



Specimen Paper 2

October/November 20XX

2 hours 15 minutes

Additional materials: None

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Mark answers by shading the oval heavily, like this: -

CENTRE NUMBER				CANDIDATE NUMBER			
B	W						
●	●	0	0	0	0	0	0
		1	1	1	1	1	1
		2	2	2	2	2	2
		3	3	3	3	3	3
		4	4	4	4	4	4
		5	5	5	5	5	5
		6	6	6	6	6	6
		7	7	7	7	7	7
		8	8	8	8	8	8
		9	9	9	9	9	9

Section A

- Answer **all** questions.
- Write your answers in the spaces provided on the Question Paper.
- You are advised to spend about 1 hour 15 minutes on this section.

Section B

- Answer **four** questions and start a new question on a fresh page.
- Write your answers in the spaces provided on the Question Paper.
- Write the question number of your choice before answering.
- You are advised to spend about 1 hour on this section.

INFORMATION

- The total marks for this paper is **100**.
- Do not use staples, paper clips, glue or correction fluid.
- The number of marks is given in brackets [] at the end of each question or part question.
- Calculators may be used.

This document consists of **23** printed pages and **1** blank page.

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[Turn over



Section A [60 marks]

Answer **all** questions in this section in the spaces provided on the question paper.

- 1 (a) Fig. 1.1 shows a developmental stage of agriculture.



Fig. 1.1

- (i) State **one** feature that suggests that the developmental stage shown in Fig. 1.1 is commercial.

..... [1]

- (ii) Explain how this developmental stage could harm the environment.

.....

 [2]

- (b) Maize plants need a relative humidity of 55 to 65% for optimum growth. Fig. 1.2 shows a monthly relative humidity of a village in Botswana over a year.

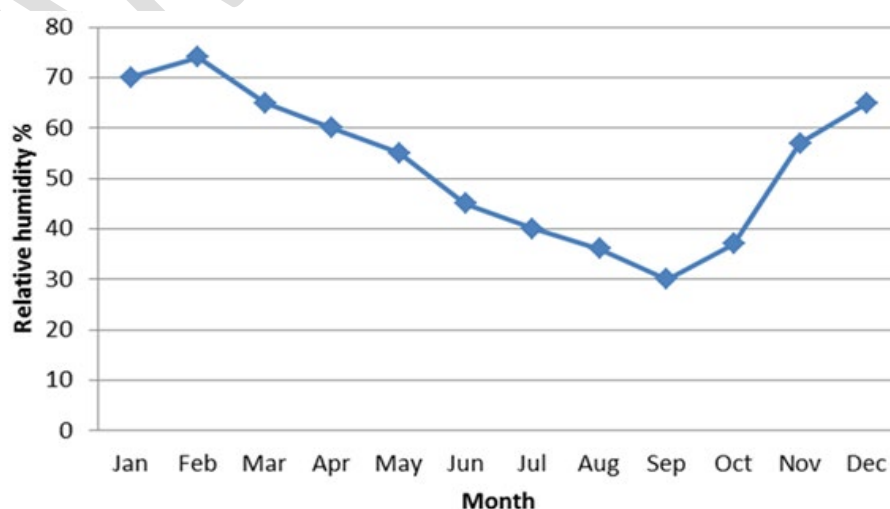


Fig. 1.2

- (i) State **two** reasons why the relative humidity in February may lower the growth of maize.

.....

.....

..... [2]

- (ii) Suggest **one** way of modifying the effects of relative humidity in September to ensure optimum growth of maize.

.....

..... [1]

- 2 (a) Fig. 2.1 shows a longitudinal section of a root.

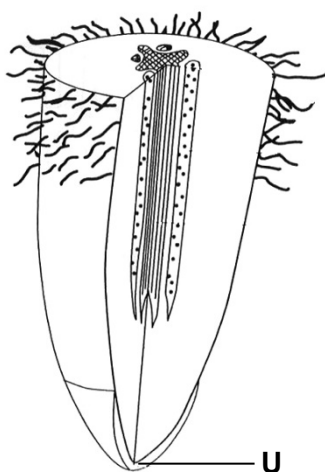


Fig. 2.1

- (i) On Fig. 2.1 use a label line to label the following:

- the part that absorbs water using the letter **S**.
- the region where cells are actively dividing using the letter **T**.

[2]

- (ii) State the role of part **U**.

.....

..... [1]

- (b) Describe how water moves from the root to the site of photosynthesis in the leaf of a plant.

.....

.....

.....

.....

.....

..... [3]

- (c) Fig. 2.2 shows the label of a 100 g container of Swiss Chard seeds.

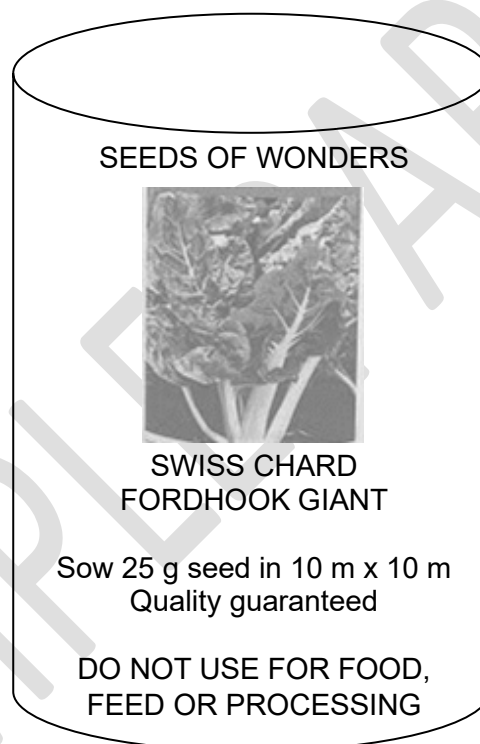


Fig. 2.2

- (i) Determine the seed rate for planting Swiss Chard seeds.

Answer [1]

- (ii) Suggest a reason for the precaution stated in the label of the seed container.

.....

.....

..... [1]

- (iii) Determine the number of containers of Swiss Chard seeds needed to plant in a one hectare garden.

containers of Swiss Chard seeds [4]

- 3 The landscape of a school features a lawn, ornamental shrubs, and flowers.

- (a) Suggest **one** management activity that should be regularly carried out to maintain the landscape.

.....

.....

..... [1]

- (b) Describe how this landscape benefits the school environment.

.....

.....

.....

.....

..... [2]

- 4 (a) In 2016, a farmer kept 1200 sheep on a 60 hectare grazing land on a farm near a village. Fig. 4.1 shows the layout of the farm. Grazing land is divided into paddocks of the same size.

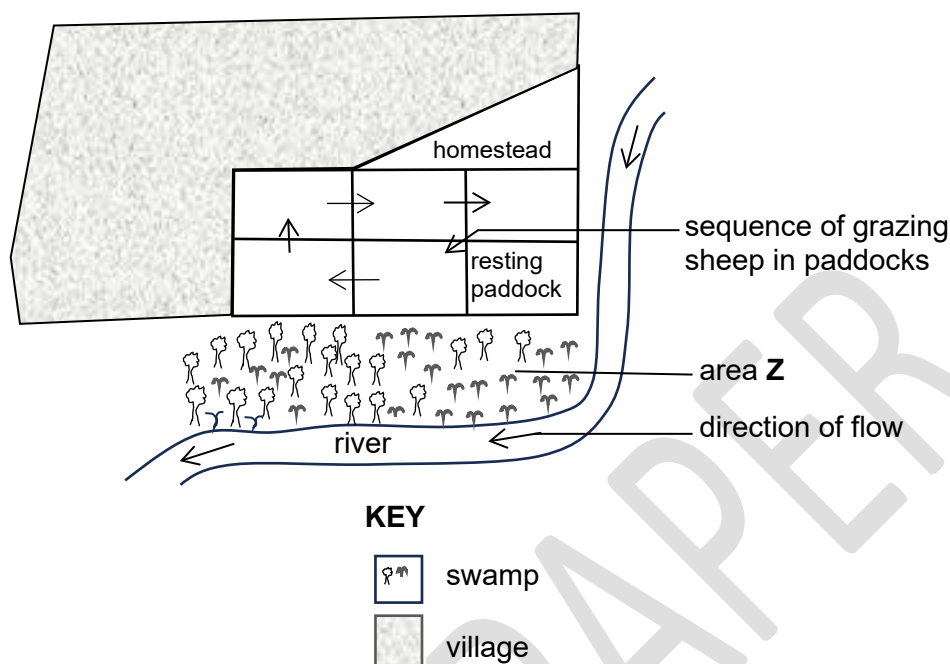


Fig. 4.1

- (i) Name the system of grazing that the farmer uses to graze the sheep.

..... [1]

- (ii) State a reason other than improved nutrition, why sheep grazing in this system can maintain good health.

..... [1]

- (b) In 2023, **two** paddocks were repossessed from the farmer for village expansion, as shown in Fig. 4.2.

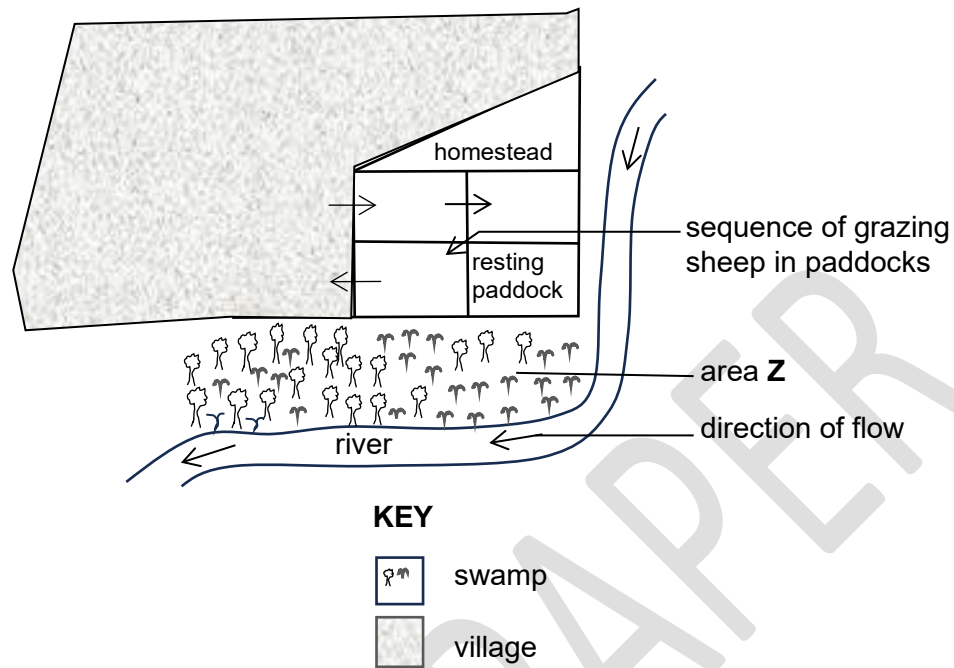


Fig. 4.2

Given that 1 LSU is equivalent to 6 sheep, calculate the stocking rate of the farm in 2023.

Answer [3]

- (c) The farmer plans to extend the existing farm into area Z by constructing a fence against the existing resting paddock.
- (i) Determine the minimum number of fence posts spaced 5 metres apart that the farmer will need.

Answer [2]

- (ii) Explain how area **Z** could be modified to ensure optimum growth of sheep.

.....

.....

.....

..... [2]

- 5 (a) Fig. 5.1 shows a genetic cross between two pure breeds of goats. Coat colour is controlled by a single gene.

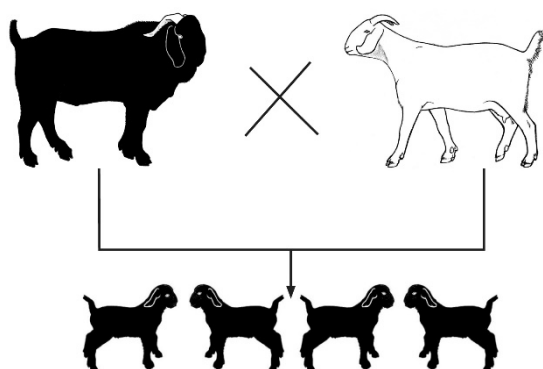


Fig. 5.1

- (i) Suggest the genotype of the white parent goat.

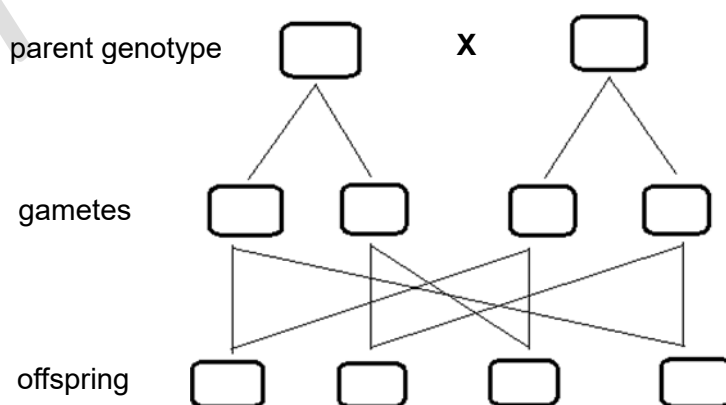
.....

.....

..... [1]

- (ii) The offspring of the cross in Fig. 5.1 were allowed to mate. Approximately 75% of the offspring were black.

Use the genetic diagram to identify the genotypes of the black offspring in this cross.



[3]

(b) A farmer prefers white goats for production.

- (i)** State the genotype of the black goats that the farmer should avoid when selecting the breeding stock.

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

- (ii)** Explain how rearing the white goats in different places could cause them to differ as they grow.

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

SAMPLE PAPER

- 6 (a) A farmer has land to grow either maize or millet. The selling price of a 50kg bag for both maize and millet is P200. Table 6.1 presents output of maize and millet for different production options.

Table 6.1

Production option	Maize output /50kg bags	Millet output /50kg bags
P	500	0
Q	400	50
R	300	100
S	200	150
T	100	200
U	0	250

- (i) State the economic principle illustrated by table 6.1.

.....
 [1]

- (ii) Determine the total returns for the farmer at production option R.

.....

 [2]

- (iii) With reference to table 6.1, suggest the best production option for the farmer. Give a reason for your answer.

.....
 [2]

- (b) List **two** examples of risks in farming.

.....

 [2]

(c) Suggest how the knowledge of risks can assure the success of a farm.

.....

.....

.....

..... [2]

(d) Farmers in the Botswana extension area run a cooperative business to facilitate marketing of beef cattle.

(i) State **one** activity that the farmers have to perform when marketing the beef cattle.

.....

..... [1]

(ii) Suggest **two** ways in which running a cooperative business may disadvantage the farmers.

.....

.....

.....

..... [2]

- 7 (a) Fig. 7.1 shows randomly arranged strokes of a 4-stroke engine.

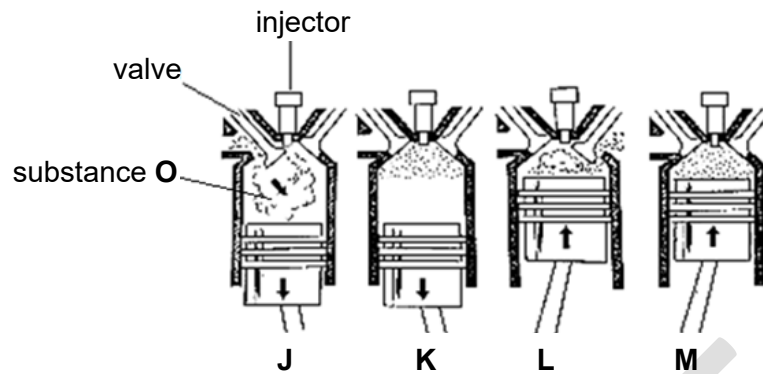


Fig. 7.1

- (i) Name the substance O.

.....
 [1]

- (ii) State the order in which the strokes occur during the operation of the engine.

.....
 [1]

- (b) Explain why oil is important to achieve stroke M.

.....

 [2]

- 8 (a) State **two** factors that a farmer should consider when choosing a site for a farm building.

.....

.....

..... [2]

- (b) Describe how a house for a **named** livestock should be constructed with reference to the following features.

Named livestock

floor

.....

roof

..... [2]

- (c) State **three** benefits of keeping livestock in a house.

.....

.....

.....

.....

..... [3]

Section B (40 marks)

Answer **four** questions from this section on the spaces provided in the question paper.

- 9** (a) Describe the communal land tenure system as practised in Botswana. [4]
 (b) Explain how this land tenure system is disadvantageous to the landholders. [6]
- 10** (a) Describe how to prepare the soil for a named cereal crop. [4]
 (b) Discuss the factors that farmers should consider when choosing a crop variety to grow. [6]
- 11** A school should keep cattle under zero grazing to fulfil the requirement of a new agricultural syllabus.
 (a) Discuss the benefits of using this method of grazing. [6]
 (b) Describe **one** method of fodder preservation that the school could use to run a successful cattle production project. [4]
- 12** (a) Describe how farmers can avoid spread of diseases on ornamental plants when using pots. [4]
 (b) Explain how a standard soil mix is made for optimum growth of an ornamental plant. [6]
- 13** (a) Outline the signs of good health in livestock. [4]
 (b) Discuss how biotechnology could be used to maximize agricultural production. [6]
- 14** (a) Outline the difference between a planned economy and free market economy. [4]
 (b) Discuss benefits of changing from a planned economy system to a free market economy. [6]
- 15** (a) Explain why crop yield is likely to be low in waterlogged soils. [4]
 (b) Describe how farmers can drain waterlogged fields to improve crop yields. [6]

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