

# education

Department: Education **REPUBLIC OF SOUTH AFRICA** 

NATIONAL SENIOR CERTIFICATE

**GRADE 10** 

# **AGRICULTURAL SCIENCE P1**

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

# **NOVEMBER 2006**

**MARKS: 150** 

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TIME: 2 hours

This question paper consists of 12 pages and an answer sheet.

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#### INSTRUCTIONS AND INFORMATION

- 1. Answer ALL the questions from SECTION A and SECTION B.
- 2. SECTION A (QUESTION 1) must be answered on the ANSWER SHEET provided.
- 3. SECTION B (QUESTIONS 2 to 4) must be answered in the ANSWER BOOK.
- 4. Start each question from SECTION B on a NEW page.
- 5. Study the questions carefully and make sure you answer what is required.
- 6. Number your answers correctly according to the numbering system used in this question paper.
- 7. Write neatly and legibly.

#### **SECTION A**

#### **QUESTION 1**

- 1.1 Various possible options are provided as answers to the following questions. Choose the correct answer and make a cross (X) over the letter (A - D) next to the question number (1.1.1 - 1.1.10) on the answer sheet provided for SECTION A.
  - 1.1.1 QUESTIONS 1.1.1 and 1.1.2 are based on the following simplified food web of an agro-ecosystem:



The decomposers in this food web are ...

- A maize plants.
- B bacteria.
- C grass hoppers and frogs.
- D snakes and birds.
- 1.1.2 How many different herbivores are indicated?
  - A 1
  - B 2
  - C 3
  - D 4
- 1.1.3 Typical savannah vegetation occurs in South Africa in ...
  - A the coastal regions of KwaZulu Natal and the southern part of the Western Cape.
  - B the southern parts of Gauteng.
  - C the dry parts of the country with an average rainfall of 300 mm.
  - D in the northern regions with tropical climate and summer rainfall.
- 1.1.4 New breeds and plant cultivars are developed through ...
  - A production.
  - B selection.
  - C hybridization.
  - D B and C

- 1.1.5 A product made from parts of animals that are not used for food or fibre:
  - A Caviar
  - B Pelt
  - C By-product
  - D Leather
- 1.1.6 South Africa's agricultural conditions enable us to produce ... agricultural products.
  - A a variety of
  - B limited
  - C just enough
  - D a shortage of
- 1.1.7 Agricultural production in South Africa is mainly restricted by the available ...
  - A money.
  - B people.
  - C infrastructure
  - D natural resources.
- 1.1.8 The karakul sheep is mainly farmed for its ...
  - A hide.
  - B leather.
  - C hair.
  - D pelt.
- 1.1.9 ... is an example of a livestock breed developed for South African conditions.
  - A Merino
  - B Dorper
  - C III de France
  - D Dorset Horn
- 1.1.10 The group of animals that is normally hunted for food and decorative items is ...
  - A beef.
  - B service animals.
  - C game.
  - D companion animals.

 $(10 \times 2)$  (20)

- 1.2 Give ONE word for each of the following descriptions and write it next to the question number (1.2.1 1.2.5) on the answer sheet:
  - 1.2.1 The agricultural practice where all the plant material is kept on the surface of the soil during cultivation
  - 1.2.2 An industry that manufactures agricultural goods
  - 1.2.3 When a person's diet consists of the right amounts of all the food groups
  - 1.2.4 An international organisation established in 1994 to force the richer countries to open up their markets by removing trade barriers
  - 1.2.5 Any person not getting enough food for good health and normal growth  $(5 \times 2)$  (10)
- 1.3 Choose an item from COLUMN B that best matches a description/item/word in COLUMN A. Write only the letter (A F) next to the question number (1.3.1 1.3.5) on the answer sheet.

	COLUMN A	CO	LUMN B
1.3.1	Duration of day light	A	when animals barely remain alive during unfavourable seasons
1.3.2	Hydrophilic organisms	В	improve the quality of the product
1.3.3	Hibernation	С	capable of manufacturing organic material from inorganic matter
1.3.4	Development of new breeds	D	living in water permanently
1.3.5	Autotrophic organisms	E	sets off certain activities such as moulting, fat deposition and migra- tion
		F	these organisms live in dry habitats
			(5 × 2)

1.4 Refer to the ecological map of South Africa and answer the questions that follow:



Study the following breeds of small stock animals. Choose the area on the map that best suits each breed. Write only the letter of the area on the ANSWER SHEET.













 $(5 \times 1)$  (5)

TOTAL SECTION A: 45

7 NSC

#### **SECTION B**

### **QUESTION 2: AGRICULTURAL ECOLOGY**

Start this question on a NEW page.

2.1 Study the given information and answer the questions that follow:



2.1.1	What does the above illustration indicate?									
2.1.2	Write	down the LETTER which refers to:	(2) (2)							
	(a)	Primary users (any TWO)	(2)							
	(b)	Problem animals	(2)							
	(c)	The organism that has a bigger influence on the ecosystem than any other organism	(1)							
2.1.3	The g	grass is known as and give a reason for your answer.	(2)							
2.1.4	Briefl orgar	y describe the changes that will take place in the ecosystem if nism C is removed from the area.	(3)							

2.2



- 2.2.1 Identify the possible interactions indicated below each letter. (3)
- 2.2.2 Which of these interactions indicate a positive influence on agricultural production? (2)

2.3



- 2.3.1 Which slope is the warmest during summer? Give reasons for your answer. (4)
- 2.3.2 How will the plant cover differ between X and Y? Briefly disucss how this will influence runoff. (4)

### 2.4 Study the given information and answer the questions that follow



#### Rainfall distribution in South Africa



2.4.1	Indicate the type of veld (A, B and C) as indicated on the veld type map.	(3)
2.4.2	What is the correlation between the veld type found in a specific region and the rainfall received for that region?	(2)
2.4.3	Briefly indicate the reasons for each of these veld types.	(6) <b>[35]</b>

#### **QUESTION 3: AGRICULTURAL INDUSTRY**

Start this question on a NEW page.

3.1 CASE STUDY

> The Land Act of 1913 was a law that affected many communities living in South Africa at that time. The Malelane community was affected by this law. This community was forcefully removed from their 90 000 ha of good agricultural land along the Maputo corridor. Their agriculture and land ownership has changed since 1994 when the Restitution Act came into being, to correct the injustices of the past.

> Now the community can smile again because they have regained the right to own land. Some of them still love farming and they want to use this land for farming and tourism. Their focus will be on rearing animals, growing crops and vegetables. Further development also includes the building of a hotel for tourists that open opportunities for entrepreneurs of various businesses.

3.1.1	State what the result was of the Act which was passed in 1913?	(1)
3.1.2	In 1994 an Act was passed to correct the Act of 1913. Name the Act and what is its intended use.	(2)
3.1.3	List THREE benefits the community will now have.	(3)
3.1.4	Provide THREE reasons why agriculture is important as an industry.	(3)
3.2.1	Define the word agricultural organisation.	(2)
3.2.2	State THREE main types of formal agricultural organisations.	(3)
Agricultur control di stated be	al legislation has to do with laws that the government has made to fferent aspects of agriculture. Briefly explain the content of the laws low:	
3.3.1 3.3.2	Water Service Act Conservation of Agricultural Resource Act	(2) (2)

Marketing of Agricultural Products Act

3.3.3

3.2

3.3

(2)

- 3.4 The table below indicates the average monthly rainfall of two different areas in South Africa:

	Rainfall in mm/area										
Month	Α	В									
January	6	109									
February	20	120									
March	26	70									
April	34	16									
May	58	50									
June	120	10									
July	90	6									
August	100	10									
September	96	18									
October	60	60									
November	34	50									
December	20	100									

- 3.4.1 Use this data to plot a line graph using the X-axis for the months and the Y-axis for the amount of rainfall. (5)
- 3.4.2 Name the months when the rainfall is the highest in area A and area B.
- 3.4.3 Indicate which area receives rainfall during summer and which area receives rainfall during winter. Give reasons for your answer. (4)
- 3.4.4 Name ONE fruit crop and ONE grain crop that is best suited for each area.

#### **QUESTION 4: ANIMAL SCIENCES**

Start this question on a NEW page.

4.1 Some functions of livestock benefit all of society. These functions of livestock is a vital part of the total agricultural industry. In addition to food and clothing, there are several ways in which animals are involved with people.

Name and describe the different ways animals are involved under each of the following headings:

- 4.1.1 Companionship and pleasure
- 4.1.2 Service
- 4.1.3 Conservation
- 4.1.4 Stabilising farm economy

 $(4 \times 2)$  (8)

(2)

(4) **[35]** 

- . .
- 4.2 Match the products animals provide with the livestock or animal that produces it below:

lamb; milk; eggs; broiler; capon; pork; veal; mutton; beef; caviar

- 4.2.1 Cattle younger than three months.
- 4.2.2 Drakensberger
- 4.2.3 Sheep younger than 1 year
- 4.2.4 Sheep older than 1 year
- 4.2.5 Swine
- 4.2.6 Chickens younger than 12 weeks
- 4.2.7 A neutered chicken male
- 4.2.8 Ayrshire
- 4.2.9 New Hampshire

(9)

4.3 Two types of cattle are illustrated below. Answer the questions that follow:





- 4.3.1 Identify the types of cattle labelled A and B. (2)
- 4.3.2 Animals are normally kept under natural conditions in a certain ecological environment. Cattle breeds are usually best adapted to a specific environment.
  - (a) Name the conditions which are best suited for type A and for type B. (4)
  - (b) List FOUR characteristics of each type in a table. (8)
  - (c) Name FOUR abiotic factors that will determine the adaptability in your region. (4)

[35]

- TOTAL SECTION B: 105
  - GRAND TOTAL: 150

#### **ANSWER SHEET**

#### **SECTION A**

NAME .....

### **QUESTION 1.1**

1.1.1	А	В	С	D
1.1.2	А	В	С	D
1.1.3	А	В	С	D
1.1.4	А	В	С	D
1.1.5	А	В	С	D
1.1.6	А	В	С	D
1.1.7	А	В	С	D
1.1.8	А	В	С	D
1.1.9	А	В	С	D
1.1.10	А	В	С	D

# **QUESTION 1.3**

1.3.1	 	 • • • •		 • •	 • • •	• •	•••		•••	 			•••	
1.3.2	 	 		 	 			•••	•••	 	• •			•
13.3	 	 	•••	 	 • •									
1.3.4	 	 		 	 		•••		•••	 	• •			
1.3.5	 	 		 	 		• •	•••	•••	 		• •		

#### **QUESTION 1.2**

1.2.1	
1.2.2	
1.2.3	
1.2.4	
1.2.5	

## **QUESTION 1.4**

А	 • •			 • •	• •	•	• •		• •	 •	 • •				•	•		•			•	•	•				
В	 			 • •		-		-			 			-							•	•					
С	 •••		-				• •						•				• •		•	 		•		•	• •		
D	 	• •	-			•	• •						• •				• •		-	 		•	•	•			
Е	 			 							 																