

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

**2013**

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

<i>Marker</i>	
<i>Checker</i>	

This document consists of **13** printed pages and **4** answer sheets for Section B and **3** blank pages.



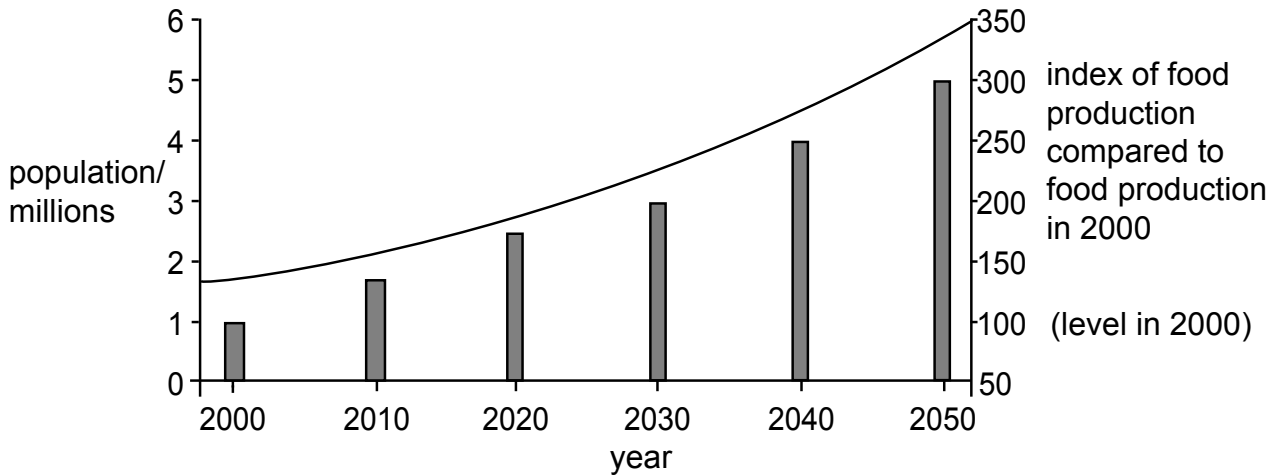
**Republic of Namibia**  
**MINISTRY OF EDUCATION**



**SECTION A**

Answer **all** questions from this section.

- 1** The graph shows the predicted population growth in relation to predicted food production.



- (a)** Define the term *sustainable agriculture*.

.....

.....

.....

..... [2]

- (b)** Explain the effect of population increase on predicted food production.

.....

.....

.....

..... [2]

- (c)** List the procedure of reclaiming land for cultivation purposes.

.....

.....

.....

..... [4]

**(d)** The following are some of the negative effects of food production on the environment: soil erosion, fertility depletion and water pollution.

Suggest sustainable ways of crop farming that will reduce these effects.

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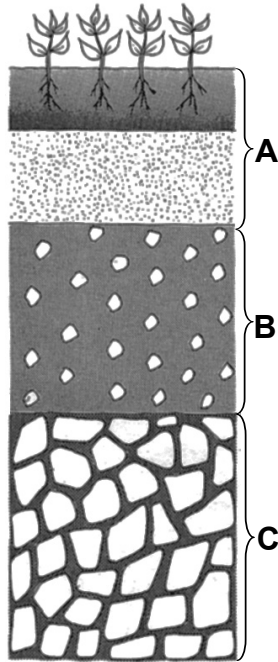
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[3]

**[11]**

2 The diagram shows a soil profile.



(a) Label layers **A**, **B**, and **C**.

**A** .....

**B** .....

**C** ..... [3]

(b) Define *leaching* and outline how leaching affects soil profiles.

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

(c) Describe **one** way how layer **C** can be changed through a chemical process.

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

(d) Explain how a named farming activity can damage layer **A**.

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

**[10]**

3 The table below indicates inorganic sources and deficiency symptoms of plant nutrients.

(a) Complete the table.

name of a nutrient	inorganic source	deficiency symptom
nitrogen	LAN	(i) .....
(ii) .....	superphosphate	poor root development
potassium	(iii) .....	small flowers

[3]

(b) Describe how some plants can transform atmospheric nitrogen to become part of the soil.

.....

.....

.....

.....

.....

[3]

(c) A farmer has planted some of the plants in (b) in a field.

Suggest how the farmer can maximise the contribution of these plants to the nutrients in the soil.

.....

.....

[1]

(d) Lime is one of the important fertilizers in Agriculture.

State the nutrient supplied by lime.

.....

[1]

(e) Explain the role of lime when applied in the soil.

.....

.....

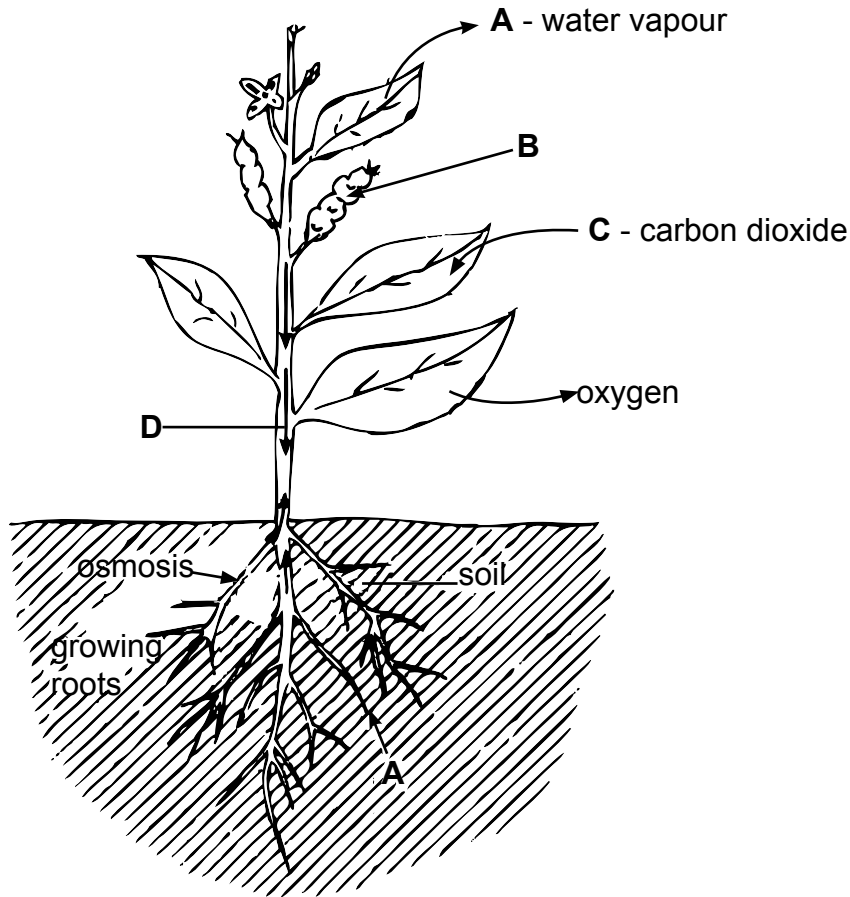
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[2]

[10]

4 The diagram shows different plant processes in the light.



(a) Name the processes occurring at **A**, **B** and **C**.

**A** .....

**B** .....

**C** ..... [3]

(b) Name the process in which carbon dioxide is given off.

..... [1]

(c) Describe the process illustrated in **D**.

.....

.....

.....

..... [2]

(d) Water moves into the plant by osmosis.

Define *osmosis*.

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

[2]

(e) Explain the importance of osmosis to plants.

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

[2]

(f) Plants reproduce either sexually or asexually.

Define *asexual reproduction*.

.....  
.....

[1]

(g) Give **one** example of a plant that reproduces asexually.

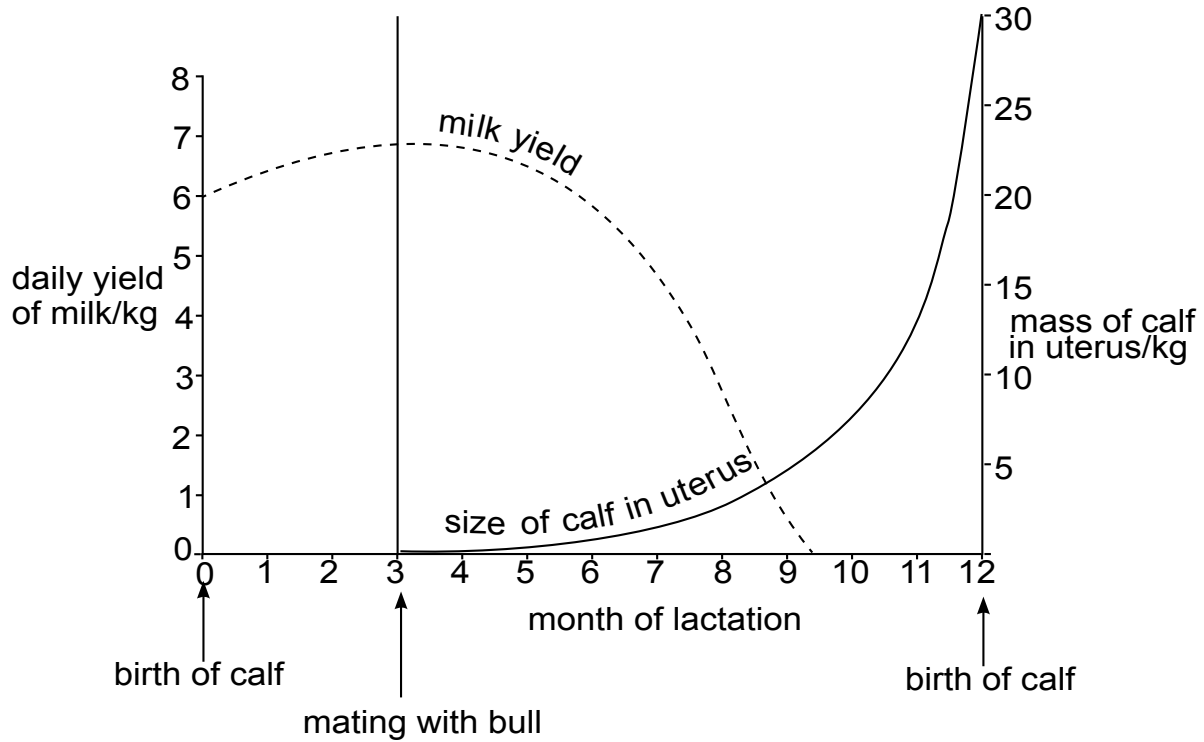
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[1]

**[12]**



5 The graph shows the life cycle of a cow under a controlled breeding system.



(a) Define the terms

(i) *Weaning* .....

.....

(ii) *Lactation* .....

..... [2]

(b) By using the graph, state the length of gestation and lactation periods of this animal.

Gestation .....

Lactation ..... [2]

(c) Explain how the growth of the calf in the uterus affects the milk yield.

.....

.....

.....

..... [2]

(d) Explain what extra nutrition is required by a breeding cow.

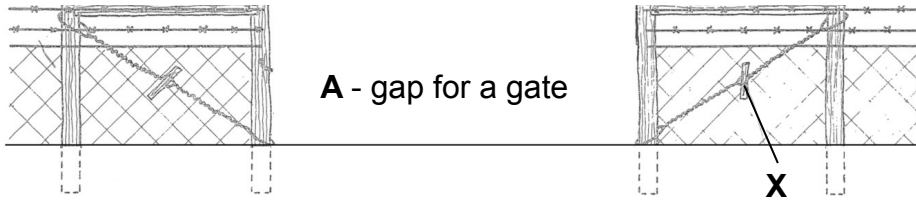
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.....  
..... [2]

(e) Explain how managing breeding cycles to match the time of year can increase yield on the farm.

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

**[11]**

6 The diagram shows a type of a fence used on the farm.



(a) Name the materials used to build the fence.

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

(b) State the purpose of structure X.

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

(c) Describe the features of a suitable gate for this fence at A.

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

(d) Hedges can also be used as a fence.

What is a hedge?

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

(e) Discuss the disadvantages of using hedges as a type of fence.

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

[10]

7 The table shows some of the income and costs for a farm for a specific period.

date	item	amount (N\$)
01/01/11	rent paid	450
05/01/11	purchase of fodder	5 500
30/01/11	wages of farm workers	600
01/02/11	rent paid	450
15/02/11	sale of heifers	19 000
30/02/11	wages of farm workers	600
01/03/11	rent paid	450
06/03/11	purchase of medicine	2 400
20/03/11	auction of calves	13 000
30/03/11	wages of farm workers	600

(a) Calculate the total income, costs and profit for this period.

Total income ..... Total costs .....

Total profit ..... [3]

(b) Explain how supply and demand will affect the profitability of a farm.

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

**[6]**

**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 where they can help to make your answers more understandable.

- 8 (a)** Describe the water cycle by using a labelled diagram. [7]
- (b)** How can the following environmental factors affect the growth of plants?
- (i)** windy conditions
- (ii)** high temperatures [8]
- [15]**
- 9 (a)** The allele for brown hair in cattle is recessive to the allele for black hair. A brown calf was born from two black parents.
- Explain how this could have happened by using a genetic diagram. [5]
- (b)** For a named farm animal describe the qualities it should have for good production purposes. [5]
- (c)** Discuss the possible effects of using genetic engineering in livestock breeding. [5]
- [15]**
- 10 (a)** Describe how pasture can be improved by using fertilizers and drainage. [5]
- (b)** Explain the dangers of overstocking to the
- (i)** environment. [3]
- (ii)** farm finances. [3]
- (c)** Discuss the advantages of rotational grazing. [4]
- [15]**
- 11 (a)** For a named cereal crop, describe the following
- (i)** soil and climatic requirements. [5]
- (ii)** recognition of maturity, harvesting and storage. [5]
- (b)** Describe the characteristics of a crop cultivar that would grow well to produce a profitable harvest. [5]
- [15]**











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