UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

* 5 2 8 9 6 9 6 9 8 4 *

AGRICULTURE **5038/01**

Paper 1 **May/June 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	
Section A	
Section B	
Total	

This document consists of **13** printed pages and **3** blank pages.

UNIVERSITY of CAMBRIDGE International Examinations

Section A

Answer all the questions

For Examiner's Use

1 Fig. 1.1 is a diagram of the digestive system of a non-ruminant animal.

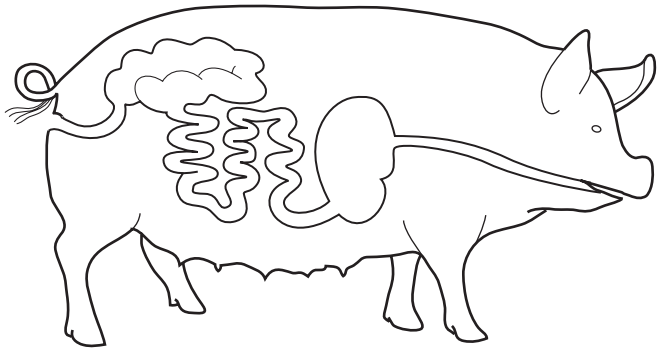

Fig. 1.1

(a) (i) On the diagram:

label with **P** where protein digestion starts;
label with **A** where most digested food is absorbed;
label with **W** where most water is absorbed from undigested food. [3]

(ii) What feature of the digestive system shows that the animal is a non-ruminant?

.....

..... [1]

(b) A balanced ration for an animal must contain protein, carbohydrate, fats and oils.
State the names of **two** other types of substance that are needed in a balanced diet.

1 .....

2 ..... [2]

For Examiner's Use

(c) A sow (female pig) is fed 3 kg of sow meal per day. When she has produced piglets and they are feeding on her milk, she is given an extra 0.25 kg per piglet. Half the food is given to the sow in the morning and half in the evening.

A sow has twelve piglets. How much food should she be given at the morning feed?

Show your working.

.....kg [2]

(d) Animals are given a maintenance ration to keep them healthy and in good condition. In addition, a production ration is sometimes given.

Apart from production of milk, give **one** other example of when an animal might be given a production ration.

..... [1]

[Total: 9]

For Examiner's Use

2 **(a)** Rocks break down by the process of weathering, to produce the mineral particles in soil.

Explain how the following can cause the weathering of rocks.

(i) strong winds

.....

.....

(ii) water freezing in the cracks in rocks

.....

.....

(iii) carbon dioxide in the air dissolving in rainwater

.....

..... [6]

(b) Humus is an important part of the soil.

(i) What is humus and how is it formed?

.....

.....

..... [2]

(ii) State **two** reasons why humus is important in soil.

1 .....

2 ..... [2]

[Total: 10]

For Examiner's Use

3 **(a)** The following terms are used when describing the inheritance of characteristics.

allele **dominant** **gene** **heterozygous**

Put each term next to the correct definition in Table 3.1.

Table 3.1

Term	Definition
	the part of a chromosome that determines a particular characteristic
	an individual with two different alleles of a particular gene
	an alternative form of a gene
	a gene which is always expressed in the phenotype

[3]

(b) A plant has the genotype Tt for height of plant (T = tall, t = short).
New plants are produced from this plant by taking cuttings.

(i) What percentage (%) of the plants produced will have the genotype Tt?

.....% [1]

(ii) Explain your answer to **(i)**.

.....

.....

..... [2]

(c) Which term, in Table 3.1, describes the genotype Tt?

..... [1]

[Total: 7]

4 Fig.4.1 shows three different groups of crop plants that could be grown in a school garden.

For Examiner's Use

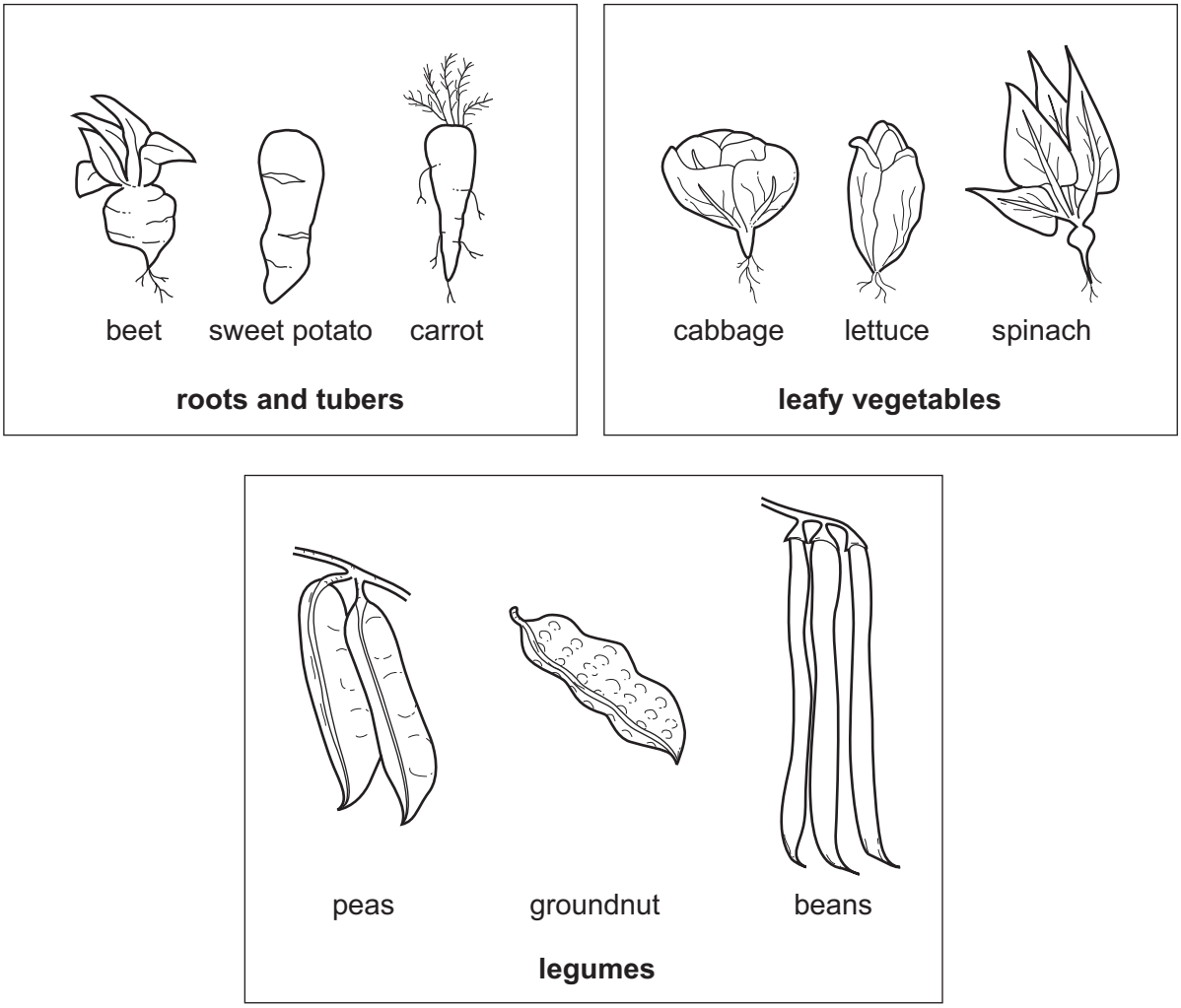

Fig. 4.1

A school garden is divided into three beds and students draw plans for growing vegetables in rotation.

(a) Fig. 4.2 shows the rotation plan drawn by one student.

	Year 1	Year 2	Year 3
bed 1	beet	carrot	sweet potato
bed 2	sweet potato	beet	carrot
bed 3	carrot	sweet potato	beet

Fig.4.2

(i) State **two** reasons why the plan in Fig. 4.2 would not be a good rotation.

1 .....

2 ..... [2]

(ii) Fig. 4.3 shows a different but incomplete rotation plan.

Complete the rotation plan in Fig. 4.3.

	Year 1	Year 2	Year 3
bed 1	cabbage	beans	sweet potato
bed 2	.....	.....	.....
bed 3	.....	.....	.....

Fig. 4.3 [2]

(b) Another student suggests that the plan in Fig. 4.3 could be improved by planting the beans before the leafy vegetable, instead of after it.

Explain why this would be an improvement.

.....

.....

..... [2]

[Total: 6]

For Examiner's Use

5 **(a)** Fig. 5.1 shows four sprayer positions that could be used when spraying a crop.

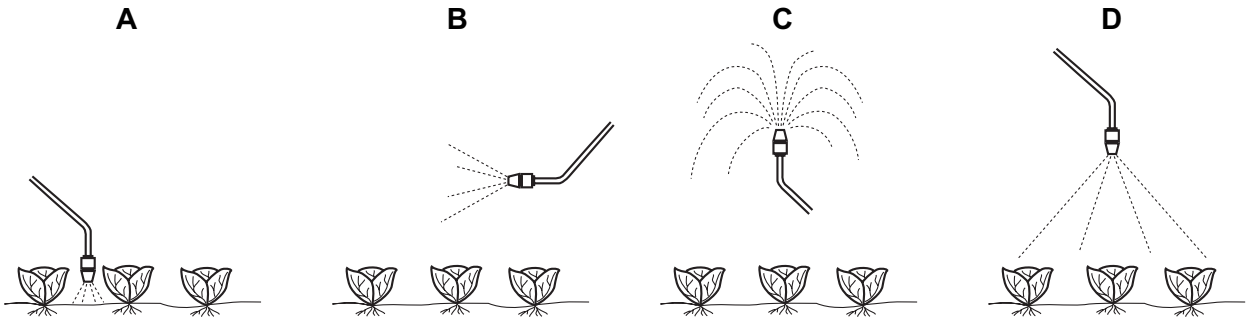

Fig. 5.1

This crop is infested with insects that live on the leaves. The farmer sprays them with a contact insecticide.

(i) In which position, **A**, **B**, **C** or **D**, should he hold the sprayer?

..... [1]

(ii) Explain why this position would be better than each of the others.

.....

.....

.....

..... [3]

(b) When using chemicals such as insecticides, the sprayer operator should wear protective clothing.

List **three other** precautions that should be taken when using chemical sprays.

1 .....

2 .....

3 ..... [3]

[Total: 7]

For Examiner's Use

6 Fig. 6.1 is a diagram of a section through a cylinder in a four-stroke petrol engine.

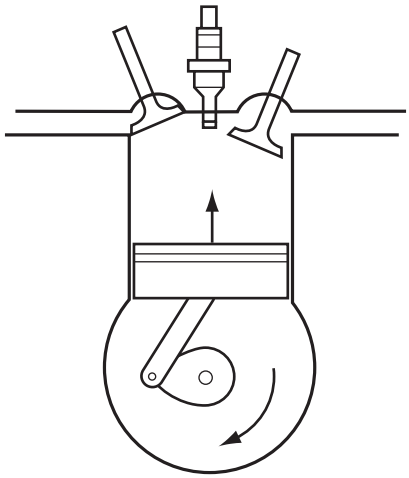

Fig. 6.1

(a) (i) On the diagram, label:

A – the inlet valve,
B – the spark plug,
C – the piston. [3]

(ii) Fig. 6.1 shows the exhaust stroke.

Explain how Fig. 6.1 shows this.

.....

.....

..... [2]

(b) State **one** advantage and **one** disadvantage of mechanisation on a farm.

advantage .....

.....

disadvantage .....

..... [2]

[Total: 7]

7 Fig. 7.1 shows a building used to house small livestock.

For Examiner's Use

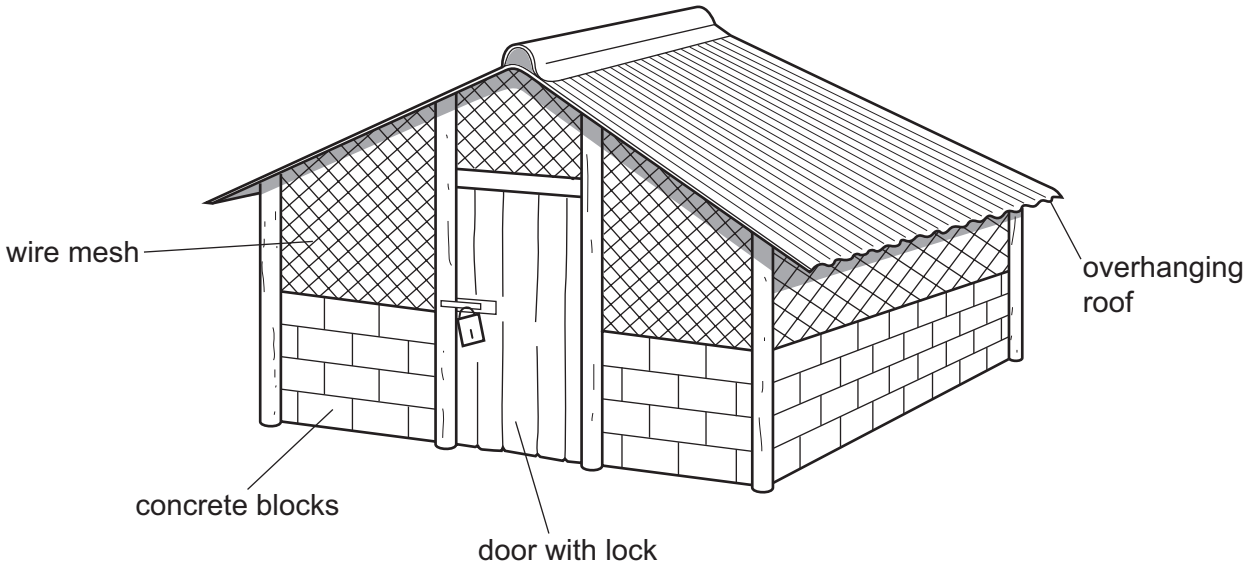

Fig. 7.1

(a) (i) State **one** reason for each of the following features.

door with lock .....

.....

low walls made of concrete blocks .....

.....

wire mesh above the solid walls .....

.....

overhanging roof .....

..... [4]

(ii) For a named animal, state **three** features that would be needed **inside** the building for animals to be kept there.

animal .....

1 .....

2 .....

3 ..... [3]

(b) The roof of the building in Fig. 7.1 could be made of thatch instead of corrugated iron.

Suggest **one** advantage and **one** disadvantage of using thatch.

advantage .....

.....

disadvantage .....

..... [2]

[Total: 9]

For Examiner's Use

Section B

Answer any **three** questions.
Write your answers on the separate paper provided.

8 **(a)** For a cash crop that is grown in your area:

(i) state the name of the crop,
(ii) explain why this crop is suited to your area. [6]

(b) For the crop named in **(a)**:

(i) state the name of a common pest that attacks this crop, [1]
(ii) describe the damage the pest does to the crop. [3]

(c) Outline methods of prevention and control of insect pests in crops. [5]

[Total: 15]

9 **(a)** What is meant by pollination? [2]

(b) For plants that you have studied, compare the flower structure of a plant that is wind-pollinated with the flower structure of a plant that is insect-pollinated. [8]

(c) Outline the processes that follow pollination leading to fruit formation. [5]

[Total: 15]

10 **(a)** Describe the way in which water is lost from a plant through the leaves. [6]

(b) Explain how the process in **(a)** is affected by changes in:

(i) temperature,
(ii) humidity,
(iii) wind strength. [9]

[Total: 15]

11 For a type of livestock that you have studied:

(a) state the type of livestock,

(b) state the name of a parasite that affects this type of livestock, [1]

(c) describe the life history of the parasite, [6]

(d) outline the way in which it damages the host animal, [4]

(e) suggest ways in which infestations of the parasite can be prevented. [4]

[Total: 15]

12 **(a)** Explain why a farmer may need to irrigate his crops. [4]

(b) Describe **three** methods of crop irrigation indicating the source of the water that could be used for each method. [8]

(c) In what ways could a farmer reduce the need for irrigation? [3]

[Total: 15]

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