UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

AGRICULTURE **5038/12**

Paper 1 **October/November 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 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 **11** printed pages and **1** blank page.

Section A

Answer **all** the questions.

For Examiner's Use

1 **(a)** Fig. 1.1 shows the reproductive system in a female farm animal.

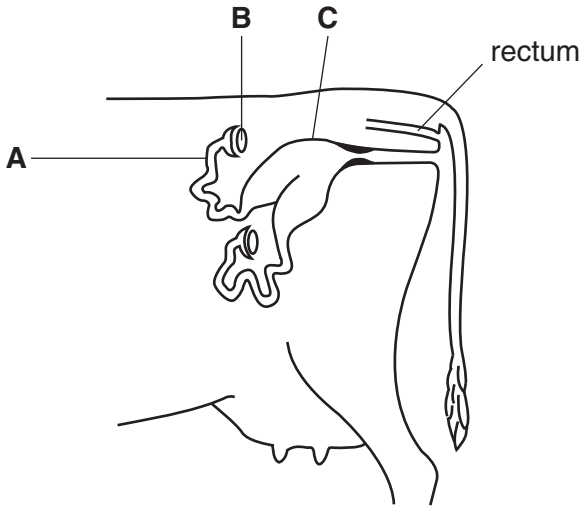

Fig. 1.1

(i) Name the structures **A**, **B** and **C**.

A .....

B .....

C ..... [3]

(ii) On Fig. 1.1, label with **X** where fertilisation occurs. [1]

(b) **(i)** State the meaning of the term *lactation*.

.....

.....[1]

(ii) What is *colostrum*?

.....

.....[1]

(iii) Explain the importance of colostrum.

For Examiner's Use

.....

.....

.....

.....[3]

[Total: 9]

2 Insects are important in agriculture. Many are beneficial (useful) but many are pests.

(a) Insects can be used in biological control.

(i) Explain what is meant by biological control.

.....

.....

.....[2]

(ii) Give **one other** way in which insects can be beneficial to farmers.

.....[1]

(b) Insect pests may be controlled in crops by spraying insecticides.

(i) Fig. 2.1 shows a crop being sprayed with insecticide.

Fig. 2.1

State two ways in which the spray operator in Fig. 2.1 could be better protected when spraying.

1 .....

.....

2 .....

.....[2]

(ii) Insecticides can be poisonous to humans. Fig. 2.2 shows ways in which insecticide from crop spraying can get into food.

For Examiner's Use

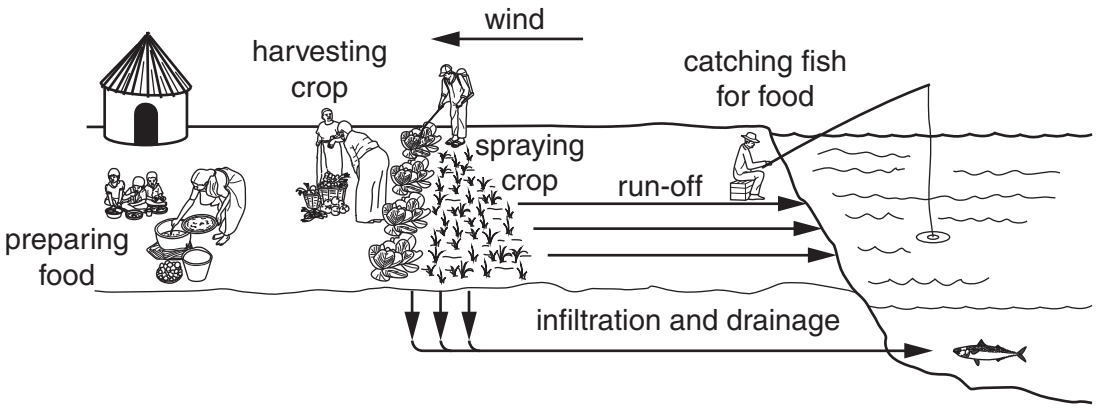

Fig. 2.2

Using Fig. 2.2, suggest two practices that could prevent insecticide getting into food.

1 .....

.....

2 .....

.....[2]

[Total: 7]

For Examiner's Use

3 The graphs in Fig. 3.1 show the effect of stocking rate on milk output per animal and per hectare.

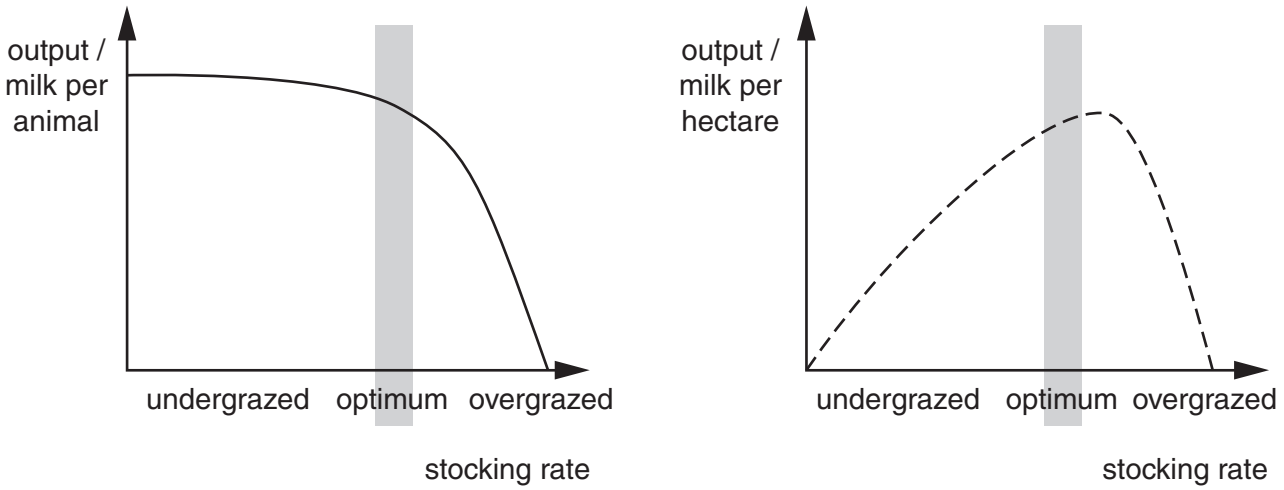

Fig. 3.1

(a) State what is meant by the term *stocking rate*.

.....[1]

(b) **(i)** Using Fig. 3.1, state and explain the effect of overgrazing on milk output.

.....

.....

.....[2]

(ii) Using Fig. 3.1, describe and explain the difference in output pattern per animal and per hectare when land is **undergrazed**.

.....

.....

.....

.....

.....[3]

(c) Apart from the effect on output, state two **other** reasons for preventing overgrazing.

1.....

2.....[2]

[Total: 8]

4 Fig. 4.1 is a cross-section through the root of a plant.

For Examiner's Use

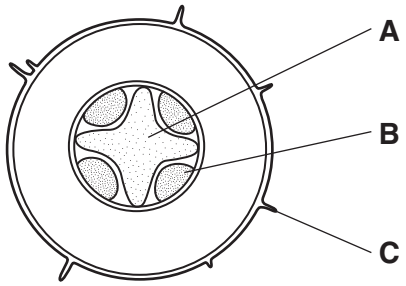

Fig. 4.1

(a) (i) State the names of tissues **A** and **B** and structure **C**.

A .....

B .....

C ..... [3]

(ii) State the function of tissue **A**.

.....[1]

(b) (i) Name the process by which water enters the root from the soil.

.....[1]

(ii) If a plant is given too much inorganic fertiliser (a salt solution), it wilts.

Explain why this happens.

.....

.....

.....

.....[3]

(c) State two functions of roots, **other** than the uptake of water.

1.....

2.....[2]

[Total: 10]

5 **(a)** Fig. 5.1 shows a small, petrol-driven, two-wheeled cultivator. This can be used on

- flat **or** sloping land,
- wet **or** dry soils.

Fig. 5.1

(i) Suggest reasons why this cultivator might be better than using larger implements, drawn by animals or a tractor.

.....

.....

.....

.....[3]

(ii) This cultivator is not suitable where the soil is very stony or there are large stumps and roots. Suggest **one** reason for this.

.....

.....[1]

(b) It may be necessary to store small amounts of fuel on a farm, for machinery such as a petrol-driven cultivator.

State three precautions that should be taken when storing such fuel.

1.....

2.....

3.....[3]

[Total: 7]

6 **(a)** Maize occurs in yellow-fruited and white-fruited varieties.
The allele **Y**, that gives yellow-fruited maize, is dominant over the allele **y**, that gives white-fruited maize.
Fig. 6.1 shows a cross that was made between a yellow-fruited plant and a white-fruited plant.

parents	phenotype	yellow-fruited plant	x	white-fruited plant
	genotype	……		**yy**
offspring	phenotype	yellow-fruited plants		white-fruited plants
	ratio	**1**	**:**	**1**

Fig. 6.1

On Fig. 6.1, state the genotype of the yellow-fruited parent.
Use a genetic diagram to show your reasoning.

[3]

(b) **(i)** A plant has the genotype Tt, where the alleles T = tall and t = short. The plant is propagated by taking cuttings.
State the genotype of the plants produced by taking cuttings and explain your answer.

genotype .....[1]

explanation .....

.....

.....[2]

(ii) State **one** reason why a farmer may propagate plants by taking cuttings.

.....

.....[1]

[Total: 7]

7 Fertilisers may be inorganic chemicals or organic material such as farmyard (kraal) manure.

(a) Listed below are three inorganic compound fertilisers.

fertiliser X	fertiliser Y	fertiliser Z
N : P : K	N : P : K	N : P : K
(10 : 20 : 10)	(22 : 11 : 11)	(13 : 13 : 20)

Complete the table by choosing the fertiliser that would be most suitable for each crop and give a reason for each choice.

type of crop	fertiliser	reason
leafy e.g. cabbage, lettuce		
root e.g. yam, cassava		
fruit e.g. tomato		

[5]

(b) Fig. 7.1 shows farmyard manure that is being stored in an open shed with a roof.

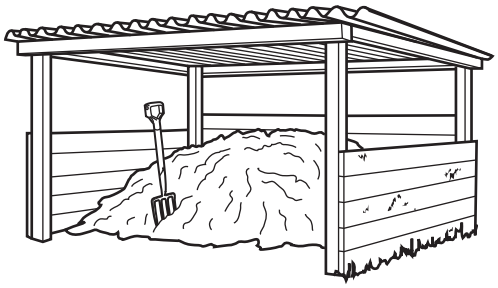

Fig. 7.1

Suggest why it would be an advantage to keep the manure under a roof.

.....

.....

.....[2]

[Total: 7]

Section B

For Examiner's Use

Answer any **three** questions.

Write your answers on the separate paper provided.

8 **(a)** **(i)** State what is meant by the term *crop rotation* and give an example. [3]

(ii) Explain the benefits of crop rotations. [7]

(b) **(i)** State what is meant by the term *mixed farming*. [1]

(ii) Outline the benefits of mixed farming. [4]

[Total: 15]

9 For a farm building to be constructed for housing livestock,

(a) state and explain the factors that should be considered when selecting the site, [9]

(b) state suitable materials that could be used for the construction, giving reasons for your choices. [6]

[Total: 15]

10 **(a)** For a crop of local importance,

(i) state the name of the crop,

(ii) state and explain the timing of sowing or planting,

(iii) state and explain the choice of a suitable cultivar. [7]

(b) **(i)** Explain the reasons for controlling weeds in a crop. [5]

(ii) Describe methods by which weeds can be controlled. [3]

[Total: 15]

11 **(a)** Describe the physical, chemical and biological processes that result in the weathering (breakdown) of rocks to form soil particles. [6]

(b) Explain how the properties of a soil are affected by the sizes of the mineral particles that it contains. [9]

[Total: 15]

12 **(a)** Describe the signs you would look for when checking the health of livestock. [6]

(b) Describe and explain the ways in which disease in livestock can be prevented and controlled. [9]

[Total: 15]

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