

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

AGRICULTURE

5038/01

Paper 1

May/June 2005

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, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

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.

At the end of the examination, fasten all your work securely together. Enter the numbers of the Section B questions you have answered in the grid below.

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	

Section A

Answer **all** the questions.

Write your answers in the spaces provided.

1 Fig. 1.1 shows the water cycle.

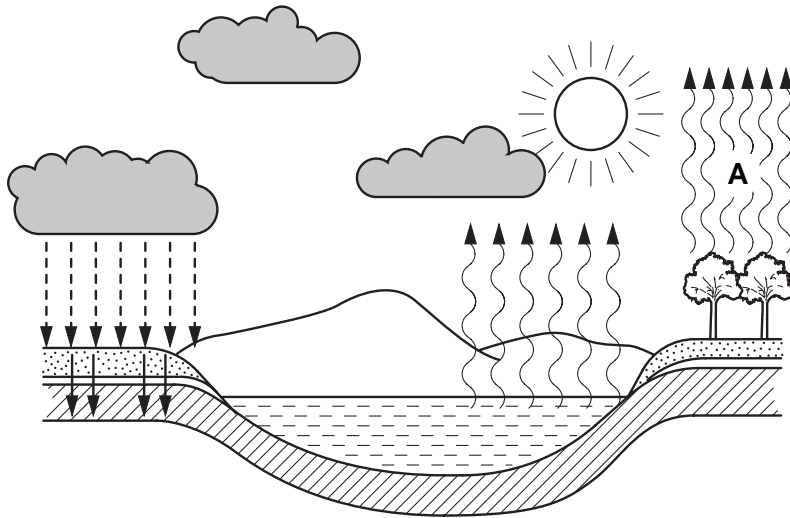


Fig. 1.1

(a) What is the name of the process taking place at **A**?

.....[1]

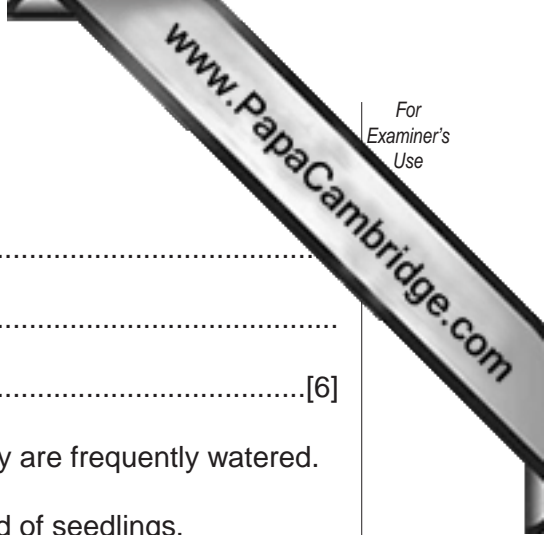
(b) Explain how the process taking place at **A** is affected by changes in

(i) humidity,

.....
.....
.....

(ii) wind strength,

.....
.....
.....



(iii) temperature.

.....
.....
.....[6]

(c) Young seedlings may wilt in hot, sunny conditions, even if they are frequently watered.

State **one** action that could be taken to reduce wilting in a bed of seedlings.

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

[Total: 8]

2 Fig. 2.1 is a cross-section through the root of a plant.

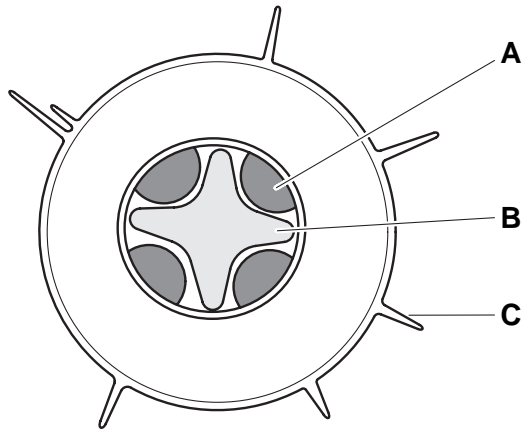


Fig. 2.1

(a) Name the parts labelled A, B and C.

A

B

C

[3]

(b) Which part of the root absorbs the most water from the soil?

.....[1]

(c) (i) What is the name of the process by which water is absorbed from the soil into the root?

.....[1]

(ii) Describe the process by which water is absorbed from the soil.

.....
.....
.....
.....[3]

[Total: 8]

Turn to page 6 for Question 3.

3 (a) Fig. 3.1 shows part of a label from a container of herbicide.

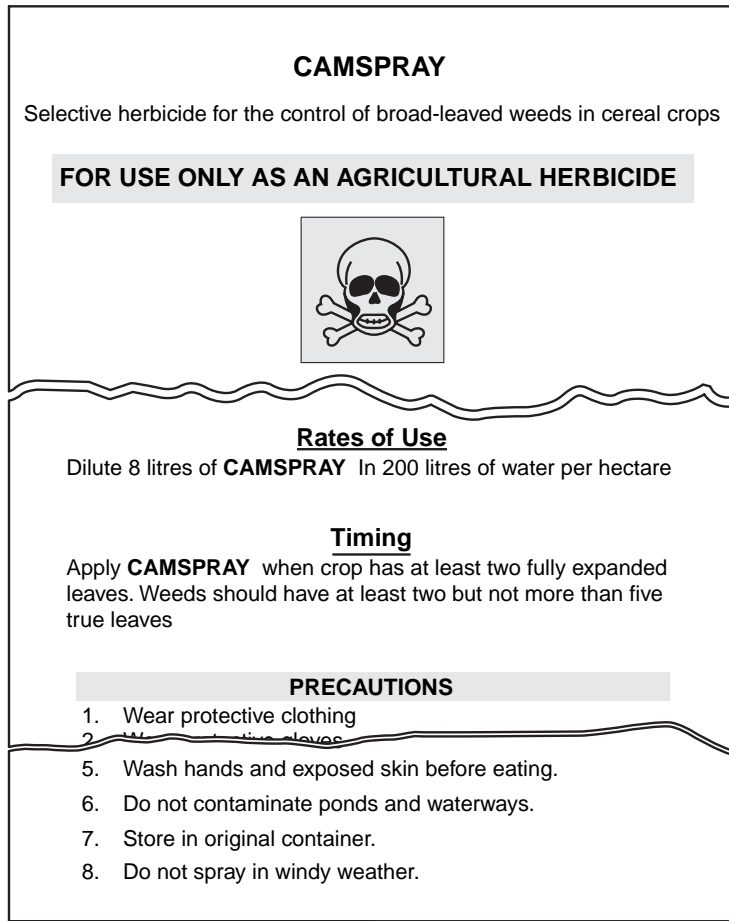


Fig. 3.1

When using and storing the herbicide,

(i) state **two** ways to avoid contaminating ponds and waterways,

- 1.
-
- 2.
-[2]

(ii) state **two** reasons why it is important to keep the herbicide in its original container.

- 1.
-
- 2.
-[2]

- (b) Table 3.1 lists some herbicides and their modes of action.

Table 3.1

herbicide	action
atrazine	Selective, systemic herbicide to control broad-leaved weeds and perennial grasses, used pre-emergence (before crop appears above soil).
2,4-D	Selective, systemic herbicide to kill broad-leaved weeds, used post-emergence (after crop appears above soil).
paraquat	Non-selective, contact herbicide, used to kill grasses and broad-leaved weeds. Does not affect woody plants.

- (i) Complete the table below using the information from Table 3.1. to select the most suitable herbicide for each situation described.

situation	suitable herbicide
to clear weeds from around mature fruit trees	
to clear weeds from an area which has just been sown with a bean crop	

[2]

- (ii) State what is meant by the terms

selective herbicide,

.....

systemic herbicide,

.....

contact herbicide.....

.....[3]

[Total: 9]

- 4 Fig. 4.1 shows the reproductive system of a female mammal.

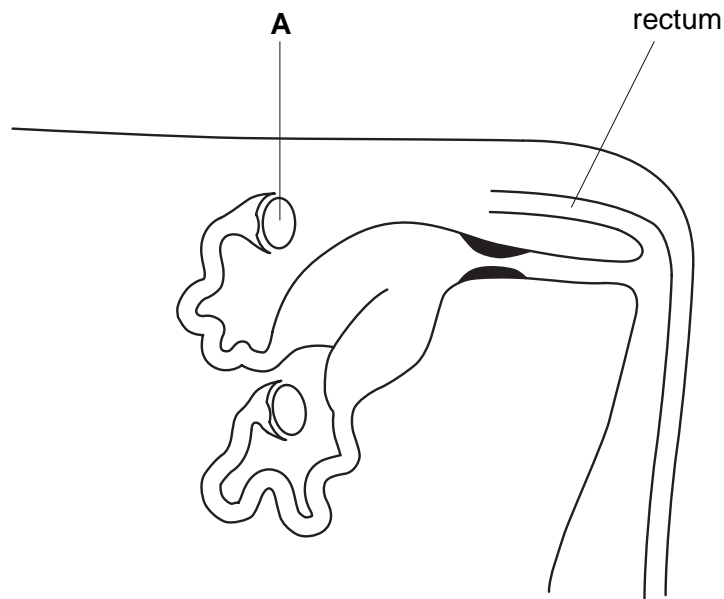


Fig. 4.1

(a) On Fig. 4.1,

(i) mark with an **F** where fertilisation occurs,

(ii) mark with a **D** where the fetus develops.

[2]

(b) State **two** functions of structure **A**.

1.

2. [2]

(c) Fig. 4.2 shows the reproductive cycle of a female farm animal.

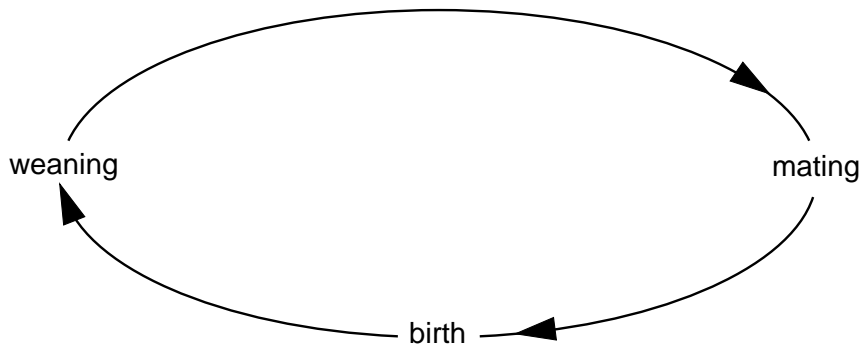


Fig. 4.2

At the correct places on the diagram, write the words,

(i) pregnancy, [1]

(ii) lactation. [1]

(d) State what *colostrum* is and explain its importance.

colostrum.....

importance

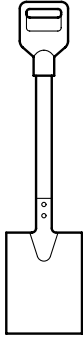
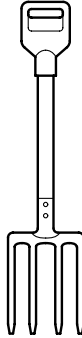
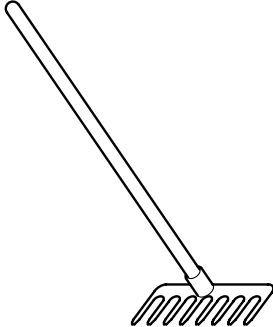
.....
.....
.....
.....
.....

[4]

[Total: 10]

5 Table 5.1 shows three hand tools.

Table 5.1

 <p style="text-align: center;">spade</p>	 <p style="text-align: center;">fork</p>	 <p style="text-align: center;">rake</p>
<p style="text-align: center;">function of the spade</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p style="text-align: center;">function of the fork</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p style="text-align: center;">function of the rake</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

(a) In Table 5.1, state the function of each tool in the preparation of a seed bed from a piece of land that has not been cultivated for a season. [3]

(b) Outline the way in which these tools should be maintained to keep them in good condition.

.....

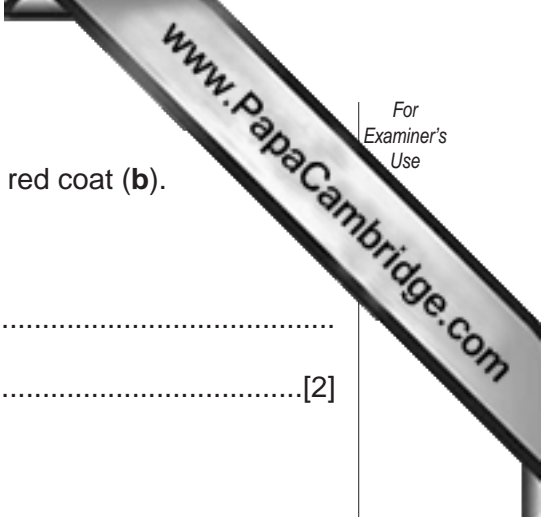
.....

.....

.....

.....[5]

[Total: 8]



6 In cattle, the allele for black coat (**B**) is dominant over the allele for red coat (**b**).

(a) State the genotypes of

a homozygous black bull,

a red cow.....[2]

(b) State the allele for coat colour

in sperm from the homozygous black bull,.....

in ova from the red cow.[1]

(c) A homozygous black bull is mated with a red cow.

State

(i) the genotype of the offspring,

(ii) the phenotype of the offspring.[2]

Use the space below to show your working.

[Total: 5]

7 (a) (i) Name a crop that is grown locally and that you have studied.

.....

(ii) Name a disease that affects this crop.

.....[1]

(iii) State the symptoms of this disease in the crop.

.....

.....

.....[2]

(iv) State **one** action that should be taken if symptoms of this disease begin to appear in the crop.

.....

.....[1]

(b) List **three** things that can be done to reduce the risk of diseases occurring in a crop.

1.

.....

2.

.....

3.

.....[3]

[Total: 7]

Section B

Answer any **three** questions.

Write your answers on the separate answer paper provided.

Use labelled or annotated diagrams where they help to make your answers more easily understood.

- 8 (a)** For a named type of ruminant livestock that you have studied,
- (i)** state the type of livestock,
 - (ii)** name a parasite that affects this type of livestock,
 - (iii)** describe the problems caused by this parasite,
 - (iv)** describe means of prevention and control of this parasite. [9]
- (b)** Explain the importance of an adequate, clean water supply for livestock. [6]
- [Total: 15]
- 9 (a)** Using labelled diagrams, describe in detail the four-stroke cycle in a petrol engine. [11]
- (b)** Use a diagram to explain why it is important that the centre of gravity in a tractor is kept as low as possible. [4]
- [Total: 15]
- 10 (a)** Describe and explain the **problems** that can arise in extensive grazing systems on unfenced land. [9]
- (b)** Apart from fencing, outline the ways in which pasture can be improved. [6]
- [Total: 15]

- 11 (a) (i) State what is meant by the terms *mixed farming* and *monoculture*.
(ii) What are the advantages of mixed farming?
(iii) Outline the problems that may arise for a farmer practising monoculture.
- (b) (i) State what is meant by *crop rotation*.
(ii) Describe and explain a crop rotation system that could be used to grow three types of vegetables in a school garden which has been divided into three beds. [6]

[Total: 15]

- 12 (a) Describe the formation of soil, from parent rock, by physical, chemical and biological weathering. [9]
- (b) Explain the advantages of using
(i) inorganic fertilisers,
(ii) organic fertilisers. [6]

[Total: 15]

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