

Centre Number	Candidate Number	Candidate Name
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**NAMIBIA SENIOR SECONDARY CERTIFICATE**

**AGRICULTURE ORDINARY LEVEL**

**4321/2**

PAPER 2

2 hours

Marks 100

**2018**

Additional materials: Non-programmable calculator  
Ruler

**INSTRUCTIONS AND INFORMATION TO CANDIDATES**

- Candidates answer on the Question Paper in the spaces provided.
- Write your Centre Number, Candidate Number and Name in the spaces at the top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any diagrams, graphs or rough working.
- Do not use correction fluid.
- You may use a non-programmable calculator.
- Do not write in the margin *For Examiner's Use*.

**Section A**

- Answer **all** questions.

**Section B**

- Answer any **two** questions.
- Write your answers on the answer sheets at the back of the booklet.
- 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	
Question ...	
Question ...	
<b>Total</b>	
Marker	
Checker	

This document consists of **17** printed pages and **3** blank pages.



Republic of Namibia  
**MINISTRY OF EDUCATION, ARTS AND CULTURE**

SECTION A

Answer **all** questions in this section.

1 Fig 1.1 shows steps in agriculture at different levels of society.

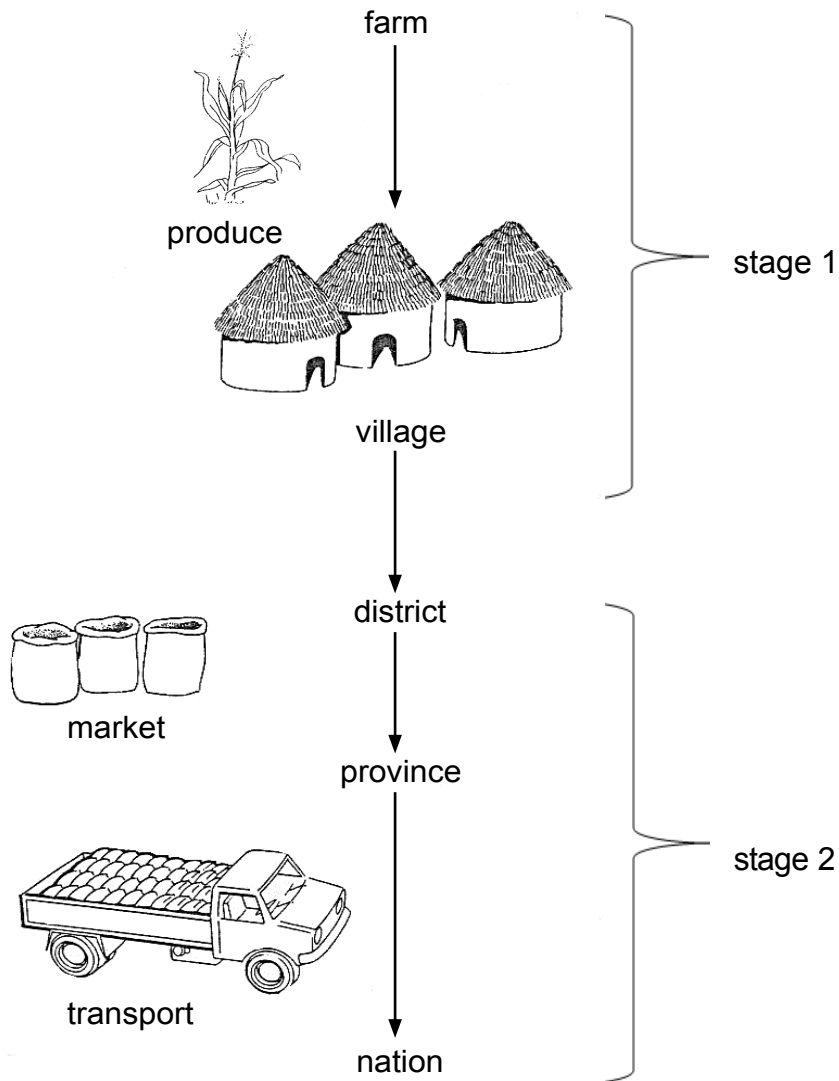


Fig. 1.1

(a) Define the term *agriculture*.

.....

.....

[1]

(b) State the benefits of agriculture at each of the following stages.

(i) stage 1

.....

.....

[1]

(ii) stage 2

.....  
.....

[1]

(c) Agricultural products are sometimes transported to markets outside Namibia.

(i) State the term used to describe this activity.

.....

[1]

(ii) Name **one** benefit of the activity named in (c) (i) to the country.

.....  
.....

[1]

(d) Suggest **two** factors that can influence the price of agricultural products.

1 .....

2 .....

[2]

[7]

2 (a) Name **two** environmental factors, other than temperature, that influence the rate of plant growth.

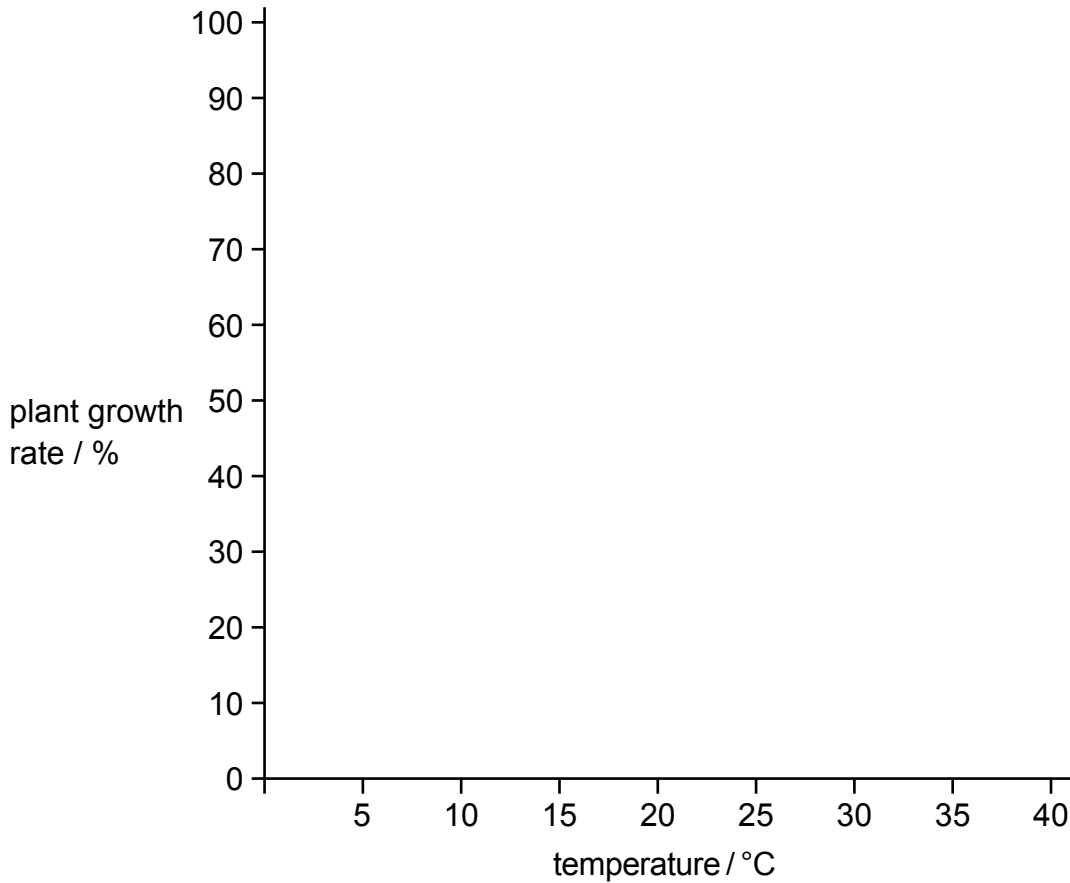
1.....

2.....

[2]

(b) Complete Fig. 2.1 by drawing a line graph to show the relationship between plant growth rate and temperature.

On the graph indicate the minimum, optimum and maximum temperatures at which plants can grow.



[3]

**Fig. 2.1**

(c) Plants may wilt due to loss of too much water.

Describe the effect wilting has on a plant cell.

.....

.....

[1]

(d) Suggest **two** ways in which a farmer can protect plants during periods of high temperature.

1.....

2.....

[2]

**[8]**

3 Fig. 3.1 shows non-living soil components.

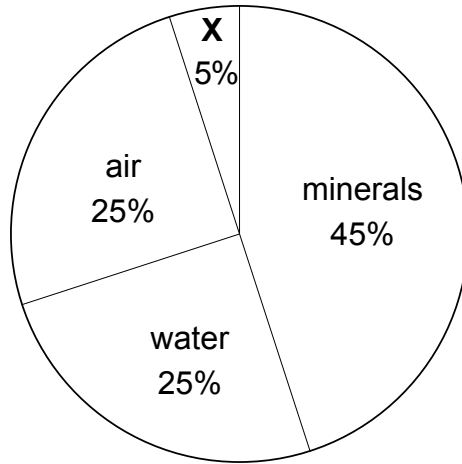


Fig. 3.1

(a) Name soil component X.

..... [1]

(b) Describe the importance of the following soil components to plant growth.

(i) air

..... [1]

(ii) minerals

..... [1]

(iii) water

..... [2]

(c) Explain how the air content in waterlogged soil can be increased.

..... [2]

**(d)** Discuss how leaching of soil minerals can affect soil quality and plant growth.

.....

.....

.....

.....

.....

.....

.....

[3]

**[10]**

4 NPK fertiliser enhances soil fertility for plant growth.

The N represents the element nitrogen.

(a) State what the P and the K represent.

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

(b) State **one** main function of each element in NPK.

N .....

.....

P .....

.....

K .....

..... [3]

(c) Name a type of plant that is specifically planted to supply nitrogen to the soil.

..... [1]

(d) Explain how microorganisms play a role in recycling the element nitrogen.

.....

.....

.....

..... [2]

(e) Describe **three** dangers of the overuse of nitrogen fertilisers on the environment.

1 .....

.....

2 .....

.....

3 .....

..... [3]

[10]

5 Fig. 5.1 show two plants, plant X and plant Y growing in the same conditions.

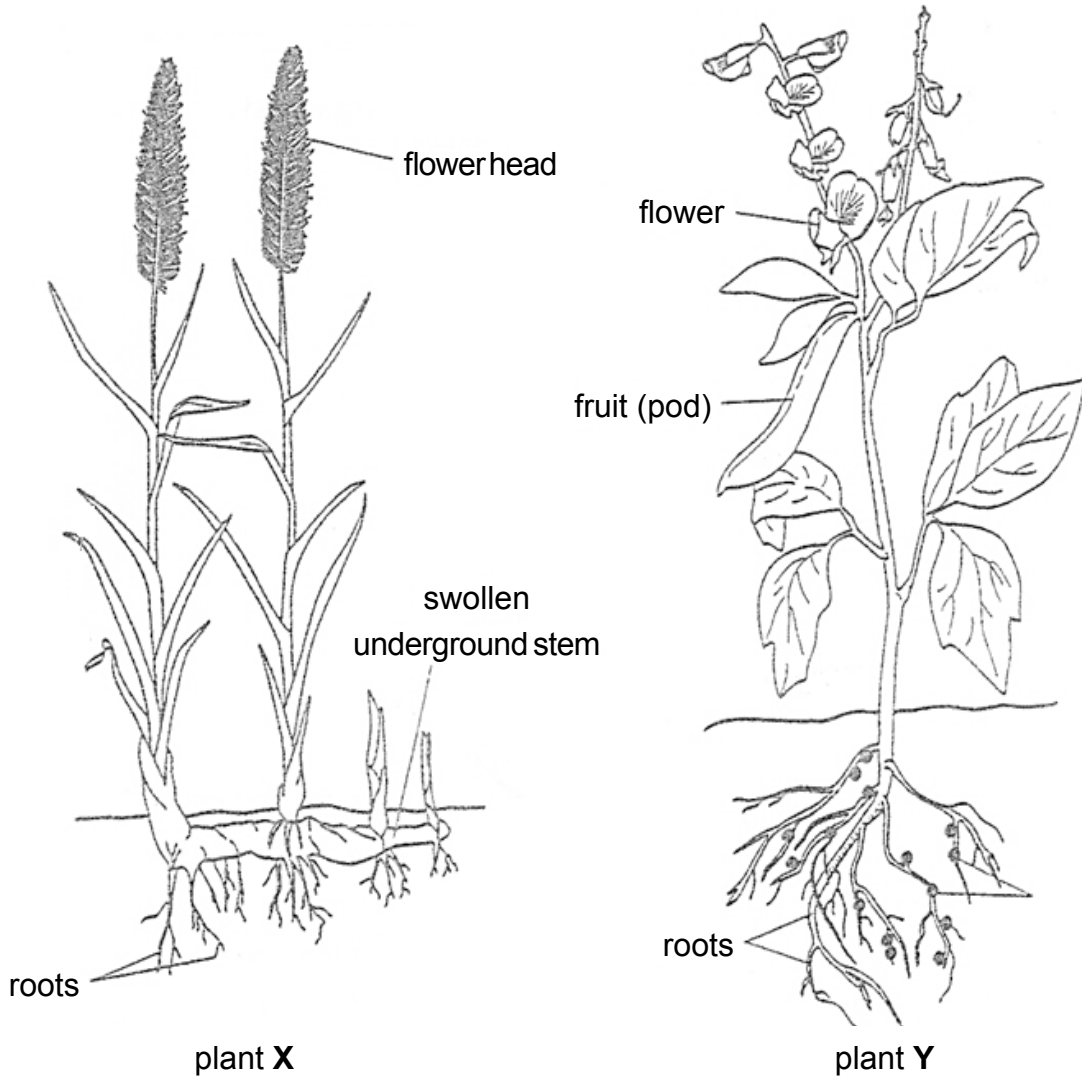


Fig. 5.1

(a) Which of the plants shown in Fig. 5.1 is a legume?  
Give a reason for your answer.

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

[2]

(b) Plant X is pollinated by wind.  
Describe **two** features of wind pollinated flowers.

1 .....  
 .....  
 2 .....  
 .....

[2]



(c) State the function of the swollen underground stem in plant X.

.....  
.....

[1]

(d) State which plant feature may cause plant Y to lose more water than plant X due to transpiration.

.....

[1]

(e) Explain how pasture can be improved by using legumes.

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

**[9]**

6 Fig. 6.1 shows the digestive system of a ruminant animal.

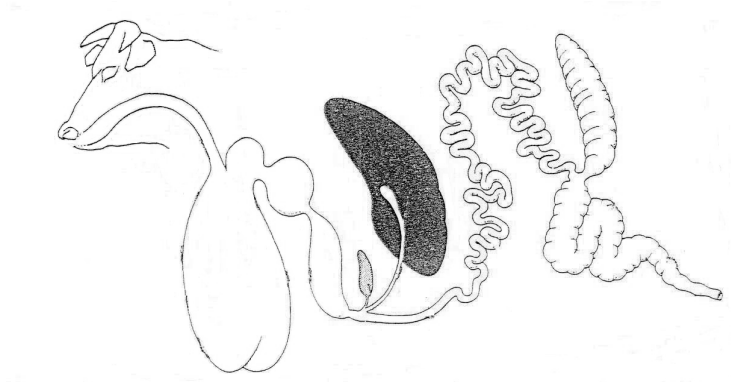


Fig. 6.1

(a) Label the rumen with an **R**. [1]

(b) Name **three** parts of the ruminant digestive system, other than the rumen, that distinguish a ruminant from a non-ruminant.

1 .....

2 .....

3 .....

[3]

(c) Describe the role of the rumen in the digestion process.

1 .....

.....

2 .....

.....

[2]

(d) Outline the process of absorption of nutrients in non-ruminant animals.

.....

.....

.....

.....

.....

.....

[3]

(e) Nutrition is an important part of animal husbandry.

Describe the additional nutritional requirements of animals at each of the following stages.

(i) pregnancy

.....  
.....

[1]

(ii) lactation

.....  
.....

[1]

(iii) breeding (for a bull)

.....  
.....

[1]

(f) Define **two** importances of water in an animal's body.

1.....  
.....

2.....  
.....

[2]

[14]

7 An allele, **B**, gives a white coat in cattle and is dominant over an allele, **b**, that gives a black coat. Coat colour is determined by this single gene.

(a) State what is meant by each of the following terms.

(i) allele

.....  
.....

[1]

(ii) dominant

.....  
.....

[1]

(b) Use a genetic diagram to show how black calves may be obtained from two heterozygous parents.

[4]

(c) Suggest ways in which artificial selection can improve farm productivity.

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

[3]

(d) Discuss **three** benefits of rotational grazing for a pasture.

1.....  
.....  
2.....  
.....  
3.....  
.....

[3]

[12]

**SECTION B**

Answer any **two** questions.

Write your answers on the answer sheets provided at the back of the booklet.  
Use labelled or annotated diagrams if they can help to make your answers more understandable.

- 8 (a)** For a **named** cereal crop, describe the following
- (i) seedbed preparation [5]
  - (ii) recognition of maturity, harvesting and storage. [5]
- (b)** Suggest how a farmer should decide on the most suitable cereal crop cultivar. [5]
- [15]**
- 9 (a)** Describe the signs of a sick animal (not poultry). [5]
- (b)** Describe the use of vaccines, sera and antibiotics to promote livestock health. [5]
- (c)** Outline the role of the veterinary service available in your area. [5]
- [15]**
- 10 (a)** Describe a suitable gate for enclosing farm animals. [5]
- (b)** Describe how concrete blocks should be made. [5]
- (c)** Discuss the cheaper methods that can be used to transport goods on a farm in the place of mechanised transportation. [5]
- [15]**
- 11 (a)** Explain the principle of supply and demand in farm economics. [4]
- (b)** Explain the meaning of a *farm budget* and its importance to a farmer. [5]
- (c)** Draw up a simple profit and loss account to show how a farmer can determine the profitability of a poultry farm. [6]
- [15]**











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