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5038/12

October/November 2011

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 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 **11** printed pages and **1** blank page.

Section A

Answer **all** the questions.

For
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Use

- 1 (a) Fig. 1.1 shows the reproductive system in a female farm animal.

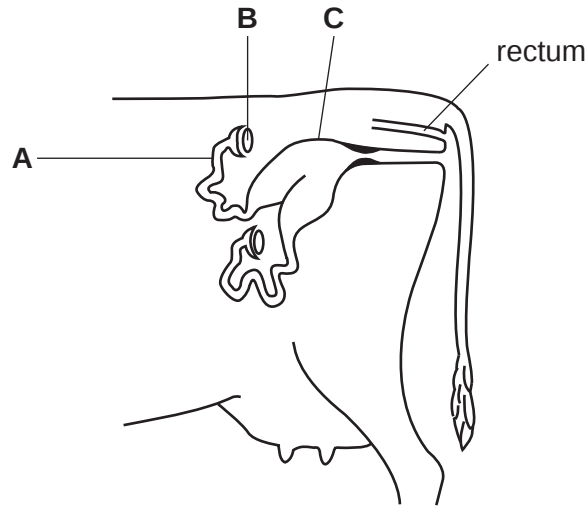


Fig. 1.1

- (i) Name the structures **A**, **B** and **C**.

A

B

C [3]

- (ii) On Fig. 1.1, label with **X** where fertilisation occurs. [1]

- (b) (i) State the meaning of the term *lactation*.

.....

..... [1]

- (ii) What is *colostrum*?

.....

..... [1]

(iii) Explain the importance of colostrum.

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.....

.....

.....

.....[3]

[Total: 9]

2 Insects are important in agriculture. Many are beneficial (useful) but many are pests.

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(a) Insects can be used in biological control.

(i) Explain what is meant by biological control.

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

(ii) Give **one other** way in which insects can be beneficial to farmers.

.....[1]

(b) Insect pests may be controlled in crops by spraying insecticides.

(i) Fig. 2.1 shows a crop being sprayed with insecticide.



Fig. 2.1

State two ways in which the spray operator in Fig. 2.1 could be better protected when spraying.

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

- (ii) Insecticides can be poisonous to humans. Fig. 2.2 shows ways in which insecticide from crop spraying can get into food.

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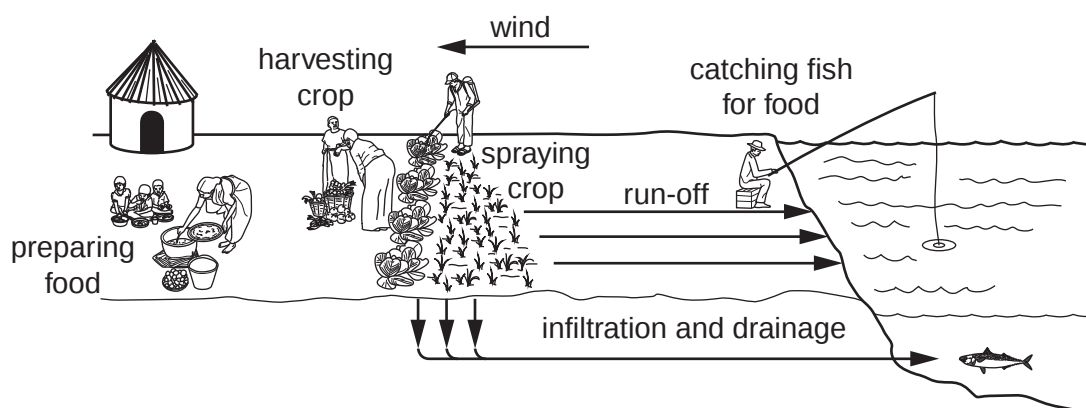


Fig. 2.2

Using Fig. 2.2, suggest two practices that could prevent insecticide getting into food.

1

.....

2

.....[2]

[Total: 7]

- 3 The graphs in Fig. 3.1 show the effect of stocking rate on milk output per animal and per hectare.

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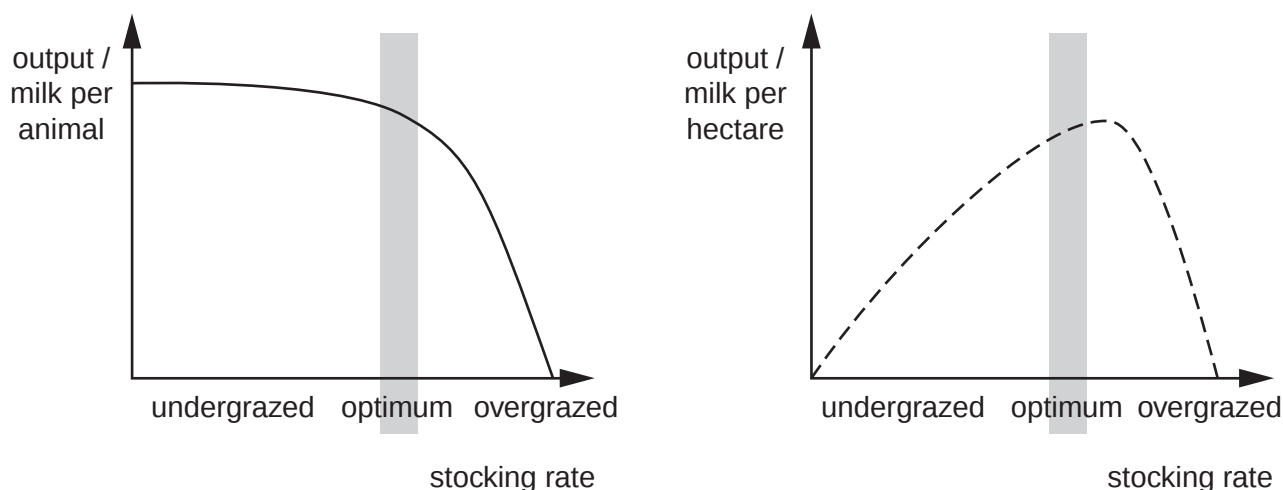


Fig. 3.1

- (a) State what is meant by the term *stocking rate*.

.....[1]

- (b) (i) Using Fig. 3.1, state and explain the effect of overgrazing on milk output.

.....

[2]

- (ii) Using Fig. 3.1, describe and explain the difference in output pattern per animal and per hectare when land is **undergrazed**.

.....

[3]

- (c) Apart from the effect on output, state two **other** reasons for preventing overgrazing.

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

[Total: 8]

- 4 Fig. 4.1 is a cross-section through the root of a plant.

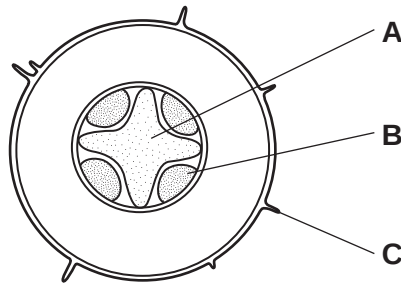


Fig. 4.1

- (a) (i) State the names of tissues **A** and **B** and structure **C**.

A

B

C

[3]

- (ii) State the function of tissue **A**.

.....[1]

- (b) (i) Name the process by which water enters the root from the soil.

.....[1]

- (ii) If a plant is given too much inorganic fertiliser (a salt solution), it wilts.

Explain why this happens.

.....

[3]

- (c) State two functions of roots, **other** than the uptake of water.

1.....

2.....[2]

[Total: 10]

5 (a) Fig. 5.1 shows a small, petrol-driven, two-wheeled cultivator. This can be used on

- flat **or** sloping land,
- wet **or** dry soils.



Fig. 5.1

- (i) Suggest reasons why this cultivator might be better than using larger implements, drawn by animals or a tractor.

.....

[3]

- (ii) This cultivator is not suitable where the soil is very stony or there are large stumps and roots. Suggest **one** reason for this.

.....
[1]

- (b) It may be necessary to store small amounts of fuel on a farm, for machinery such as a petrol-driven cultivator.

State three precautions that should be taken when storing such fuel.

1.....
 2.....
 3.....[3]

[Total: 7]

- 6 (a) Maize occurs in yellow-fruited and white-fruited varieties.
The allele **Y**, that gives yellow-fruited maize, is dominant over the allele **y**, that gives white-fruited maize.
Fig. 6.1 shows a cross that was made between a yellow-fruited plant and a white-fruited plant.

parents	phenotype	yellow-fruited plant	x	white-fruited plant
	genotype			yy
offspring	phenotype	yellow-fruited plants		white-fruited plants
	ratio	1	:	1

Fig. 6.1

On Fig. 6.1, state the genotype of the yellow-fruited parent.
Use a genetic diagram to show your reasoning.

[3]

- (b) (i) A plant has the genotype **Tt**, where the alleles **T** = tall and **t** = short. The plant is propagated by taking cuttings.
State the genotype of the plants produced by taking cuttings and explain your answer.

genotype[1]

explanation

.....

.....[2]

- (ii) State **one** reason why a farmer may propagate plants by taking cuttings.

.....

.....[1]

[Total: 7]

- 7 Fertilisers may be inorganic chemicals or organic material such as farmyard (kraal) manure.

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- (a) Listed below are three inorganic compound fertilisers.

fertiliser X	fertiliser Y	fertiliser Z
N : P : K	N : P : K	N : P : K
(10 : 20 : 10)	(22 : 11 : 11)	(13 : 13 : 20)

Complete the table by choosing the fertiliser that would be most suitable for each crop and give a reason for each choice.

type of crop	fertiliser	reason
leafy e.g. cabbage, lettuce		
root e.g. yam, cassava		
fruit e.g. tomato		

[5]

- (b) Fig. 7.1 shows farmyard manure that is being stored in an open shed with a roof.

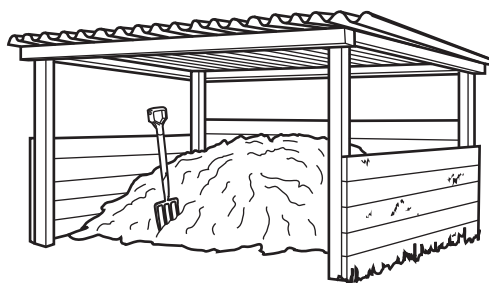


Fig. 7.1

Suggest why it would be an advantage to keep the manure under a roof.

.....

.....

..... [2]

[Total: 7]

Section B

Answer any **three** questions.

Write your answers on the separate paper provided.

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- 8 (a) (i) State what is meant by the term *crop rotation* and give an example. [3]
 (ii) Explain the benefits of crop rotations. [7]
 (b) (i) State what is meant by the term *mixed farming*. [1]
 (ii) Outline the benefits of mixed farming. [4]

[Total: 15]

- 9 For a farm building to be constructed for housing livestock,
 (a) state and explain the factors that should be considered when selecting the site, [9]
 (b) state suitable materials that could be used for the construction, giving reasons for your choices. [6]

[Total: 15]

- 10 (a) For a crop of local importance,
 (i) state the name of the crop,
 (ii) state and explain the timing of sowing or planting,
 (iii) state and explain the choice of a suitable cultivar. [7]
 (b) (i) Explain the reasons for controlling weeds in a crop. [5]
 (ii) Describe methods by which weeds can be controlled. [3]

[Total: 15]

- 11 (a) Describe the physical, chemical and biological processes that result in the weathering (breakdown) of rocks to form soil particles. [6]
 (b) Explain how the properties of a soil are affected by the sizes of the mineral particles that it contains. [9]

[Total: 15]

- 12 (a) Describe the signs you would look for when checking the health of livestock. [6]
 (b) Describe and explain the ways in which disease in livestock can be prevented and controlled. [9]

[Total: 15]

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