



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE
NAME

CENTRE
NUMBER

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AGRICULTURE

5038/01

Paper 1

For Examination from 2012

SPECIMEN PAPER

1 hour 45 minutes

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.

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 15 minutes on Section A.

Section B

Answer any **two** 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 **23** printed pages and **1** blank page.



Section A

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

For
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1 (a) (i) What causes chemical weathering of rocks?

- A acid rain
- B fast-flowing rivers
- C freezing water in crevices
- D wind-blown sand

answer = [1]

(ii) Fig. 1.1 shows part of the nitrogen cycle.

Which arrow represents nitrifying bacteria?

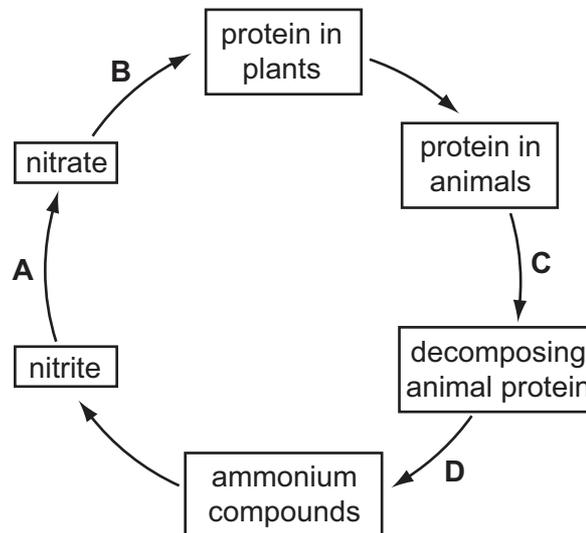


Fig. 1.1

answer = [1]

(b) Fig. 1.2 is a pie chart showing the composition of a soil.

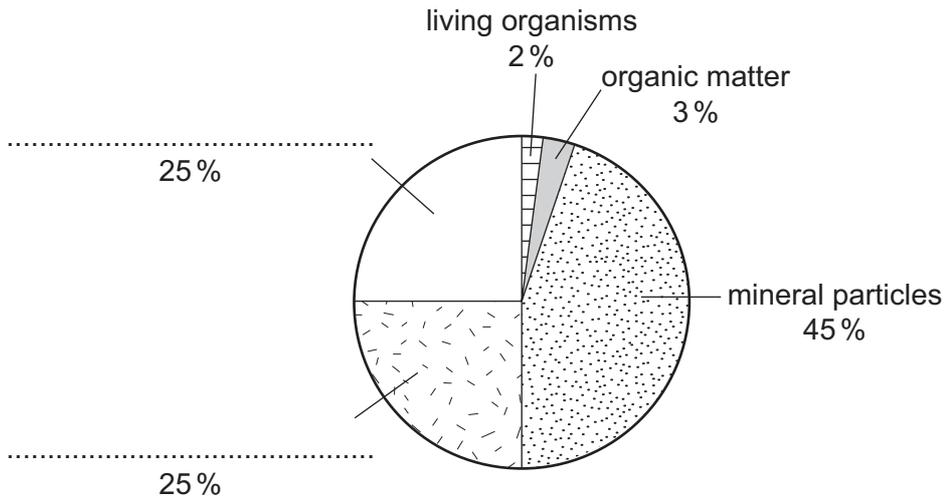


Fig. 1.2

Complete the missing labels on the pie chart.

[2]

(c) Fig. 1.3 shows a stack of soil sieves used to separate the parts of a soil sample.

Soil needs to pass easily through the mesh when the sieves are shaken.

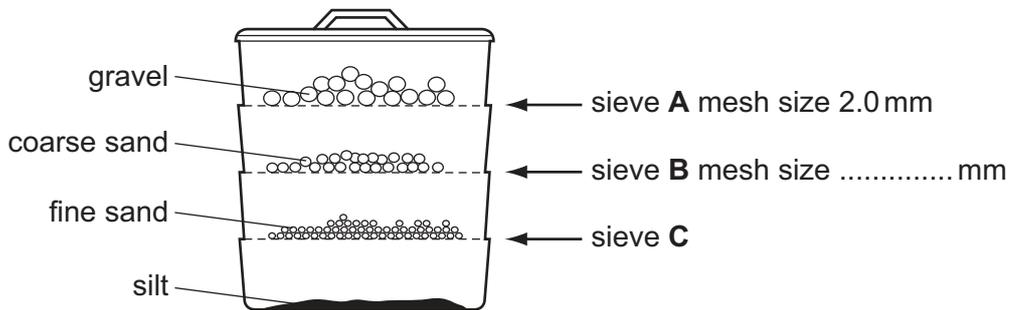


Fig. 1.3

(i) State how the soil sample should be treated before it is put into the top sieve.

..... [1]

(ii) Label the size of the mesh in sieve B.

[1]

(iii) Name **one** component of soil, apart from gravel, that would remain in sieve A.

..... [1]

(iv) Name the soil type from which the sample in Fig. 1.3 was taken.

..... [1]

[Total: 8]

- 2 (a) Table 2.1 lists organic and inorganic sources of plant nutrients. Complete table 2.1.

Table 2.1

plant nutrient	organic source	inorganic source
N	animal manure
P	super phosphate
K

[4]

- (b) For what purpose do plants use magnesium?

.....

[1]

- (c) A farmer wishes to test the pH of the soil in a garden plot. Fig. 2.1 shows the order in which the soil samples were taken from the plot.

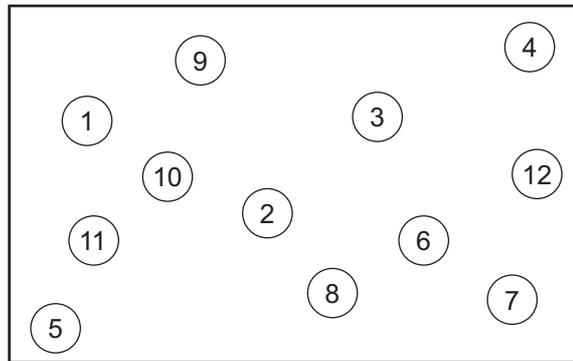


Fig. 2.1

- (i) Explain why the samples are collected in this way.

.....

[1]

The samples are then shaken with distilled water in a tube.

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(ii) Why is distilled water used rather than rainwater?

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

Soil indicator was added to one sample which was left to stand.

(iii) The sample solution in the tube showed a green colour.

What pH does this colour indicate?

..... [1]

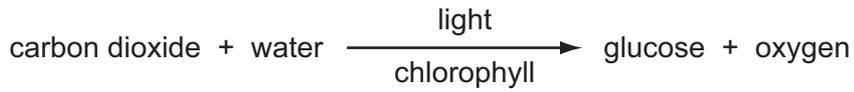
(iv) Suggest how the result would differ if lime had recently been added to the plot.

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

[Total: 9]

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3 (a) The word equation for photosynthesis is as follows:



Complete the boxes in Fig. 3.1 using only words from this equation.

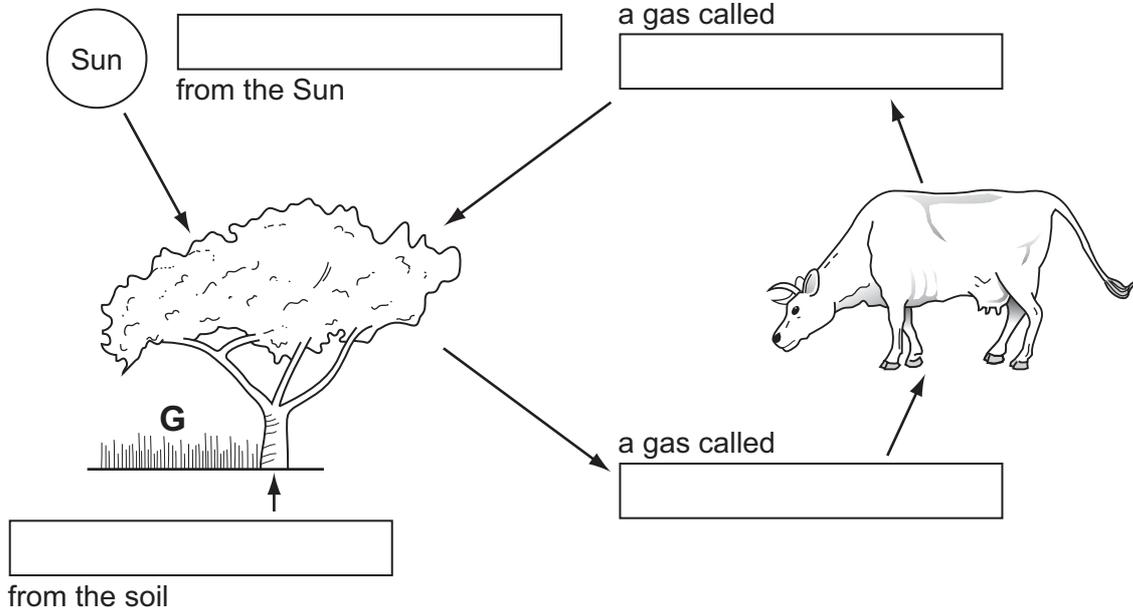


Fig. 3.1

[4]

(b) Cereals are grown in a garden plot, G, under the tree.

Explain how the tree might affect:

(i) photosynthesis in the cereal plants,

.....

(ii) transpiration in the cereal plants.

.....

[2]

[Total: 6]

4 (a) Fig. 4.1 shows a plant with one flower enlarged and cut in half.

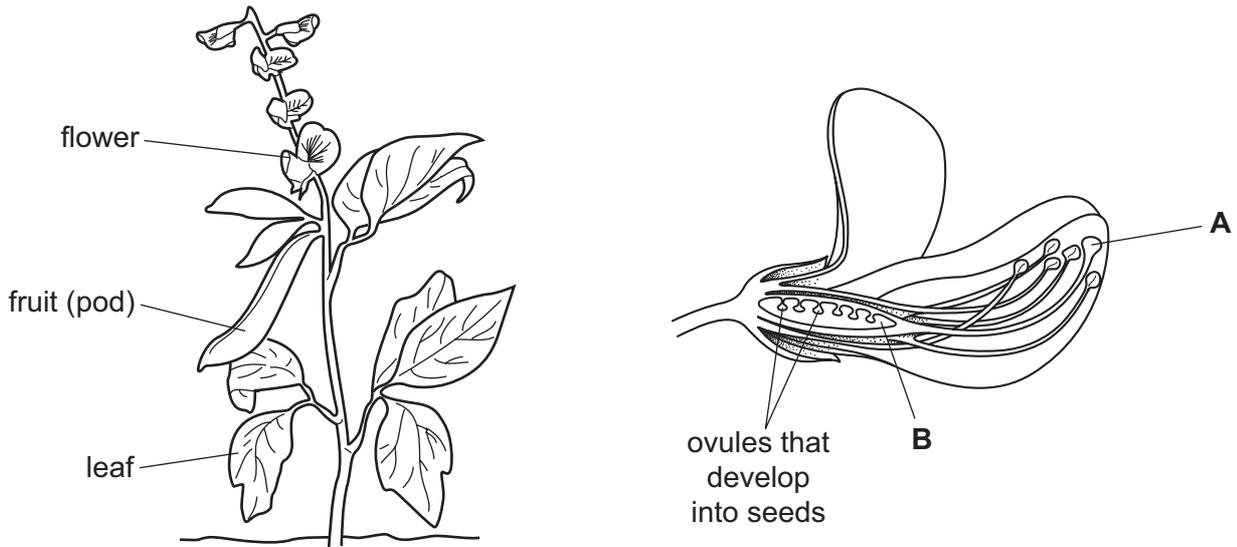


Fig. 4.1

(i) Name the parts of the flower labelled A and B.

A B [2]

(ii) Describe how the plant is pollinated.

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

(b) Seeds form after fertilisation.

Define fertilisation.

.....
..... [2]

(c) As the seeds form they use sugars made in the leaves.

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(i) Where in leaves are these sugars made?

..... [1]

(ii) State two factors that affect the rate of sugar production in leaves.

1

2 [2]

[Total: 8]

5 (a) Fig. 5.1 shows an Irish and a sweet potato plant. They were grown from tubers.

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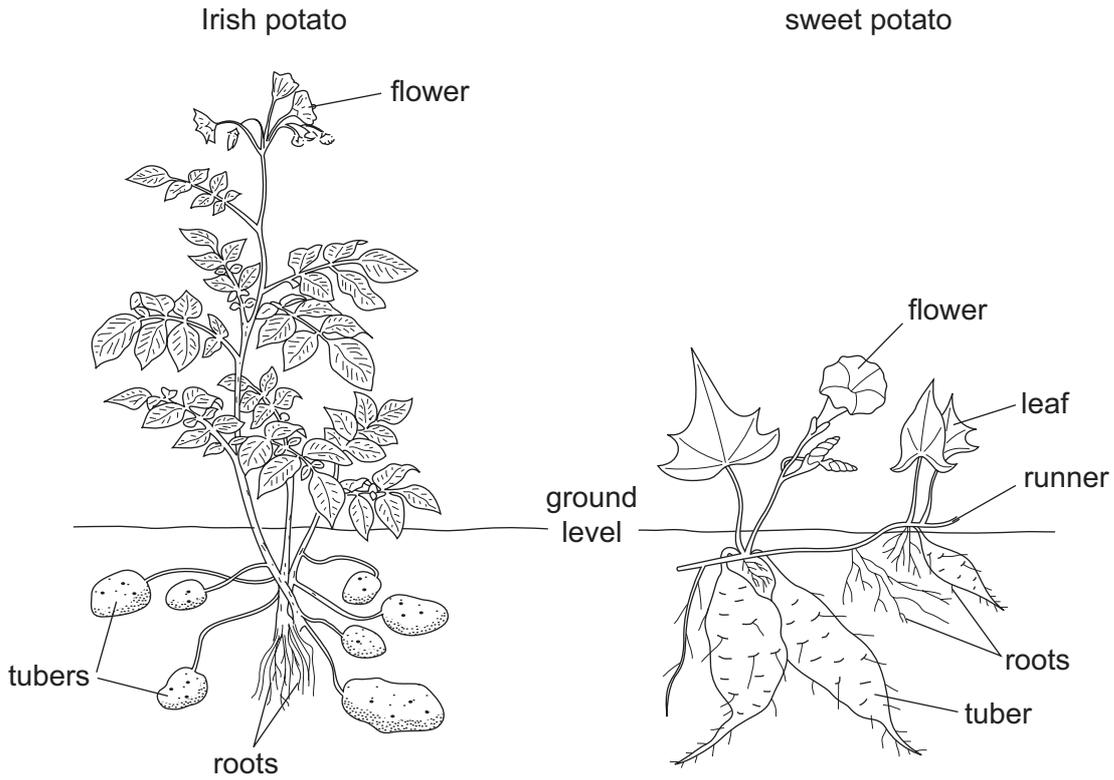


Fig. 5.1

(i) State **two** differences between the potato plants that can be seen in the diagram.

- 1
- 2 [2]

(ii) The Irish potato and the sweet potato reproduce asexually.

What is meant by *asexual reproduction*?

-
- [1]

(b) A scientist in Malaya carried out an experiment on the growth of sweet potatoes. The aim of the scientist was to compare

- the yield from different varieties
- the yield from different growing methods.

Four varieties were grown, three up a frame, and one on the ground.

All other conditions were kept the same.

Table 5.1 shows the results.

Table 5.1

variety	growing method	yields (tonnes / ha)
Ubi Telor B	upwards on a frame	16.2
Ubi Mera	along the ground	0.9
Ubi Telor A	upwards on a frame	11.2
Ubi Sungei Liang	upwards on a frame	17.4

(i) Suggest a reason for the better yield from the plants on the frame.

.....
 [1]

(ii) Suggest a reason why this experiment is not a fair test.

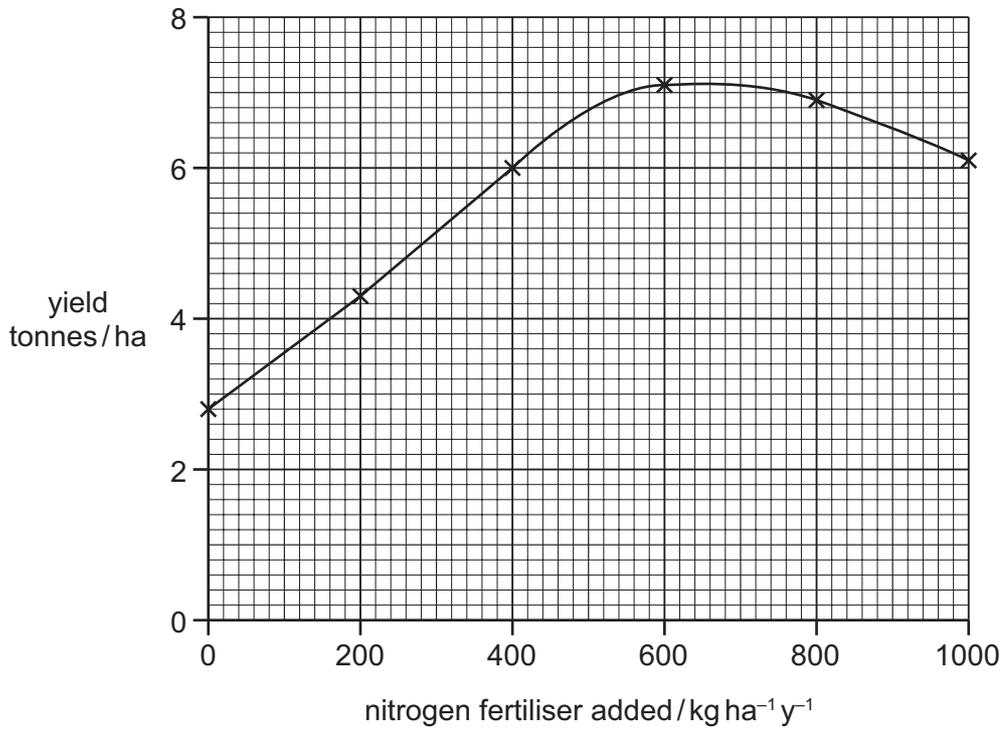
.....
 [1]

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(c) In Sierra Leone this crop is also grown for leaf production.

The graph compares the relationship between yield and the amount of nitrogen fertiliser added to the soil.

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(i) Explain how the use of a nitrogen fertiliser produces better growth of leaves.

.....
 [1]

(ii) What principle does the graph illustrate?

..... [1]

[Total: 7]

6 (a) A farmer has a large piece of land on which he grows wheat year after year.

What is the name for this type of farming?

- A crop rotation
- B mixed farming
- C monoculture
- D organic farming

answer = [1]

(b) (i) For a named cereal crop state how to recognise it is ready for harvesting.

name of crop
..... [1]

(ii) State **one** environmental condition needed for the storage of cereal crops.

..... [1]

(c) Fig. 6.1 shows a storage building for a cereal crop.

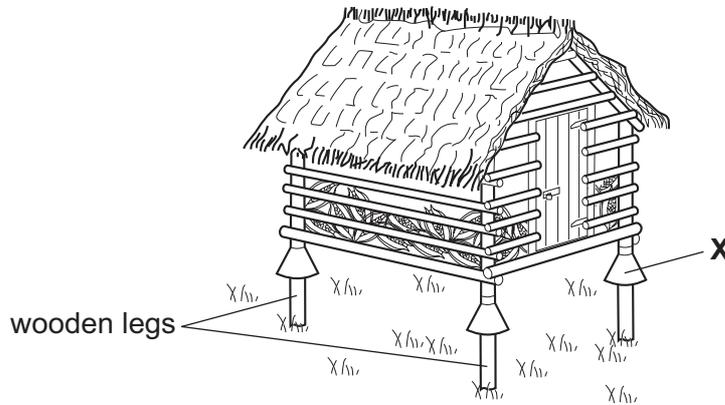


Fig. 6.1

(i) What is the purpose of the part labelled X?

..... [1]

The roof is thatched.

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(ii) State a possible disadvantage of the thatched roof.

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

(iii) Suggest how the process of rotting in the wooden legs can be prevented.

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

[Total: 6]

- 7 Fig. 7.1 shows the names given to parts of the digestive system of a ruminant.

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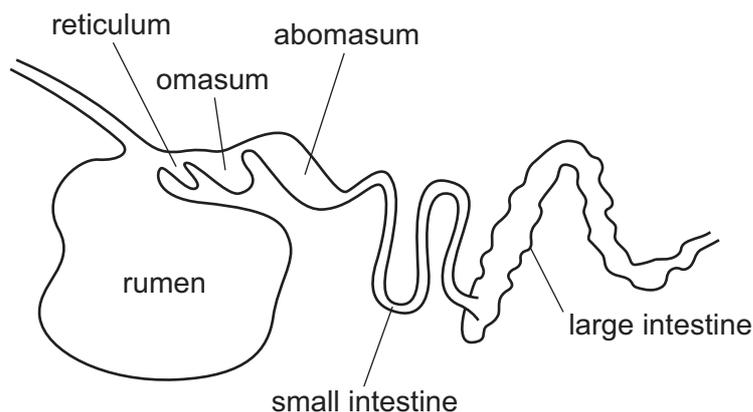


Fig. 7.1

- (a) The boxes below list these parts of the ruminant digestive system and suggest some functions.

Draw a straight line from each part of the digestive system to its correct function. One has been done for you.

part of digestive system

function

rumen	regurgitates food to be chewed
reticulum	bacteria in here break down food
omasum	final absorption of water
abomasum	food checked and water removed before passing to abomasum
small intestine	absorbs digested food
large intestine	true stomach, digests protein

[4]

(b) Table 7.1 shows the percentages of energy content and protein in some animal feeds.

Table 7.1

type of food	% of total	% of dry matter				
	water	protein	fat	carbohydrate	fibre	ash
Cassava	88.0	2.8	0.3	84.8	8.7	3.4
Dried grass	11.0	19.7	3.8	42.7	22.4	11.4
Fodder Beet	82.0	6.8	0.3	79.1	5.9	7.7
Groundnut cake	10.0	50.4	2.1	31.6	27.3	4.7
Hay	14.2	12.2	1.8	48.1	30.1	7.8
Maize	14.0	9.8	4.2	82.3	2.4	1.3
Mangels	90.0	9.2	0.8	76.9	6.2	6.9
Sorghum	14.0	10.8	4.3	80.1	2.1	2.7

(i) From the foods listed, name:

one fed as a protein concentrate,

one fed as a succulent,

one fed to provide roughage. [3]

(ii) State **one** way a production ration differs from a maintenance ration.

Give an example from Table 7.1 to support your answer.

.....

.....

..... [2]

[Total: 9]

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8 (a) (i) Fig. 8.1 shows the reproductive organs of a male farm animal.

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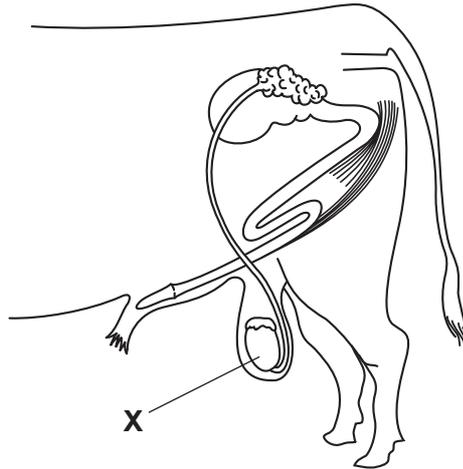


Fig. 8.1

What is structure X ?

- A bladder
- B epididymis
- C scrotum
- D testis

answer = [1]

(ii) Fig. 8.2 shows the internal reproductive organs of a female farm animal.

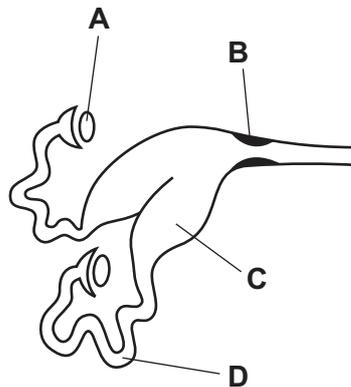


Fig. 8.2

Where is an ovum fertilised by a sperm?

answer = [1]

(b) Fig. 8.3 shows the inheritance of horns in two generations of sheep.

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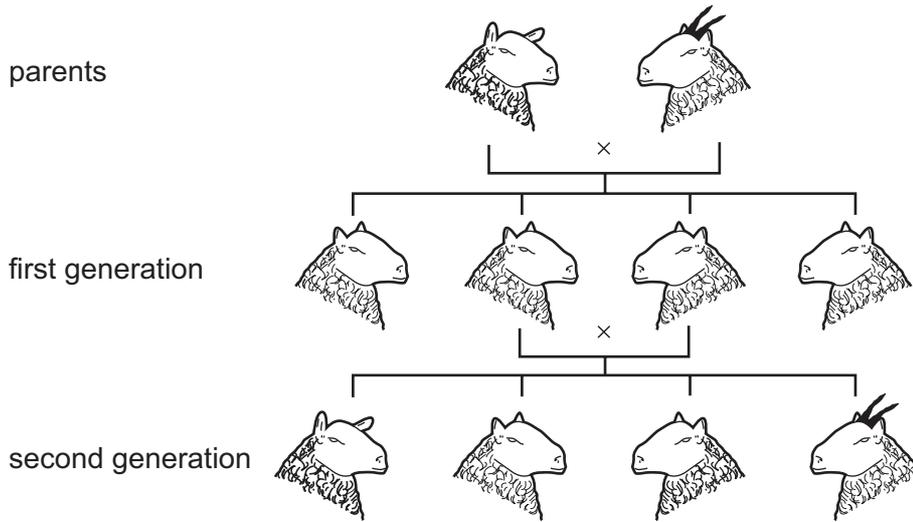


Fig. 8.3

(i) Is the allele for presence of horns dominant or recessive?

.....

Give a reason for your answer.

.....

..... [1]

(ii) State how features are passed from generation to generation.

.....

.....

..... [2]

(c) Fig. 8.4 shows two rams.

They are of the same breed and age. They are used to sire lambs for meat.

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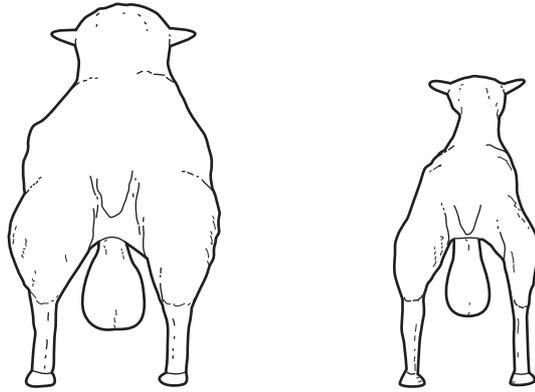


Fig. 8.4

(i) Suggest two reasons for the differences in the rams in Fig. 8.4.

.....
.....
.....
..... [2]

(ii) What records would be useful when selecting a ram to use for producing lambs for meat?

.....
.....
..... [2]

[Total: 9]

9 (a) Select four tools from Fig. 9.1 that would be used to construct a pole and wire fence.

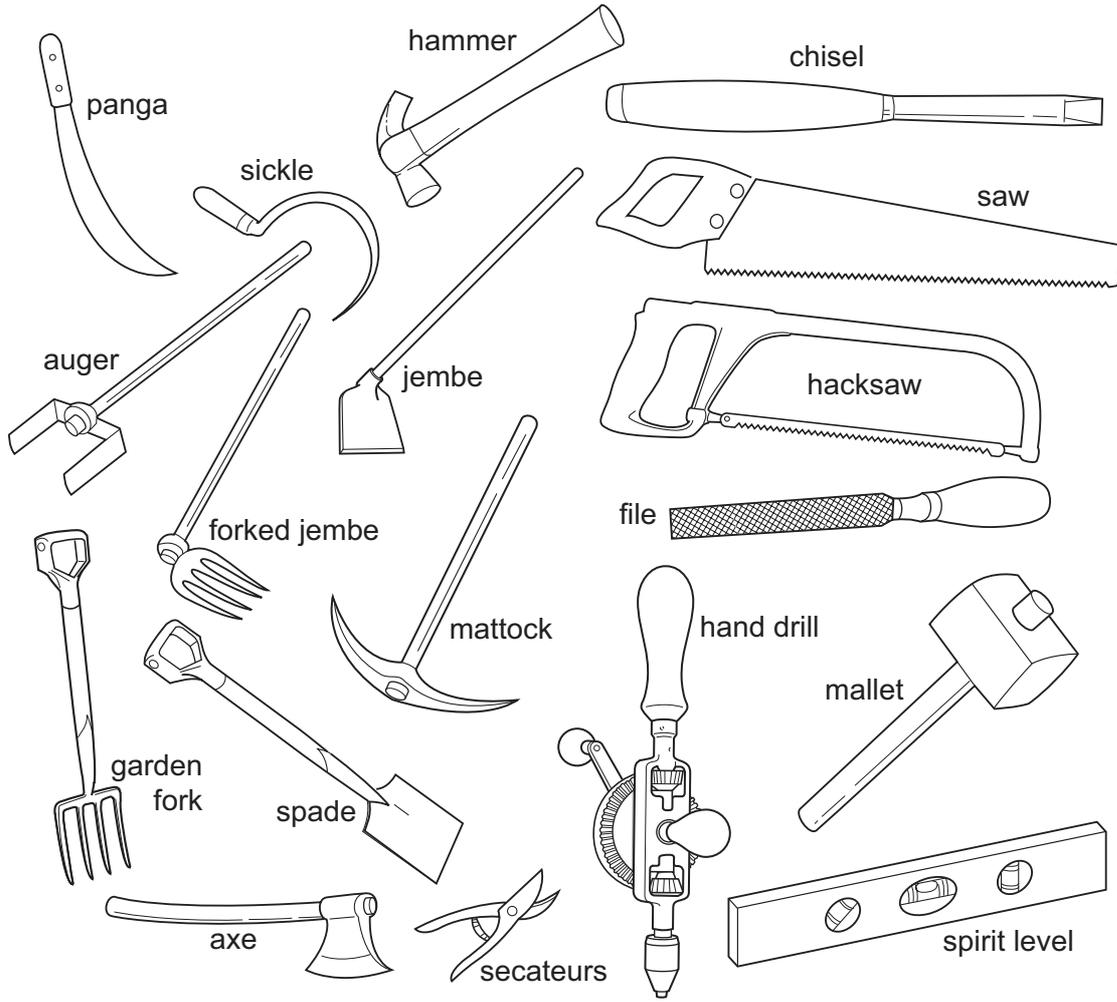


Fig. 9.1

- 1
- 2
- 3
- 4 [4]

- (b) Fig. 9.2 and Fig. 9.3 are drawings which show two fences used for enclosing homesteads.

The fence in Fig. 9.2 is made of empty cans hung on wire.

The fence in Fig. 9.3 is made from wood cut from trees.

Both are cheap to build.



Fig. 9.2



Fig. 9.3

- (i) State **one** advantage of the fence in Fig. 9.2 other than low cost.

..... [1]

- (ii) State **one** disadvantage of the fence in Fig. 9.3

..... [1]

(c) Water is made available to farms by dams and streams.

(i) Fig. 9.4 shows four different shapes of dam wall.

Which wall will best withstand water pressure.

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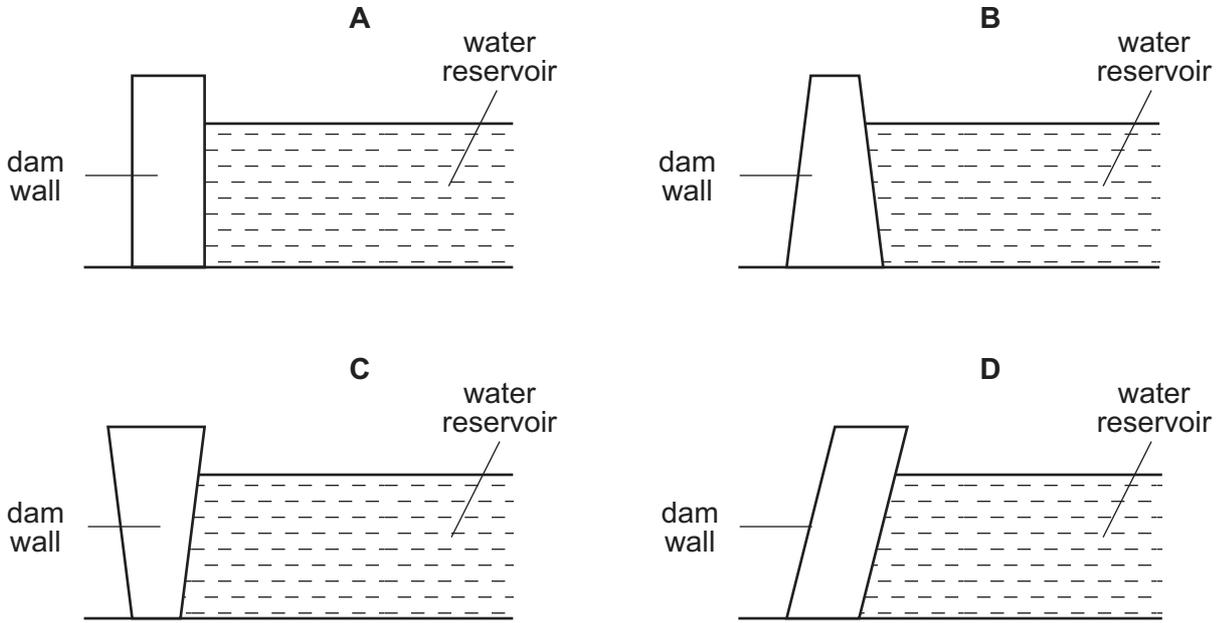


Fig. 9.4

answer = [1]

(ii) Fig. 9.5 shows methods of supplying water from a stream to a sprinkler system in a glasshouse. The glasshouse is 50m from the stream, on the other side of a field used for growing crops.

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Which method provides for efficient water supply and use of land?

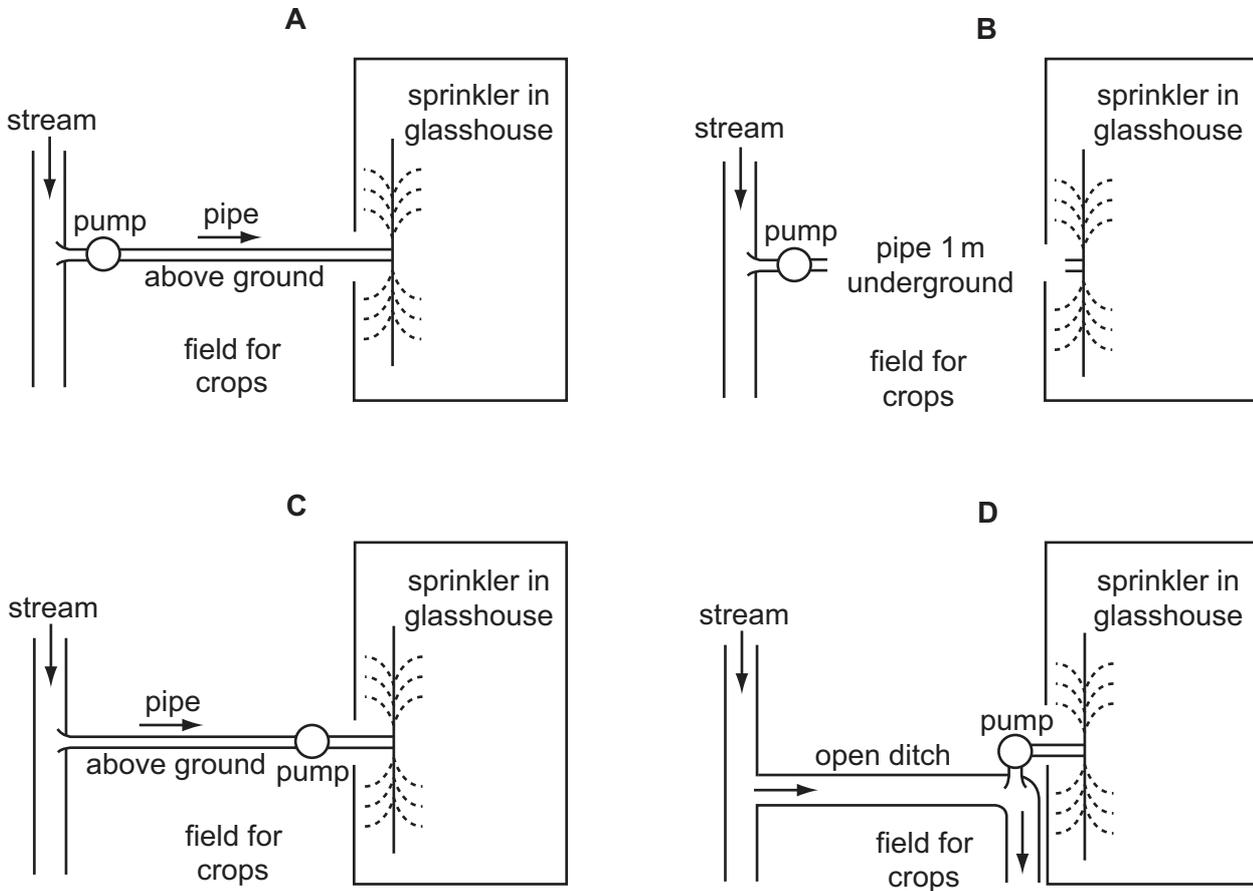


Fig. 9.5

answer = [1]

[Total: 8]

Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

- 10 (a)** For a **named** ruminant, describe signs that can indicate ill health in the animal. [6]
- (b)** Explain how suitable housing and living conditions can help to prevent the outbreak of disease in farm livestock. [9]
- 11 (a)** Describe treatments that can be used to improve the quality of pastures on grazing land. [5]
- (b)** Describe how fences can be used to improve the productivity of land used for grazing. [7]
- (c)** Suggest ways in which fencing and improving grazing land can increase returns for a farmer. [3]
- 12** Many farmers use and store farm chemicals such as herbicides. Describe and explain the precautions that should be taken when
- (a)** using farm chemicals;
- (b)** storing farm chemicals. [15]
- 13 (a)** A small farm is far from the nearest town or city. Suggest reasons why the farmer might decide that mixed farming will be more beneficial than monoculture in this situation. [8]
- (b)** Outline the factors that a farmer will consider when deciding on the type of enterprise his farm is best suited to. [7]
- 14 (a)** Describe the ways in which different types of weeds are spread. [7]
- (b)** Describe the ways in which weeds can be controlled. [8]

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