seed bed after sowing.

Give **one** way in which this can help seeds to germinate.

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

(ii) Cabbage seedlings were transplanted from a seed bed. They were thoroughly watered but still wilted.

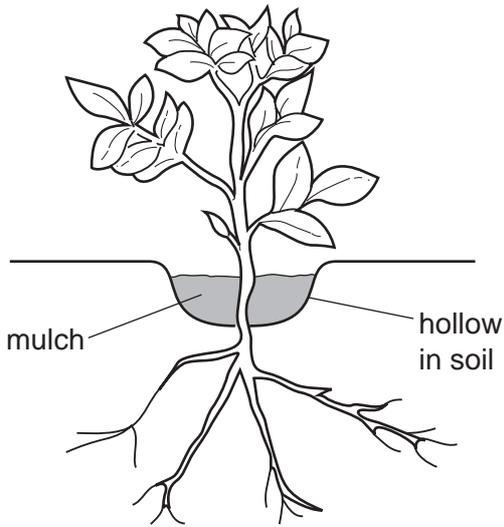
Suggest **one** reason why these seedlings wilted when transplanted.

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

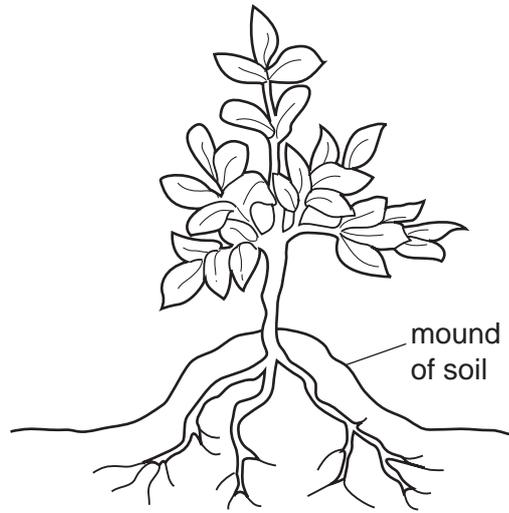
(iii) Suggest **one** way in which the wilting of young plants could be reduced.

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

(b) Fig. 4.1 shows two ways of planting young trees in different climates.



planting a tree in a dry climate (low rainfall)



planting a tree in a wet climate (high rainfall)

Fig. 4.1

(i) Suggest reasons for the method of planting in:

a dry climate with low rainfall; .....

.....

.....

a wet climate with high rainfall. ....

.....

..... [3]

(ii) State why some leaves are cut off the young tree when planting in a dry area.

..... [1]

[Total: 7]

5 (a) Give an example of:

(i) a ruminant kept as a farm animal,

.....

(ii) a non-ruminant kept as a farm animal.

.....

[2]

(b) Fig.5.1 shows the digestive systems of a ruminant and a non-ruminant.

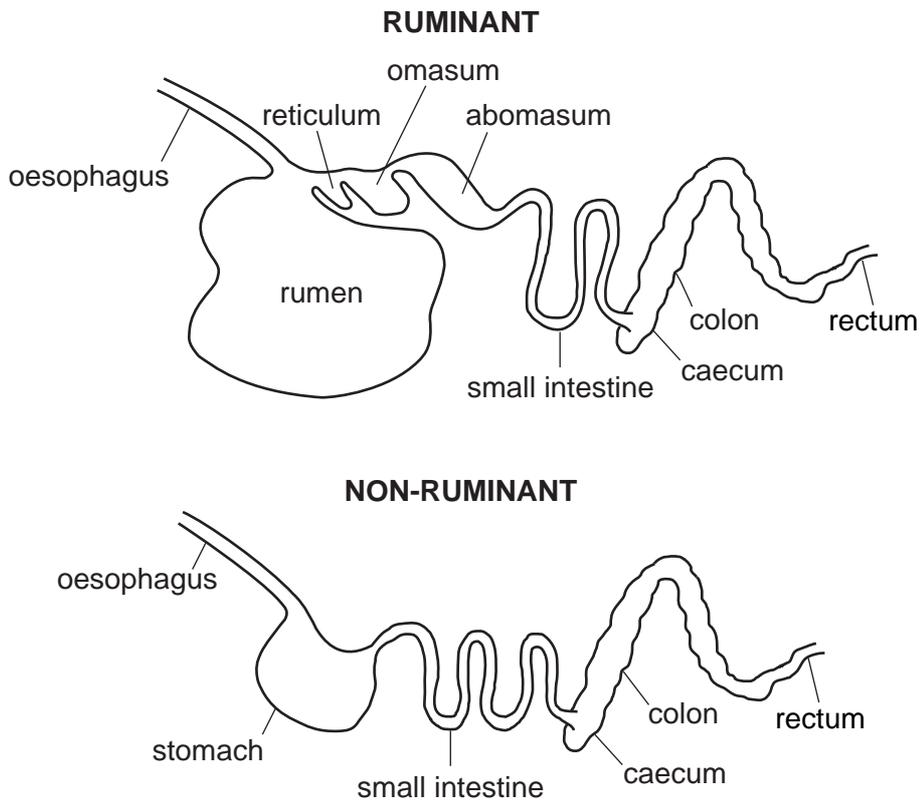
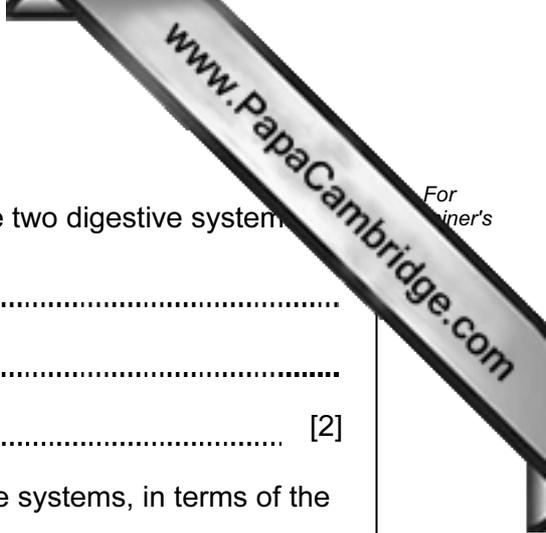


Fig. 5.1



(i) Describe the main difference between the structure of the two digestive systems.

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

(ii) Explain this difference in the structure of the two digestive systems, in terms of the diet of a ruminant.

.....  
.....  
.....  
.....  
..... [4]

**[Total: 8]**

6 (a) (i) Pasture used for grazing animals contains different types of plant, but grasses.

State **one** feature that makes grasses particularly suited to grazing.

..... [1]

(ii) State **one** reason why legumes, such as lucerne, are often sown into pasture.

..... [1]

(iii) Suggest **one** reason why it is useful to keep some trees in land used for grazing.

..... [1]

(iv) Some land used for grazing may have many bushes.

What sort of animals would be best suited to grazing on this land?

..... [1]

(b) (i) Regular, controlled burning of grassland is used in some grazing areas.

State **two** reasons for controlled burning of grassland.

1 .....  
.....

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

(ii) State and explain **one** problem that can arise from burning grassland.

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

(iii) State and explain **one** precaution that should be taken when burning grassland.

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

[Total: 10]

7 Fig. 7.1 shows a building that is being used to store a crop of maize.

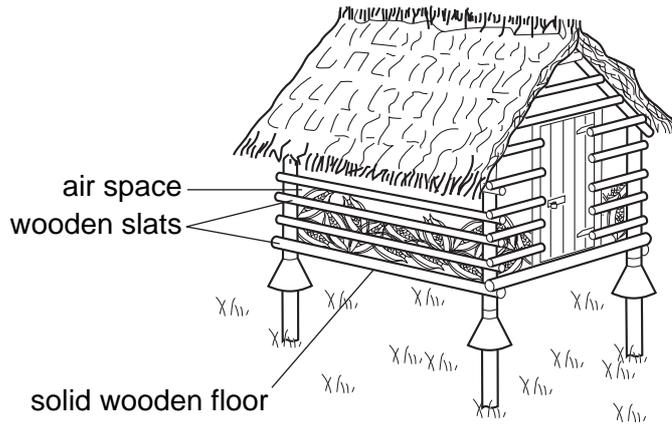


Fig. 7.1

The building has features designed to protect the crop in several ways.

For example:

*feature* the spaces between the slats in the walls

*protection* provide ventilation to help to prevent fungal disease

List **three other** features, shown in the diagram, which provide protection for the crop and state how each provides protection.

Feature 1 .....

Protection .....

Feature 2 .....

Protection .....

Feature 3 .....

Protection .....

[6]

[Total: 6]

**Section B**

Answer any **three** questions.

Write your answers on the separate paper provided.

- 8 Farm machinery such as tractors and cultivation equipment such as ploughs can be damaged by:
- dust,
  - intense sunlight,
  - rust.

Explain how each of these can cause damage and how damage can be prevented. [15]

**[Total: 15]**

- 9 (a) Outline reasons why a farmer may use some land for forestry or a game reserve, rather than for growing crops or keeping livestock. [6]
- (b) Describe the uses that trees and tree planting may have in agriculture. [9]

**[Total: 15]**

- 10 (a) Rotational grazing and zero grazing are both intensive grazing methods.

Describe:

- (i) rotational grazing,
- (ii) zero grazing. [8]
- (b) Suggest reasons why a farmer would choose a method of intensive grazing rather than extensive grazing. [7]

**[Total: 15]**

11 (a) For a named type of livestock:

- (i) state the type of livestock,
- (ii) describe the records that a farmer should keep.

[9]

(b) Outline the actions that should be taken to prevent outbreaks of disease in livestock. [6]

**[Total: 15]**

12 A farm has a stream flowing through it.

(a) Describe the materials used and method of construction of a storage dam that the farmer could build across the stream to store water. [10]

(b) Outline the ways in which water stored in the dam could be used. [5]

**[Total:15]**





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*Copyright Acknowledgements:*

Question 4                      © Alan N King; *Agriculture: An Introduction for Southern Africa*, Cambridge University Press; 1985

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