

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 2004

**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 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 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	
<b>Section A</b>	
<b>Section B</b>	/
<b>Total</b>	

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

This document consists of **12** printed pages.



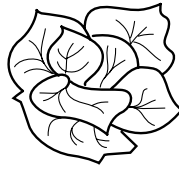
**Section A**

Answer **all** the questions.

**1** Fig. 1.1 shows three crops that will be grown together in a school vegetable garden.



pea (a legume)



cabbage  
(a leafy vegetable)



carrot  
(a root crop)

**Fig. 1.1**

**(a) (i)** Which crop will benefit most from an application of fertiliser with a high nitrogen content?

..... [1]

**(ii)** State a reason for this.

.....

..... [1]

(b) The garden is divided into three plots, one for each vegetable. A three-year rotation is used when planting the vegetables. Complete Fig. 1.2 to show such a rotation.

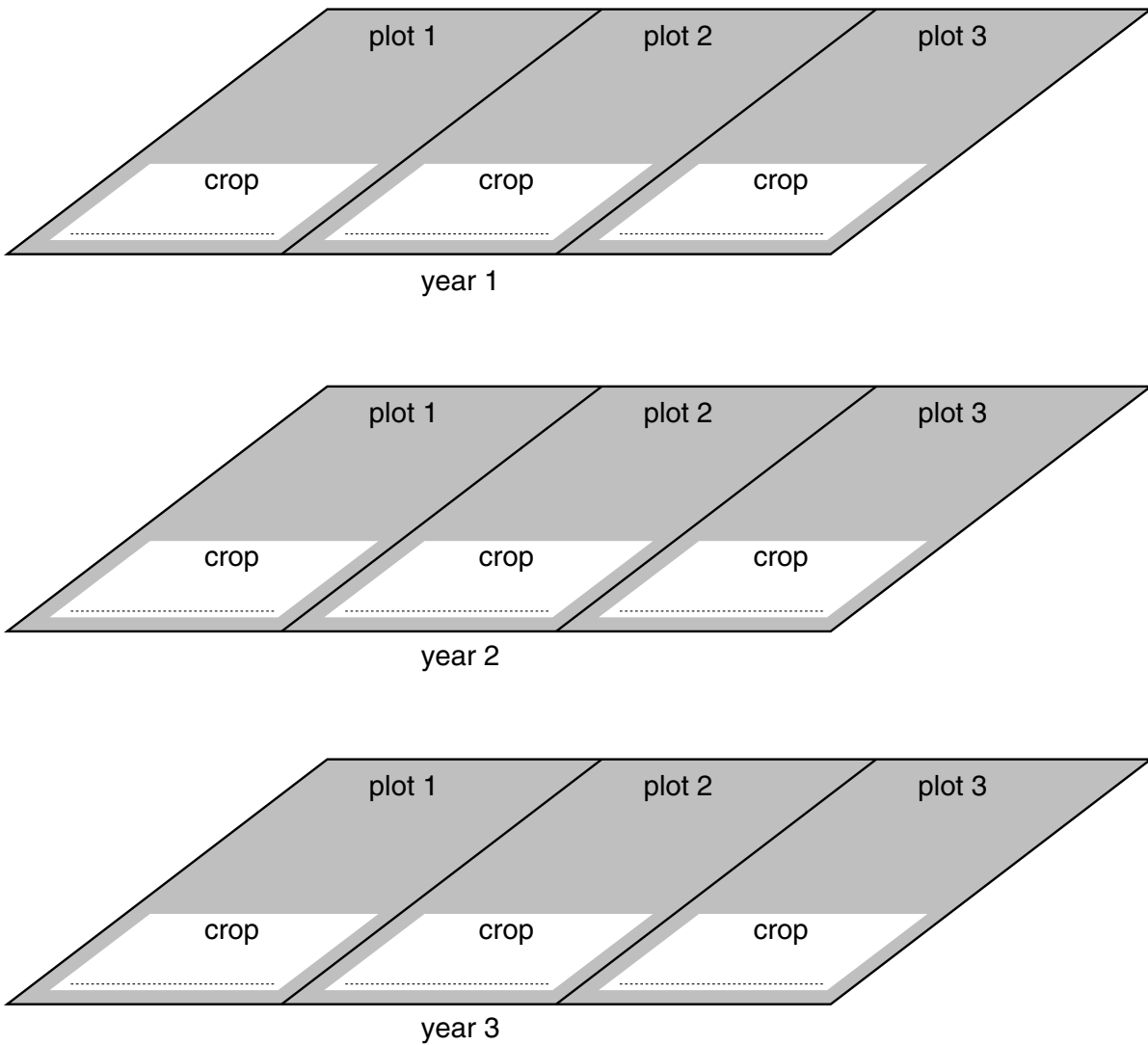


Fig. 1.2

[3]

(c) State **two** advantages of this rotation.

- 1. ....
- 2. .... [2]

[Total: 7]

2 (a) Fig. 2.1 is a triangular diagram used to identify soil type.

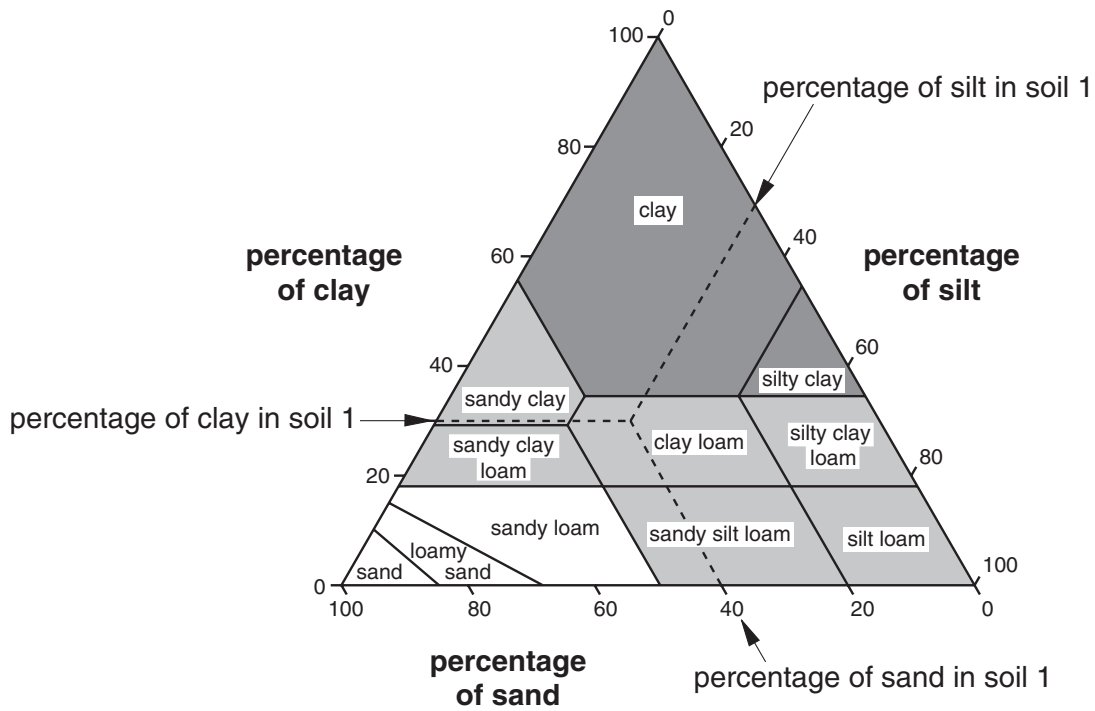


Fig. 2.1

Use the diagram to identify the types of the soils shown in Table 2.1. The first example has been completed for you.

Table 2.1

	percentage of			Soil type
	clay	sand	silt	
Soil 1	30	40	30	clay loam
Soil 2	60	20	20	
Soil 3	10	60	30	
Soil 4	30	10	60	

[3]

(b) Describe a handling test that can be used to identify soil texture.

.....

.....

.....

..... [3]

[Total: 6]

3 (a) Fig. 3.1 shows the structure of a flower.

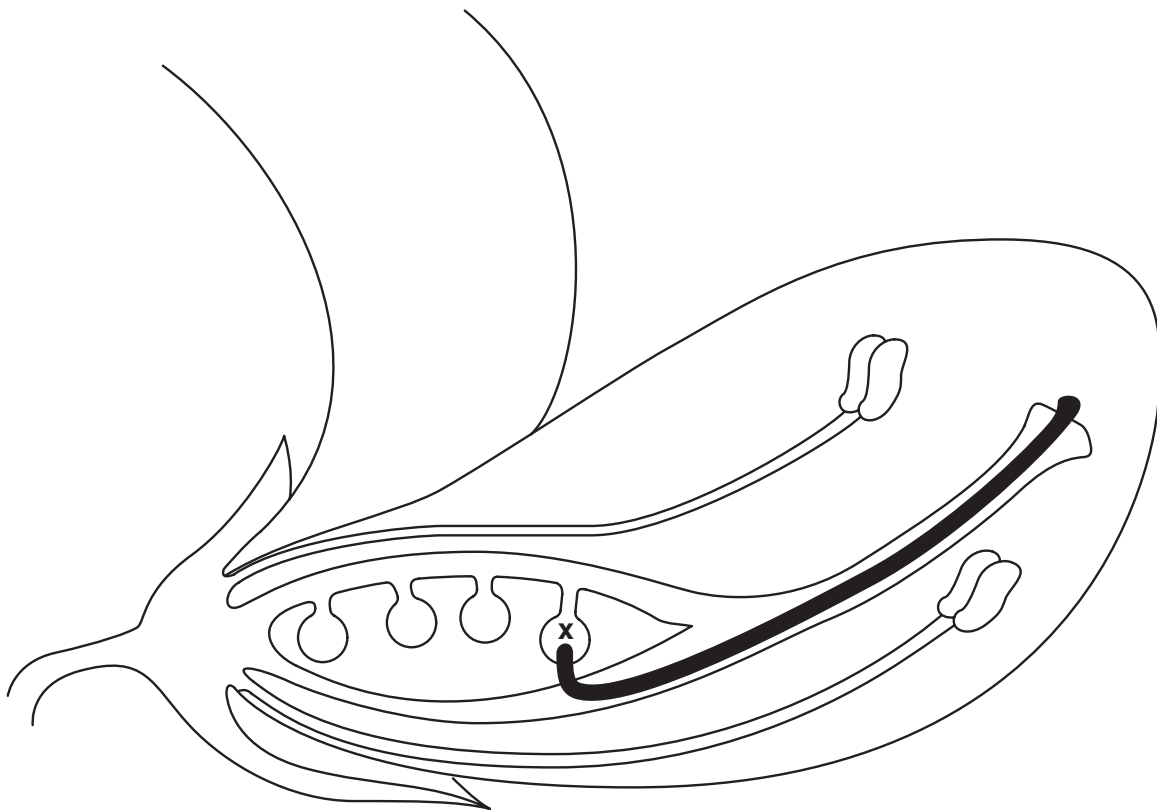


Fig. 3.1

(i) Label with a **P** the structure that produces pollen. [1]

(ii) Name the process that is happening at **X**.  
..... [1]

(b) (i) What is cross-pollination?  
.....  
.....  
.....  
..... [3]

(ii) State **one** advantage of cross-pollination.  
.....  
..... [1]

[Total: 6]

4 Fig. 4.1 shows the digestive system of a chicken.

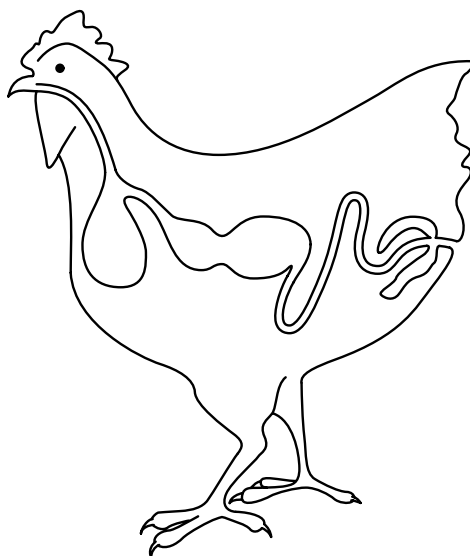


Fig. 4.1

(a) On the diagram, label

(i) the crop,

(ii) the proventriculus,

(iii) the caeca.

[3]

(b) The diet of a chicken may include hard food such as cereal grains. The chicken has no teeth so how is the mechanical breakdown of hard food brought about?

.....

.....

.....

..... [3]

(c) Minerals are an essential part of a chicken's diet. Name **two** essential minerals and state the use of each in the chicken's body.

*mineral 1* .....

*use* .....

*mineral 2* .....

*use* ..... [4]

[Total: 10]

5 Fig. 5.1 shows the growth curve for some chickens kept for meat production.

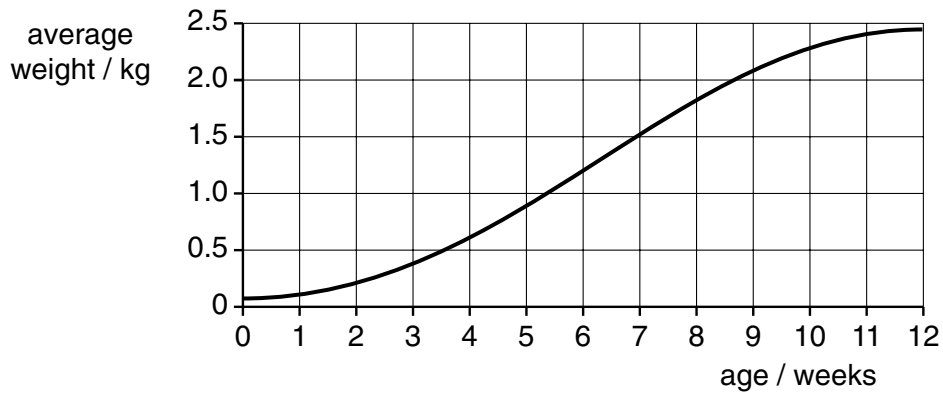


Fig. 5.1

(a) (i) What is the maximum average weight of the chickens? .....

(ii) At what age do the chickens reach this weight? ..... [2]

(b) These chickens are slaughtered at ten weeks old. Why is this the best age at which to slaughter them?

.....

.....

.....

..... [3]

[Total: 5]

- 6 (a) Fig. 6.1 shows two plants, a broad-leaved weed and a grass, both found in land to be used for grazing.

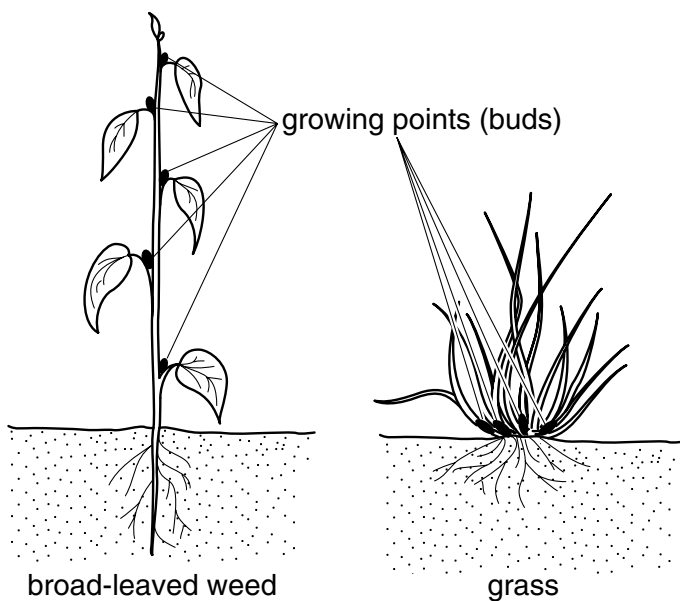


Fig. 6.1

After the land had been grazed for some time the broad-leaved weed died out but the grass continued to grow.

Suggest an explanation for why this happens to the plants.

*broad-leaved weed*.....

.....  
.....

*grass* .....

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



(b) Fig. 6.2 shows a plan to use pasture for rotational grazing.

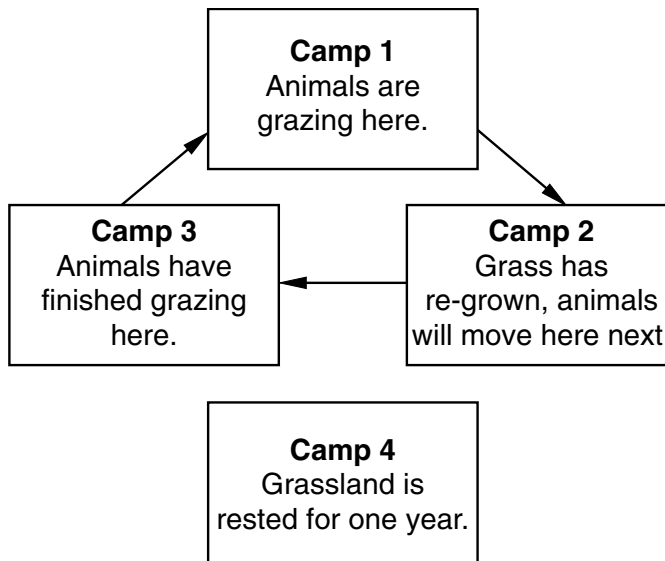


Fig. 6.2

(i) State **two** advantages of rotating the grazing between Camps 1, 2 and 3.

- 1. .... [2]
- 2. .... [2]

(ii) Suggest **one** reason for resting the grassland in Camp 4 for a year.

..... [1]

..... [1]

(iii) The grass in Camp 4 may be burned before being brought into the rotation after a rest year.

State **one** reason for this.

..... [1]

[Total: 8]

- 7 Fig. 7.1 shows the result of crossing two pure-bred plants, one with red flowers and one with white flowers.

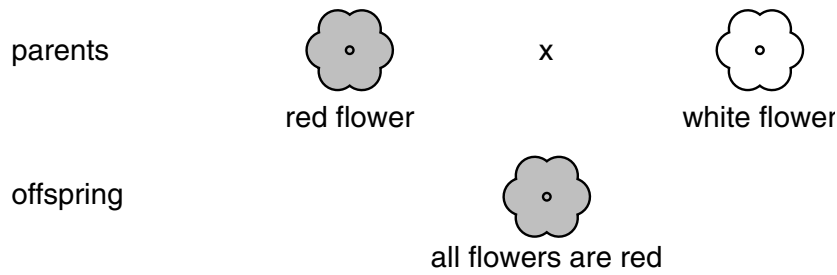
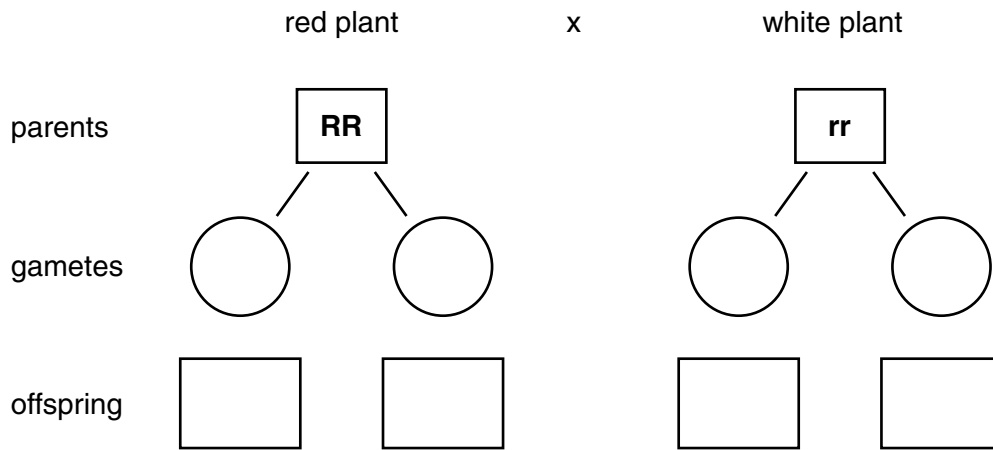


Fig. 7.1

- (a) Using the symbols **R** for the dominant allele and **r** for the recessive allele, complete the boxes to show this cross.



[2]

- (b) Use a genetic diagram to explain why the plants produced by crossing two of the offspring will not all be red.

*explanation* .....

.....

..... [3]

[Total: 5]

8 Fig. 8.1 shows sections through two buildings used to house livestock.

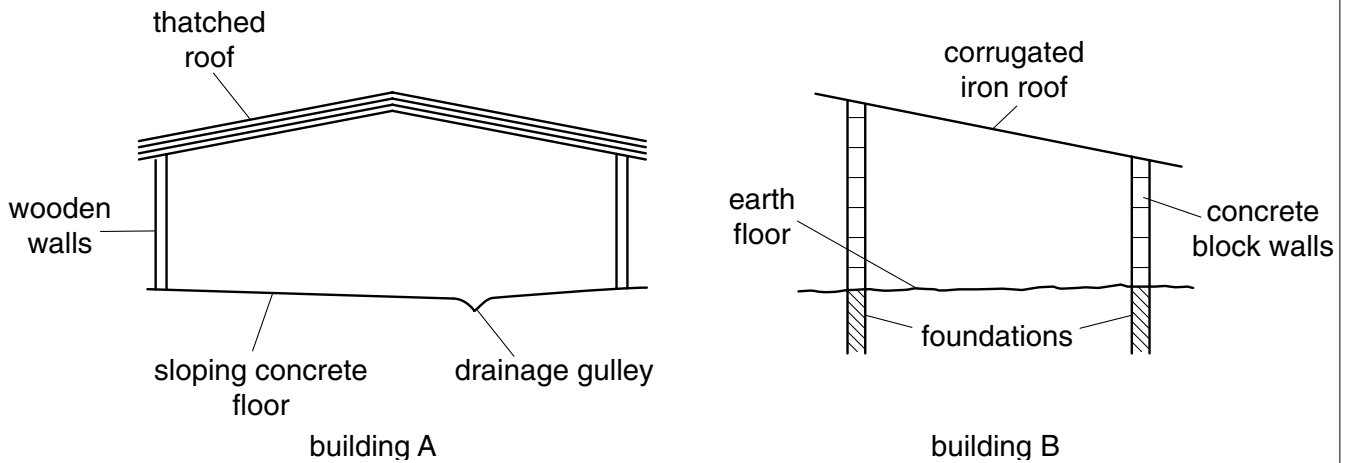


Fig. 8.1

Compare the advantages and disadvantages of the floor, roof and walls in the two buildings.

floor .....

.....

.....

.....

roof .....

.....

.....

.....

walls .....

.....

.....

..... [8]

[Total: 8]

Copyright Acknowledgements:

Question 2 Fig. 2.1 © Triangular Soil Diagram from *Principles of Horticulture* by Adams, Bamford and Early. Reprinted by permission of Elsevier Ltd.

Question 5 Elliot, Stout and Dejardin; *Agriculture for Southern Africa*; Collins Educational.

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**Section B**

Answer any **three** questions.

Write your answers on the separate answer paper provided.

- 9 (a)** Describe the preparation of a seed bed from uncultivated ground, explaining the reasons for the actions taken. [9]
- (b)** For a crop that you have studied,
- (i)** state the name of the crop and a pest that affects it;
  - (ii)** state the ways in which the pest damages the plant;
  - (iii)** describe methods of preventing and controlling attacks by this type of pest. [6]
- 10** For a disease of farm livestock,
- (a)** state the name of the disease and the type of livestock that it affects; [1]
  - (b)** describe how this disease is spread; [4]
  - (c)** state the signs and symptoms of this disease; [4]
  - (d)** describe methods of preventing and controlling this disease. [6]
- 11 (a) (i)** State what is meant by mixed farming.
- (ii)** Outline the benefits of mixed farming. [6]
- (b) (i)** Explain why rapid population growth means that land for farming must be used efficiently.
- (ii)** Some land is unsuitable for growing crops or keeping livestock. Outline ways in which this land could still be used to provide income (other than for houses and factories). [9]
- 12 (a)** Describe the water cycle. (Use a diagram if this makes your answer clearer.) [9]
- (b)** Describe the uptake of water and mineral salts from soil by plant roots. [6]
- 13 (a)** State and give reasons for the precautions needed for **storage** of,
- (i)** farm chemicals such as insecticides and herbicides;
  - (ii)** fuel such as petrol and diesel oil. [10]
- (b)** Describe the maintenance of a mouldboard plough. [5]