Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

AGRICULTURE **0600/11**

Paper 1 **October/November 2016**

1 hour 45 minutes

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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Section A
Answer **all** questions.
Electronic calculators may be used.
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 **two** questions.
Write your answers on the Answer Booklet/Paper provided.
Enter the numbers of the Section B questions you have answered in the grid.

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	
1	
2	
3	
4	
5	
6	
7	
8	
Section B	
Total	

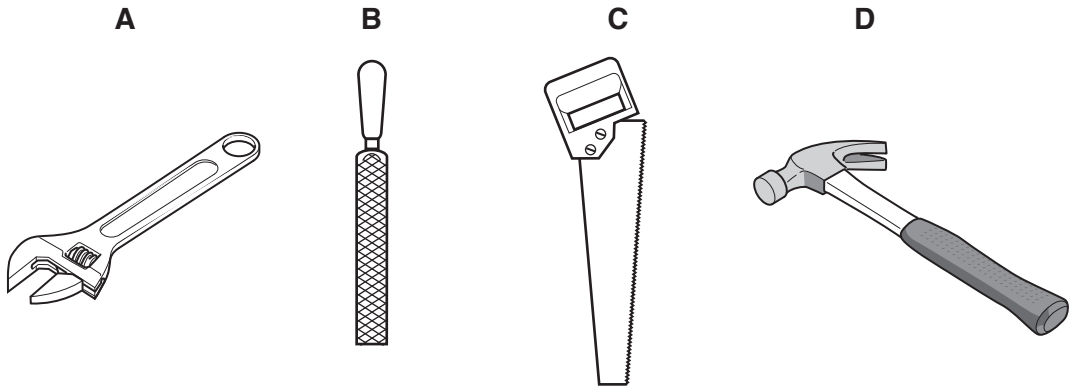
This document consists of **16** printed pages.

CAMBRIDGE International Examinations

Section A

Answer **all** the questions in the spaces provided.

1 The diagram shows tools commonly used in construction.



(a) State the letter of the tool which would be best used to:

(i) smooth the edges of iron sheets,

Answer **A**, **B**, **C** or **D** ..... [1]

(ii) tighten bolts on a farm gate.

Answer **A**, **B**, **C** or **D** ..... [1]

(b) Describe how garden tools should be maintained.

.....

.....

.....

.....[2]

(c) The following materials are available to build the walls and roof of an animal house.

	building materials	
combination	walls	roof
A	brick	thatch
B	concrete blocks	iron sheets
C	earth	wood
D	wood	slates

Which would be the best combination of building materials to give walls resistance to high winds and to keep the house cool in hot weather?

Answer **A**, **B**, **C** or **D** ..... [1]

[Total: 5]

2 (a) (i) State **two** methods used by farmers to limit water loss from soil in hot climates. Describe what each method involves.

method .....

.....

description .....

.....

method .....

.....

description .....

.....

[4]

(ii) Which process is reduced by farmers to limit water loss from soil?

A evaporation

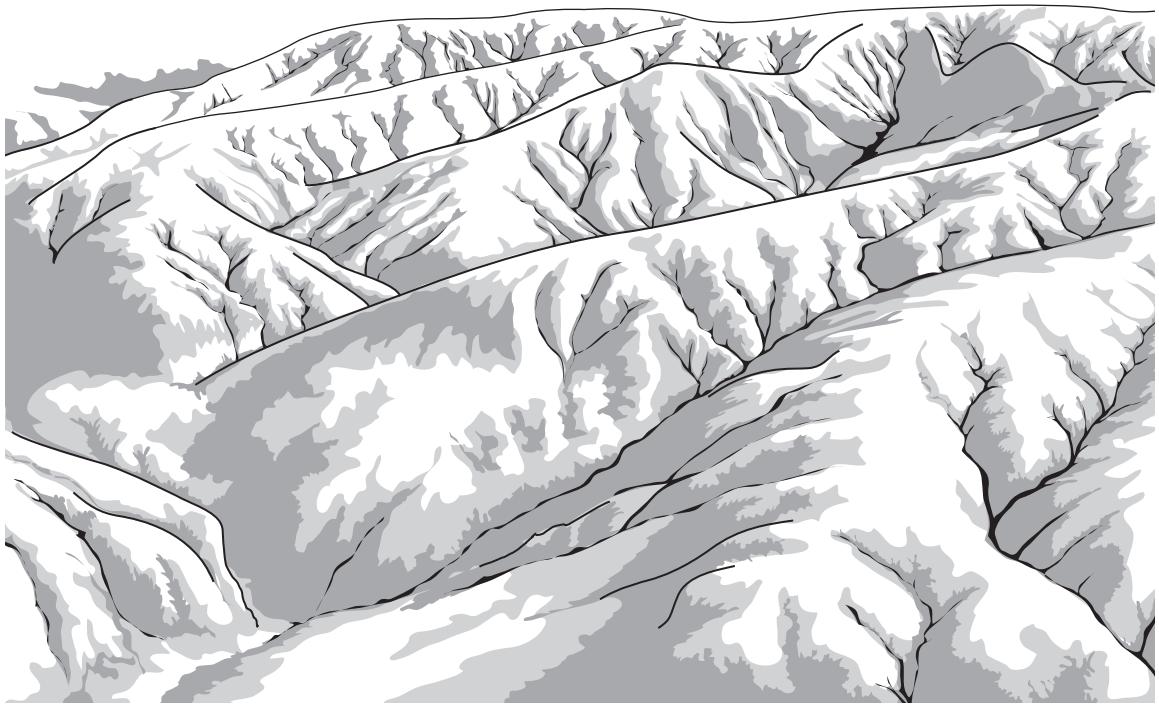
B photosynthesis

C pollination

D translocation

Answer **A**, **B**, **C** or **D** ..... [1]

(b) The diagram shows severe soil erosion.



(i) Describe **one** way to reduce soil erosion.

.....

.....

.....

.....[2]

(ii) Suggest how soil erosion might affect the nutrient content of the soil.

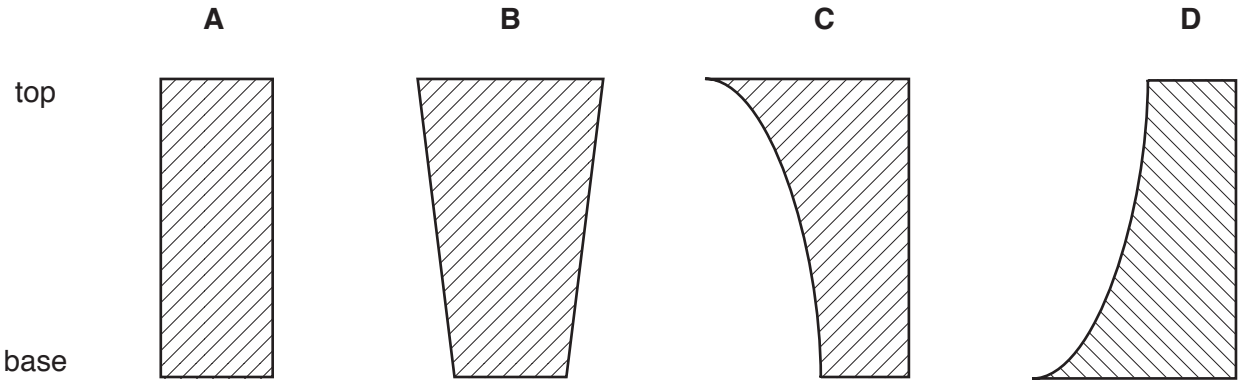
.....

.....

.....

.....[2]

(c) (i) Which of these shapes would be best for a dam?



Answer **A**, **B**, **C** or **D** ..... [1]

(ii) Describe **one** way, other than a dam or reservoir, to obtain a supply of water to use for irrigation.

.....

.....

.....

.....[2]

[Total: 12]

3 **(a)** What is meant by the following terms?

maintenance ration .....

.....

.....

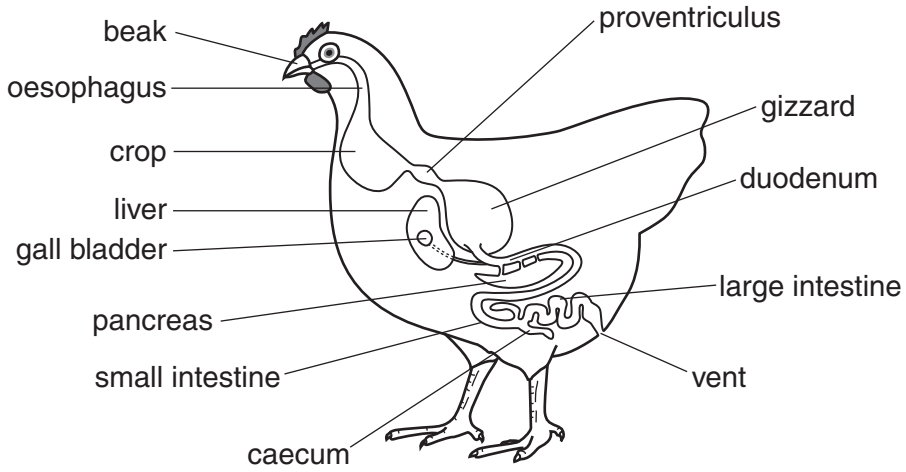
production ration .....

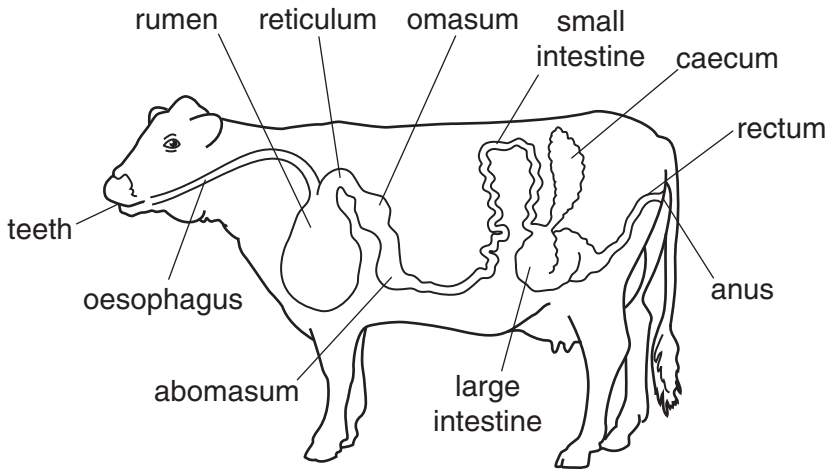
.....

.....

[2]

(b) The diagrams show the digestive systems of a chicken (non-ruminant) and a cow (ruminant).





(i) Describe the differences in the way the non-ruminant and ruminant ingest (collect) their food.

.....

.....

.....

.....[2]

(ii) Describe the differences in the way the non-ruminant and ruminant prepare their food before digestion.

.....

.....

.....

.....[2]

(iii) Describe the differences in the way the non-ruminant and ruminant excrete waste products.

.....

.....

.....

.....[2]

(c) Explain how a diet very rich in carbohydrates can affect the health of an animal.

.....

.....

.....

.....[2]

[Total: 10]

4 The photograph shows land that was covered with thick undergrowth and is now grazed.

(a) Describe how this land could have been cleared to provide pasture.

.....

.....

.....

.....

.....

.....[3]

(b) Explain why this change in land use increases the risk of soil erosion.

.....

.....

.....

.....[2]

(c) Suggest **two** ways in which a pasture suitable for grazing could be established on the cleared land.

.....

.....

.....

.....[2]

(d) (i) Name a pasture management method that could improve the utilisation of this pasture.

.....[1]

(ii) State **one** advantage and **one** disadvantage of the pasture management method you named in **(d)(i)**.

advantage .....

.....

disadvantage .....

.....

[2]

[Total: 10]

5 The photograph shows an intensive poultry-rearing system.

(a) State **three** ways in which disease could spread between these birds.

.....

.....

.....[3]

(b) The table shows the main costs for a poultry-rearing system.

input	cost / $
one-day-old chick	3.25
50 kg of starter feed	116.50
50 kg of grower mash	115.00
50 kg of finisher mash	114.00
vaccine per bird	0.50
water and electricity per bird	0.20

Over its lifetime each chicken eats:

- 0.8 kg of starter feed
- 1.5 kg of grower mash
- 1.2 kg of finisher mash.

(i) Calculate the lifetime feed costs per bird.

Show your working.

..... $ [3]

(ii) Calculate the income per bird needed to cover the costs shown in the table.

Show your working.

..... $ [2]

(iii) Suggest **two** further production costs that are **not** shown in the table.

.....

.....

.....[2]

[Total: 10]

6 **(a)** It is important for farmers to harvest crops at the correct time.

(i) Name a crop and state how a farmer recognises that this crop is ready to be harvested.

name of crop .....

how a farmer recognises the crop is ready .....

.....

[1]

(ii) State how a farmer could harvest the crop named in **(a)(i)**.

.....

.....[1]

(iii) State how the crop named in **(a)(i)** should be stored after harvesting.

.....

.....[1]

(b) Describe **two** ways crops can be damaged during storage.

.....

.....

.....

.....[2]

(c) Which kind of pest are grasshoppers, locusts, termites, leaf miners and beetles?

A biting and chewing

B piercing and sucking

C root borers

D stem borers

Answer **A**, **B**, **C** or **D** ..... [1]

[Total: 6]

7 Pests can be controlled using systemic pesticides.

(a) Explain how a systemic pesticide controls crop pests.

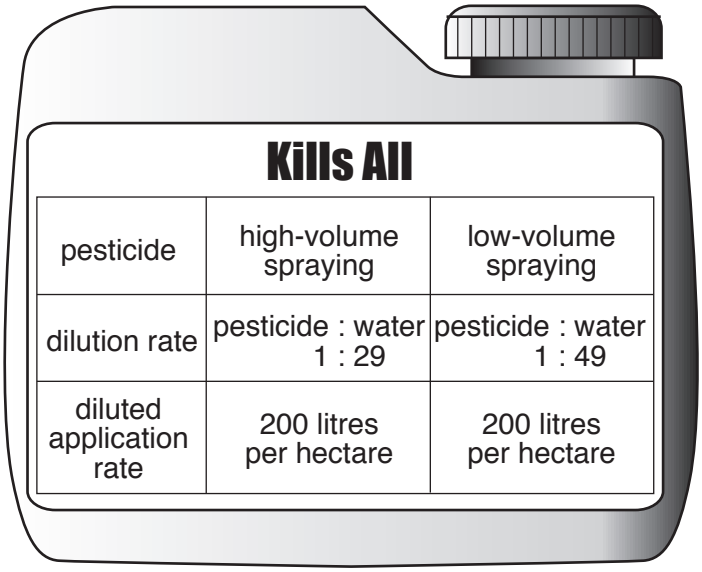
.....

.....

.....

.....[2]

The diagram shows some instructions for the use of a pesticide.



(b) Calculate the volume of undiluted pesticide needed to spray one hectare at low volume. Include a unit in your answer.

Show your working.

volume = ...[2]

(c) Describe precautions which should be taken to prevent damage to the environment when spraying pesticide.

.....

.....

.....

.....[2]

[Total: 6]

8 The drawing shows a condition in pigs known as mule foot.

normal foot mule foot

Mule foot is a genetic condition which can be passed from generation to generation through the dominant allele T.

(a) Define the term *allele*.

.....

.....[1]

All the pigs in a herd have this condition. Some are homozygous for T (TT) and some are heterozygous (Tt).

(b) (i) The diagram shows the two possibilities when sows from this herd are crossed with a homozygous recessive boar (tt) from another herd. One cross has been done for you.

Complete the other cross.

parents	TT	×	tt	parents	.....	×	.....
gametes	(T) (T)	×	(t) (t)	gametes	◯ ◯	×	◯ ◯
offspring	Tt	Tt	Tt	Tt	offspring	.....	.... [3]

(ii) State the expected percentage of animals in the offspring for the cross you have completed that would have mule foot.

.....% [1]

(c) A farmer cannot tell from looking at his sows with mule foot whether they are TT or Tt.

How does using a homozygous recessive boar help to find out whether they are TT or Tt?

.....

.....[1]

(d) Describe how the dominant allele, T, could be removed from the farmer's herd by breeding.

.....

.....

.....

.....[2]

(e) Suggest **one** other advantage that might result from using the boar from another herd.

.....

.....[1]

(f) Some farmers use artificial insemination to improve their herd.

Explain the benefits of artificial insemination.

.....

.....

.....

.....[2]

[Total: 11]

[Turn over

Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

9 **(a)** Describe the process of photosynthesis. [4]

(b) Describe how environmental factors affect the rate of transpiration. [4]

(c) Explain how water moves through a plant from soil to atmosphere. [7]

10 **(a)** Define the terms *lactation* and *weaning*. [4]

(b) For a **named** mammalian farm animal, describe the care given to a mother during pregnancy and birth, and to her newborn young. [7]

(c) Explain why it is important to feed newborn animals colostrum. [4]

11 **(a)** Describe what is meant by the term *genetically modified (GM) crop*. [4]

(b) Describe the advantages and disadvantages of genetically modified crops. [5]

(c) Explain how selective breeding can improve crop varieties. [6]

12 **(a)** Describe the role of legumes in crop rotations. [4]

(b) Describe how the soil pH of a field should be tested. [7]

(c) Explain how soil can become acidic and how this could affect soil fertility. [4]

13 **(a)** State what is meant by the term *biological control*. [3]

(b) Describe how cultural methods can be used to control crop pests. [7]

(c) Explain the benefits of chemical pest control. [5]