

Candidate Number <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> </tr> </table>											Candidate Name

JUNIOR SECONDARY CERTIFICATE

AGRICULTURE	1600/1
WRITTEN PAPER	2 hours 15 minutes
Marks 130	2017
Additional Materials: Multiple-choice answer sheet Non-programmable calculator Soft clean eraser Soft pencil (type B or HB)	

INSTRUCTIONS AND INFORMATION TO CANDIDATES

SECTION A

- Make sure that you receive the multiple-choice answer sheet with **your Candidate Number** on it to answer **Section A**.
- There are **thirty** questions.
- Answer **all** questions.

SECTION B

- Write your Candidate Number and Candidate Name in the spaces at the top of this page.
- Write your answers on the Question Paper in the spaces provided.
- Questions **1 to 6** are compulsory.
- Answer **either** Question 7 **or** Question 8.
- Answer **either** Question 9 **or** Question 10.
- Write in dark blue or black pen.
- Use a pencil for diagrams, graphs or rough working.
- Do not use correction fluid.
- You may use a non-programmable calculator.
- The number of marks is given in brackets [] at the end of each question or part question.

For Examiner's Use	
Section B	
1	
2	
3	
4	
5	
6	
7/8	
9/10	
TOTAL	

Marker	
Checker	

This document consists of **24** printed pages.



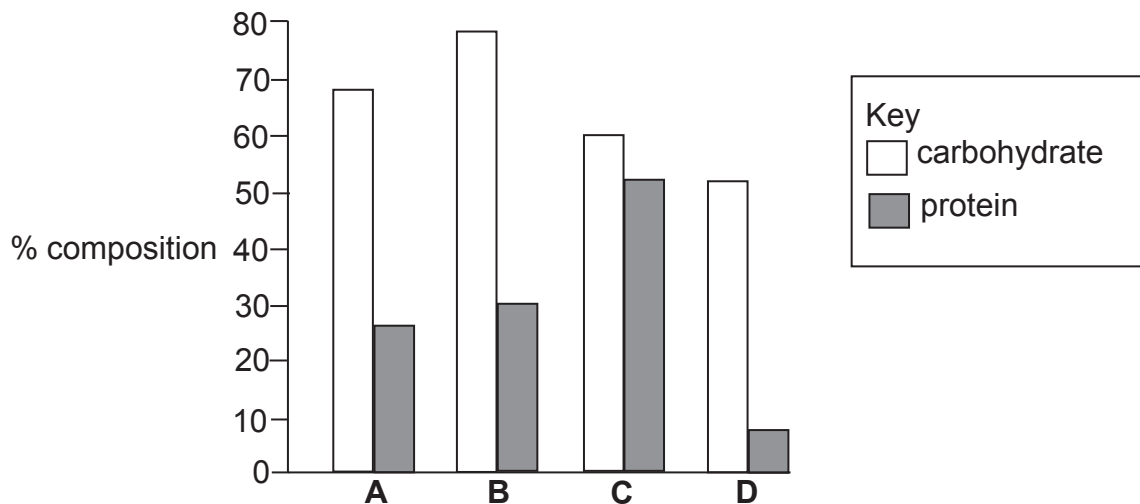
Republic of Namibia
MINISTRY OF EDUCATION, ARTS AND CULTURE

SECTION A

- Answer **all** questions.
 - For each question there are four possible answers, **A, B, C** and **D**.
 - Choose the **one** you consider correct and record your choice in soft pencil on the multiple choice answer sheet.
 - If you want to change an answer, thoroughly erase the one you wish to delete.
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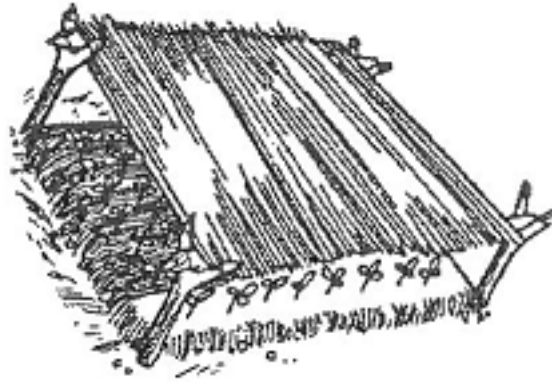
- 1 What is the practice called when a farmer plants the same type of crop on the same piece of land year after year?
- A** crop rotation
 - B** intercropping
 - C** mixed farming
 - D** monoculture
- 2 Which factor can affect the pH of the soil?
- A** humidity
 - B** temperature
 - C** water
 - D** wind
- 3 What does the inorganic part of soil contain?
- A** compost
 - B** humus
 - C** manure
 - D** minerals
- 4 In an experiment a soil type was found to have the following characteristics
- (i) very fine particles,
 - (ii) making thinner and longer sausages than the others,
 - (iii) retaining more water than the others.
- Which soil type has the above characteristics?
- A** clay soil
 - B** loam soil
 - C** sandy loam soil
 - D** sand soil
- 5 Why is loam soil the best for plant growth?
- A** It has a crumb texture.
 - B** It has enough air and water.
 - C** It has a crumb structure.
 - D** It is not sticky.
-

- 6 Which inorganic fertiliser is a source of potassium?
 A ammonium sulphate
 B limestone ammonium nitrate
 C muriate of potash
 D super phosphate
- 7 Which soil weathering agent causes chemical weathering of rocks?
 A frost
 B temperature
 C water
 D wind
- 8 Farmers use the practice of planting crops around the slope of a hill with grass strips in between.
 Why do farmers use this practice?
 A improves crop yield
 B improves plant growth
 C prevents soil erosion
 D prevents weed growth
- 9 What is most likely to increase on overstocked grassland?
 A grass growth
 B hay production
 C soil drainage
 D soil erosion
- 10 What is the direct result of selling agricultural products to other countries?
 A demand for raw materials
 B earning foreign exchange
 C increased employment
 D supply of raw materials
- 11 The graph shows the composition of four feedstuffs.



Which feedstuff will be best to provide an animal with energy?

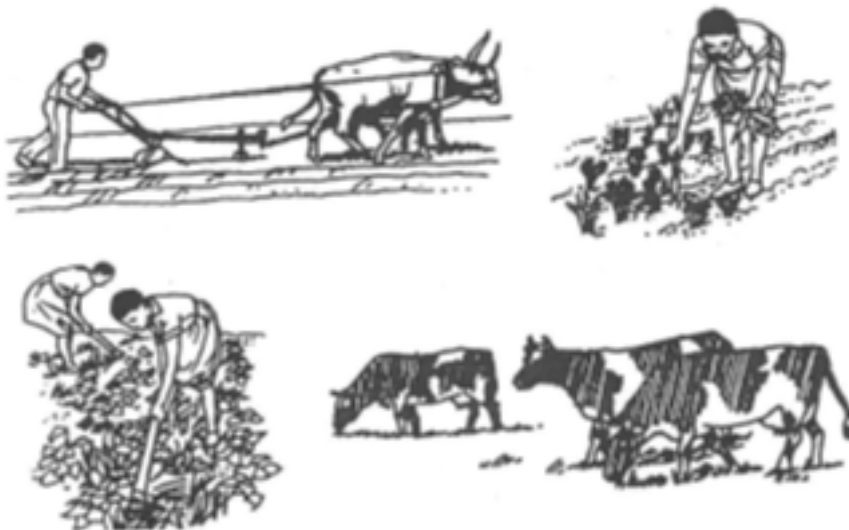
12 The picture shows a structure used in a garden.



What is the purpose of using this structure?

- A To conserve soil moisture.
- B To control wind speed.
- C To increase evaporation.
- D To provide plant nutrients.

13 The diagrams show some activities on a farm.



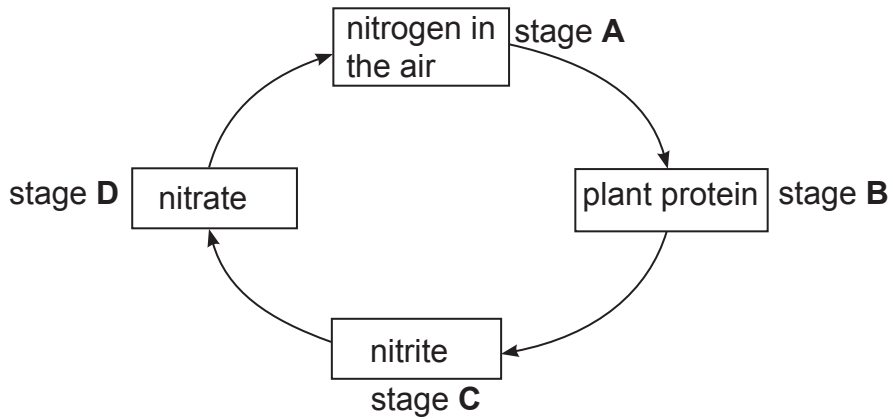
Which type of farming is represented in the diagrams?

- A cattle farming
- B commercial farming
- C crop farming
- D subsistence farming

14 Which component of soil will increase when soil is drained?

- A air
- B humus
- C minerals
- D water

15 The diagram shows stages of the nitrogen cycle.



At which stage will plants absorb nitrogen?

16 Where are sperm cells formed in the male reproductive system?

- A epididymis
- B scrotum
- C testis
- D vas-deferens

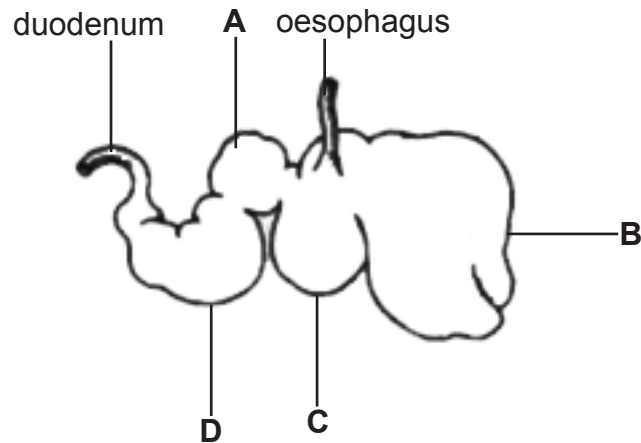
17 The diagram shows a bag of fertiliser.



Which nutrient is represented by the number 3 in the ratio 2:3:4?

- A calcium
- B nitrogen
- C phosphorus
- D potassium

Answer questions **18** and **19** based on the digestive system below.



18 In which part is coarse and fibrous foods broken down by bacteria?

19 Which part of this digestive system is the abomasum?

20 Lime is added to the soil in order to

- A decrease acidity.
- B decrease calcium content.
- C increase acidity.
- D increase calcium content.

21 Which is a characteristic of an annual grass?

- A leaves drying out during the dry season
- B lives for a single year
- C rhizomes store food
- D roots staying alive

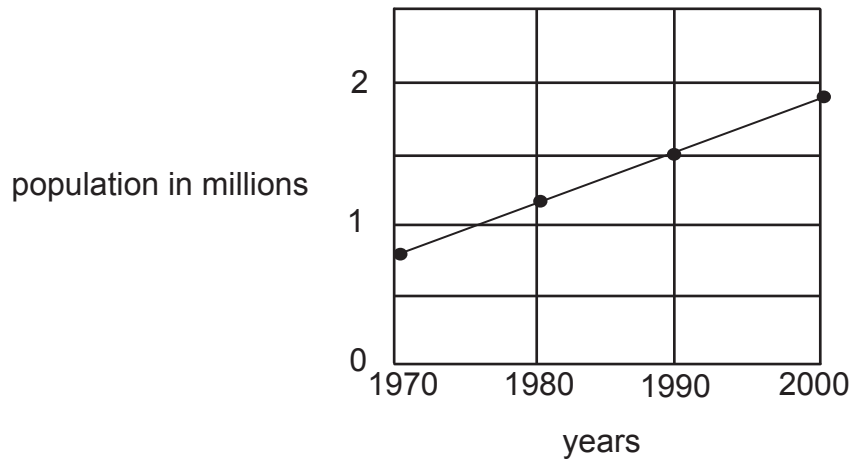
22 Which process is affected by wind?

- A osmosis
- B pollination
- C respiration
- D translocation

23 Which veld type becomes yellow or white during winter?

- A bush veld
- B mixed veld
- C sour veld
- D sweet veld

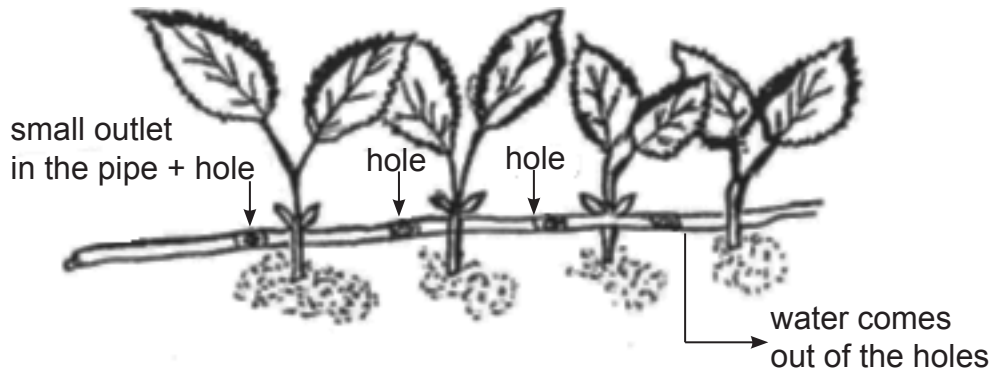
24 The graph shows the population increase in Namibia.



How many people were there in Namibia in 1990?

- A 1.2 million
 - B 1.3 million
 - C 1.4 million
 - D 1.5 million
- 25 Which source of water can be used in Namibia by drilling boreholes?
- A dams
 - B groundwater
 - C lakes
 - D rivers
- 26 Who owns state land in Namibia?
- A commercial farmers
 - B financial institutions
 - C the government
 - D the private sector
- 27 Which type of feed prevent constipation in animals?
- A concentrates
 - B mineral licks
 - C roughages
 - D sillage

28 The diagram shows a method of irrigation.



Which method of irrigation is shown in the diagram?

- A basin irrigation
 - B drip irrigation
 - C furrow irrigation
 - D sprinkler irrigation
- 29 What do we call areas that are specially planted with grass species which have a high food value?
- A fodder
 - B grassland
 - C pasture
 - D vegetation
- 30 Which breeding system can sometimes result in bad characteristics in the offspring?
- A cross-breeding
 - B inbreeding
 - C line-breeding
 - D upgrading

SECTION B

- Answer this section in the spaces provided.
- Questions **1 to 6** are compulsory.
- Answer **either** Question 7 **or** Question 8.
- Answer **either** Question 9 **or** Question 10.

1 GENERAL AGRICULTURE: COMPULSORY

(a) Food self-sufficiency is an important priority in Namibia.

Explain the meaning of food self-sufficiency.

.....

.....

.....

.....

[2]

(b) Name the following processes of conservation of soil water.

(i) Not tilling the soil unnecessarily.

.....

[1]

(ii) Covering the soil with dead leaves or bark.

.....

[1]

(c) List **three** ways how land can be reclaimed for agricultural purposes.

1

2

3

[3]

(d) State how the following weather conditions affect the rate of transpiration in plants.

(i) high humidity

.....

(ii) wind

.....

(iii) high temperature

.....

(iv) low temperature

.....

[4]

(e) A farmer plants the following crops on the same plots every year.

- | | | | |
|----------------|--------|-------|-------|
| sweet potatoes | cotton | maize | beans |
|----------------|--------|-------|-------|

(i) Suggest **two** disadvantages of planting the same crop on the same plot every year.

1.....
.....

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

(ii) Suggest the best farming system that a crop farmer can use to improve the crop yield.

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

(iii) From the list in (e), state which crop is most beneficial to the plots. Give a reason for your answer.

Crop

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

(f) Explain the difference between commercial and subsistence farming.

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

(g) State the difference between HIV and AIDS.

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

[20]

2 SOIL: COMPULSORY

(a) The picture shows one way in which crop farmers can prevent soil erosion.



Name this way of preventing soil erosion.

..... [1]

(b) Complete Table 2.1 by filling in the missing information about different soil types.

Table 2.1

soil types			
property of soil	sandy soil	loam soil	clay soil
cultivation	easy to cultivate	easy to cultivate	(i).....
water-holding capacity	(ii).....	good	high (very good)
aeration	very well aerated	(iii).....	poorly aerated
drainage	drains easily	drains easily	(iv).....

[4]

(c) Suggest **two** ways in which a farmer can add nitrogen to the soil.

1

.....

2

.....

[2]

(d) Discuss why sand soil often has a low pH.

.....
.....

[1]

(e) Name **two** physical soil weathering agents.

1

2

[2]

(f) (i) State **two** examples of organic fertilisers.

1

2

[2]

(ii) State **two** advantages of organic fertilisers.

1

.....

2

.....

[2]

(g) Which soil type is usually the least fertile?

.....

[1]

[15]

3 GRAZING AND VELD MANAGEMENT: COMPULSORY

(a) (i) What is it called when bush takes over the space where grass used to grow?

..... [1]

(i) List **two** ways to control what happens in **a (i)**.

1

2 [2]

(b) List **two** factors that can influence the carrying capacity of the land.

1

2 [2]

(c) (i) Discuss why grass is important to the environment.

1

.....

2

..... [2]

(ii) Name **one** reason why grass is important to animals.

.....

..... [1]

(d) Discuss **two** advantages of rotational grazing.

1

.....

2

..... [2]

[10]

4 GENERAL PRINCIPLES OF ANIMAL PRODUCTION: COMPULSORY

(a) Name the type of animal which has only one stomach.

..... [1]

(b) Table 4.1 shows some animal diseases and its symptoms. Match the symptoms of column B with the disease in column A. Only write down the number with the corresponding letter, e.g. 1. Z

Table 4.1

A	B
disease	symptoms
1 foot and mouth	A bloody fluids are seen running from the nose, mouth or anus of the carcass
2 anthrax	B animal may develop swollen joints
3 brucellosis	C lips and tongue stop moving, animal has trouble with chewing and swallowing, it salivates a lot
	D blisters on mouth and feet

1

2

3 [3]

(c) Animals need a balanced diet for maximum growth and to stay healthy.

Discuss the term balanced diet.

.....

..... [2]

(d) For the successful selection and breeding of animals, it is important for a farmer to understand the concepts of phenotype and genotype.

Which **one**, phenotype or genotype, will determine the sex of an animal.

..... [1]

(e) Fig. 4.2 shows the continuous mating of a purebred male animal with a hybrid herd of another breed until the offspring look like the purebred male animal.

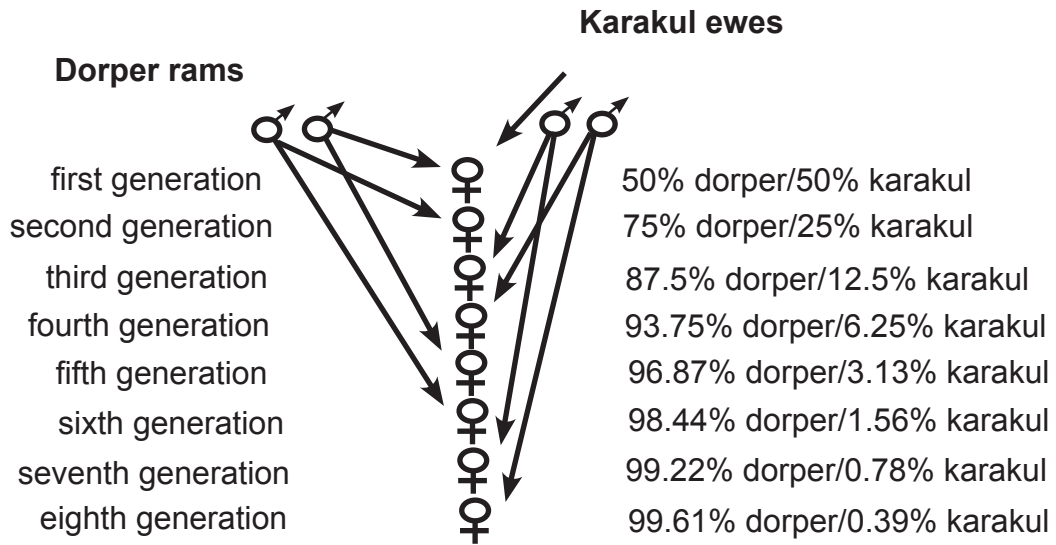


Fig. 4.2

State the breeding system represented in Fig. 4.2.

..... [1]

(f) List **one** example of

(i) an external parasite.

..... [1]

(ii) an internal parasite.

..... [1]

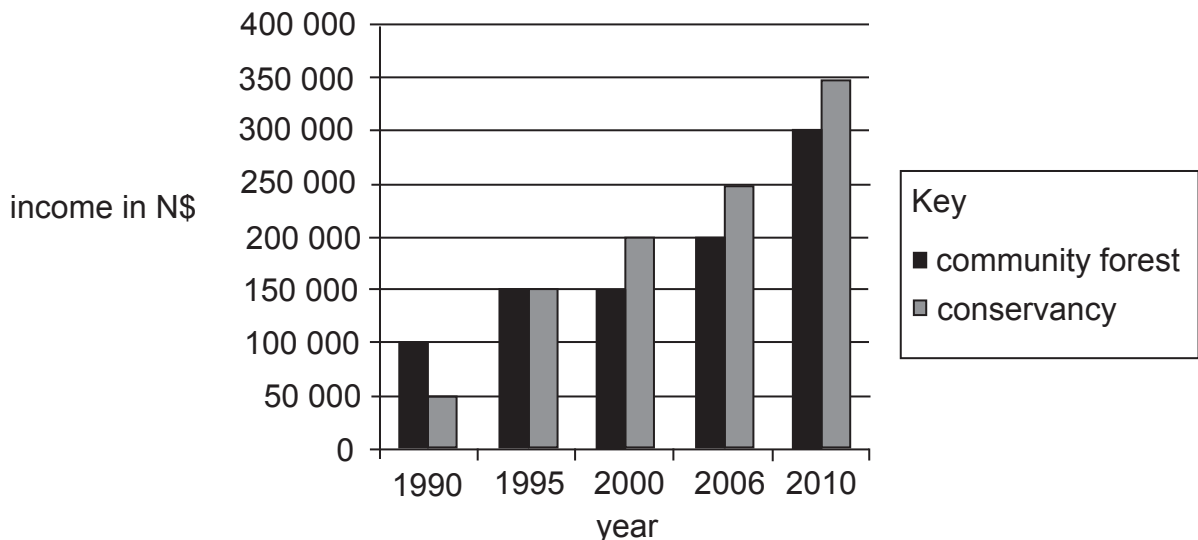
[10]

5 COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT: COMPULSORY

(a) What do we call the area that is taken care of by a group of people with the aim to conserve the natural resources which they share?

..... [1]

(b) The graph shows the income of natural resources from conservancies and community forests.



(i) State, with a reason, which natural resource has benefited the community more over the twenty years.

Natural resource.....

Reason.....

..... [2]

(ii) Calculate the total income in 1990 and 2010 for the conservancy and the community forest. Show your calculations.

.....

.....

..... [3]

(c) List **three** ways in which communities can earn an income from the tourism industry.

1

.....

2

.....

3

..... [3]

(d) The picture shows one advantage which the people from a well-managed community forest enjoy.



Name **three other** benefits which the inhabitants of a well-managed community forest can enjoy.

- 1
- 2
- 3

[3]

(e) Match the answers in column B with column A. Only write down the number with the corresponding letter, e.g. 1. Z

column A	column B
1 first region to look after animals and natural resources	A Zambezi
2 conservancy	B operates on a regional level
3 wildlife Council	C Kunene
	D operates on a local level

- 1
- 2
- 3

[3]

[15]

6 FARMING TECHNOLOGY - WATER SUPPLY: COMPULSORY

(a) State the functions of the following tools and materials in water installations.

Pipe wrench

T-piece

Reducer.....

Pulleys.....

Elbow piece.....

[5]

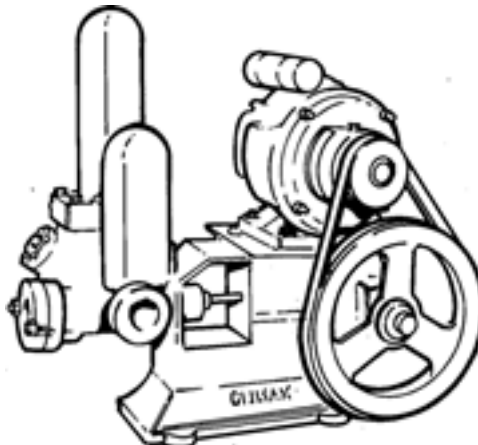
(b) The diagrams show three types of water pumps **A**, **B** and **C**.



A



B



C

(i) Identify the water pumps.

A.....

B.....

C.....

[3]

(ii) Name the function of valves in water pumps.

.....
.....

[1]

(c) State **one** reason why it is necessary to keep water installations clean.

.....
.....

[1]

[10]

CHOOSE EITHER QUESTION 7 OR QUESTION 8

7 TREE GROWING

(a) Explain **three** reasons why trees are important in Namibia.

- 1
- 2
- 3 [3]

(b) Name **three** methods of planting trees from vegetative parts.

- 1
- 2
- 3 [3]

(c) Discuss **two** negative effects of uncontrolled fires on the environment.

- 1 [2]
-
- 2
-

(d) Suggest **two** reasons why controlled veld fires are sometimes necessary.

- 1 [2]
-
- 2
-

[10]

8 CEREAL CROPS

(a) State the term used in agriculture for a type of plant specially developed to suit a specific environment.

..... [1]

(b) The diagrams show different tools used to prepare a seedbed for a cereal crop.



A



B



C

State **one** function of **A**, **B** and **C**.

A.....

B.....

C..... [3]

(c) List **two** factors that determine the spacing of a cereal crop.

1

2

(d) Identify pests **A** and **B**.



A



B

A.....

B..... [2]

(e) State **two** correct conditions under which cereal grain seeds should be stored.

1

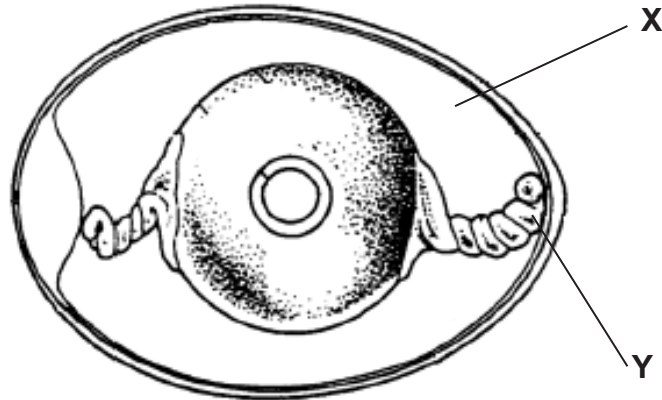
2

[10]

CHOOSE EITHER QUESTION 9 OR QUESTION 10

9 OSTRICH FARMING

(a) The diagram shows an ostrich egg.



Identify the parts labelled X and Y.

X.....

Y..... [2]

(b) List **one** ostrich product.

..... [1]

(c) Name

(i) **one** common nutritional disease of ostriches.

.....

(ii) **two** notifiable diseases of ostriches.

1

2..... [3]

(d) Discuss **three** advantages of an intensive management system for ostriches.

1

.....

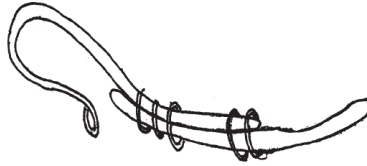
2

.....

3

..... [3]

(e) Identify the equipment below.



.....

[1]

[10]

10 BEEF CATTLE

(a) State **three** requirements for exporting beef and beef cattle.

- 1
-
- 2
-
- 3
-

[3]

(b) (i) Define the term *fertilisation*.

.....
.....

[1]

(ii) In which part of the reproductive system does fertilisation take place?

.....

[1]

(c) Match the answers from column B with the term in column A. Only write down the number with the corresponding letter, e.g. 1. Z

column A	column B
1 dosing	A for new-born animals
2 vaccination	B giving medicine through the mouth
3 castration	C to prevent the animal from reproducing
4 dehorning	D to prevent injuries
	E injecting medicine under the skin

- 1
- 2
- 3
- 4

[4]

(d) Name the extra food substance a pregnant cow needs at gestation for the growth of the fetus.

.....

[1]

[10]