Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sport Ontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko
NORTH WEST PROVINCE

PROVINCIAL ASSESSMENT

GRADE 10

AGRICULTURAL SCIENCES

JUNE 2017

MARKS: 150

TIME: 2½ hours

This question paper consists of 13 pages

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions in the ANSWER BOOK.

2. Start EACH question from SECTION B on a NEW page.

3. Read ALL the questions carefully and answer only what is asked.

4. Number the answers correctly according to the numbering system used in this question paper.

5. Write neatly and legibly.

SECTION A

QUESTION 1

1.1. Various possible answers are provided to the following questions.

Choose the correct answer and write it next to the question number.

(1.1.1-1.1.10) on the ANSWER BOOK.

1.1.1. The scientific study of the relationship between living organisms and their environment is called

A Ecosystem
B Ecology
C Biosphere
D Interaction

1.1.2. Living organisms that can make their own food

A Producers
B Consumers
C Decomposers
D Carnivores

1.1.3. The maximum number of animals that the pasture can support without the pasture or animals being harmed is

A Stocking rate
B Optimal grazing
C Carrying capacity
D Overgrazing

1.1.4. Water for agricultural purposes usually comes from

A Permanent rivers
B Dams
C Aquifers
D All of the above

1.1.5. The type of land ownership is

A Tenure
B Freehold
C Redistribution
D Leasehold

1.1.6. The Act that is responsible for the protection, development and use of South Africa's water resources

A National Water Act
B Provincial Water Act
C District Water Act
D None of the above

1.1.7. A medium in which plants can grow is

A Vegetation
B Water
C Soil
D Air

1.1.8. Organisms that are found in the soil and can be seen with naked eye

A Xerophytes
B Macro organisms
C Micro organisms
D Meso organisms

1.1.9. ---------- is an example of dual purpose breeds of sheep

A Merino
B Damara
C Karakul
D Domer

1.1.10. Baconers are slaughtered at the mass of---------- for making bacon and ham

A 10kg to 50kg
B 30kg to 40kg
C 60kg to 65kg
D 80kg to 100kg

2 x 10 (20)

1.2 Indicate whether each of the following descriptions in COLUMN B applies

to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN A. Write **A ONLY, B ONLY, BOTH A and B or NONE** next to the question number (1.2.1- 1.2.5) in the ANSWER BOOK, for example 1.2.6 B only.

	COLUMN A	**COLUMN B**
1.2.1	A. Food security	Measure of how available food is, as well as a person's access to food
	B. Food tap	
1.2.2	A. soil structure	Plant nutrient in the soil
	B Soil fertility	
1.2.3	A. soil texture	Loss of soil quality and production
	B. Soil profile	
1.2.4	A. Air	Edaphic factors
	B. Water	
1.2.5	A. Broiler chickens	Chicken reared for meat
	B. Hens	

(5 x 2) (10)

1.3 Give the correct term for each of the following description. Write only the term next to the question number (1.3.1 – 1.3.5) on the answer book.

1.3.1 All the living organisms in a particular area and their non-living environment.
1.3.2 An ecological community that covers a large area of land and is characterised by a particular type of plant.
1.3.3 Traditional knowledge that is acquired overtime.
1.3.4 Farming method that is aligned with the principles of ecology in order to ensure that food production meets the current needs and the needs of future generation.
1.3.5 Minerals that occur in nature and are still in their original form.

2 x 5 (10)

1.4 Change the underlined word/s in each of the following statements to make them true. Write the appropriate word next to the question number (1.4.1- 1.4.5) on the answer book.

1.4.1 <u>Browsers</u> eat grass and other plants that grow at ground level.
1.4.2 Carbon moves from the atmosphere to the plants by the process of <u>condensation</u>.

1.4.3 Business organisations that are owned and operated by farmers for their shared benefit is commodity organisation.

1.4.4 Non- renewable resources can be replaced or replenished in a short time.

1.4.5 Hard rock that forms from lava from an erupting volcano is sedimentary rock.

1 x 5 (5)

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SECTION B

QUESTION 2

AGRO- ECOLOGY AND AGRICULTURAL ECONOMICS

2.1 Read the case study below and answer questions that follow.

A farmer is raising beef cattle in a hilly area just north of Ermelo in Mpumalanga. The area has quite a moist climate with 7000mm rain per year. The winters are very cold up in the hills. The farmer notices that his cattle get very thin in winter, even though they are still grazing. He also notices that his herds tend to favour certain grasses, especially the big tussock grasses. They have grazed all the tussock grasses leaving large areas that have only small creeping grasses or bare soil. The soil from these is starting to erode, forming dongas.

2.1.1 Based on the climatic conditions of the area, identify this veld type. (1)

2.1.2 Explain why the cattle become so thin over the winter period. (2)

2.1.3 Briefly describe what this farmer needs to do in order to keep his livestock healthy over the winter periods (2)

2.1.4 Predict the type of grazing that is associated with the case study. (2)

2.1.5 Identify THREE practices that have caused the current veld condition. (3)

2.1.5 Suggest THREE measures that the farmer could implement to improve the present condition of the veld (3)

2.2 The following are the different levels of organisms in ecology:

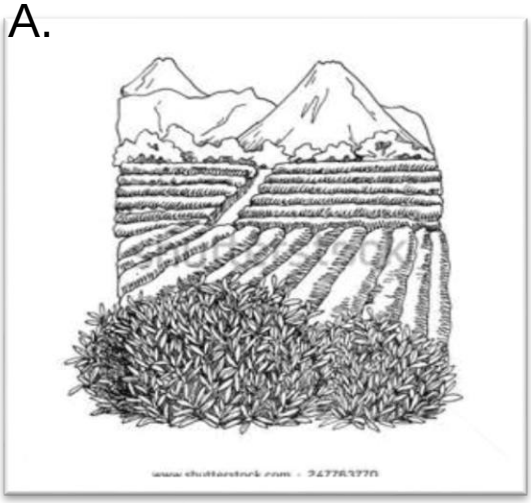
A. Population
B Ecosystem
C Species
D Organism
E Community

2.2.1 Assemble these levels from the smallest level to the largest level by writing letters only. (5)

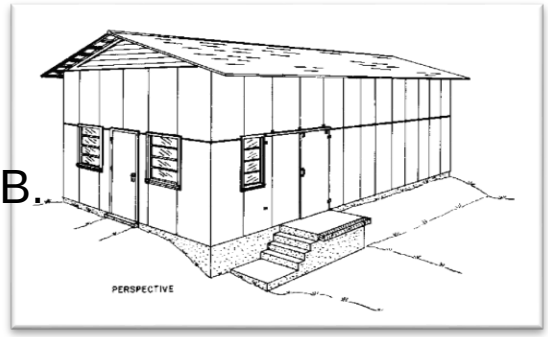
2.3 Agri- industry refers to all the productive activities that are associated with agriculture, for example, production, processing and supply of agricultural goods. It relates to farming for market production, and simply to the business of farming.

Below are production chains in agric- industry.

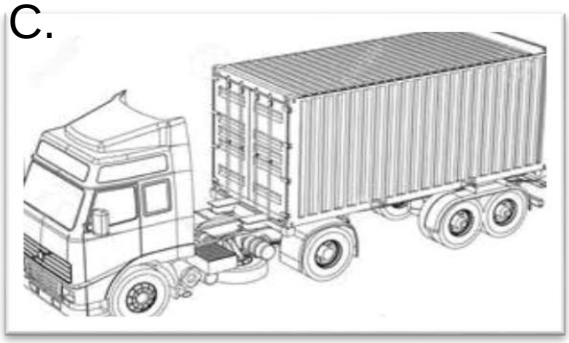
A.



B.



C.



D.

E.

2.3.1 Refer to the chain above and fill the table below by matching each activity to the relevant chain by writing letters only.

Activity	Picture
a. Labour	
b. Transport	
c. Production	
d. Storage	
e. Consumers	

(5)

2.4 The following table indicates differences in food security in South Africa's provinces .Study the table below and answer the questions that follow.

Province	**Income per person (R)**	**Average consumption per person (kg)**		
		Maize	**Wheat**	**Potatoes**
Western Cape	14 304	97.05	39.01	25.66
Northern Cape	8 308	95.01	38.38	25.73
Free State	7 621	94.39	38.09	25.44
Eastern Cape	3 955	92.25	36.39	22.11
KwaZulu-Natal	5 924	94.91	37.92	25.12
Mpumalanga	6 353	94.23	37.60	26.08
Limpopo	2 288	92.89	35.50	21.18
Gauteng	19 961	91.92	40.13	29.51
North West	4 995	94.49	37.16	24.96

2.4.1 Briefly explain the term *food security.* (2)

2.4.2 Look at the column that shows income per person for the different provinces and answer questions below.

a. Identify two provinces which are the richest? (2)

b. Identify two provinces which are the poorest? (2)

2.4.3 Draw a bar graph indicating the average consumption of maize, wheat and potatoes per person (Kg) in Gauteng, North West and Mpumalanga. (6)

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QUESTION 3

SUSTAINABLE NATURAL RESOURCES UTILISATION

3.1 Poor agricultural practices cause soil degradation.

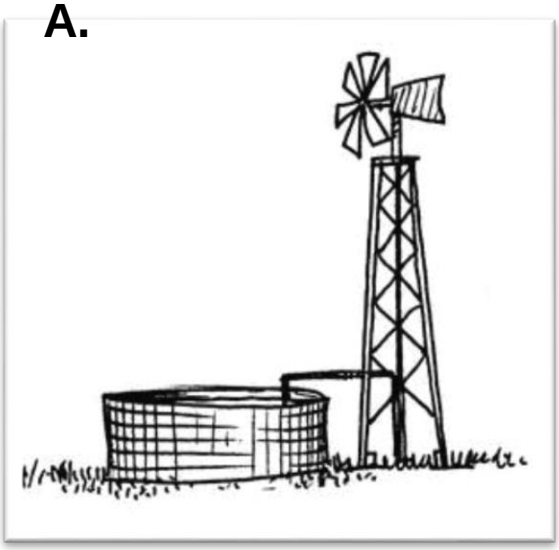
3.1.1 Define the term *land degradation*. (1)

3.1.2 Identify any TWO Examples of physical degradation and TWO examples of chemical degradation. (4)

3.1.3 Briefly explain THREE poor agricultural practices that cause soil degradation. (3)

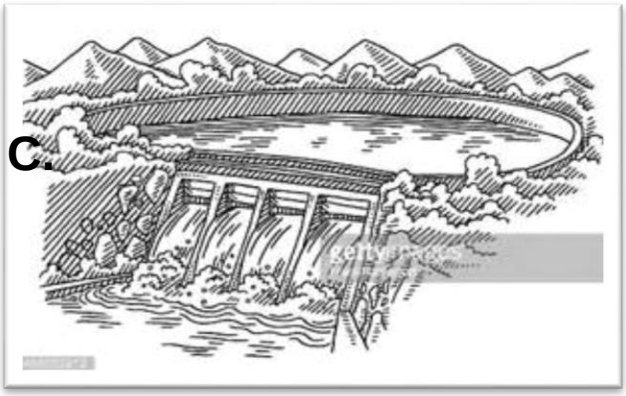
3.2 Below are THREE sources of water. Study the sources and answer questions below

A.



B.

C.



3.2.1 Briefly explain the following terms:

a. Water source (2)

b. Irrigation (2)

3.2.2 Label sources A-C (3)

3.3 Distinguish between surface water and ground water (2)

3.4 Study the case study below and answer questions that follow.

There are many different types of agricultural pollution. These all have different impacts on the environment, on soil and on water resources in particular. It is very important to understand the role of fertilisers, pesticides and agricultural waste. These all have negative impact on the natural environment and affect the quality and functioning of the air, water and soil.

3.4.1 Briefly explain the term agricultural pollution. (2)

3.4.2 Identify THREE types of agricultural pollution from the case study (3)

3.4.3 Deduce from the case study THREE types of soil pollutants (3)

3.5 Answer the following questions on agricultural resources.

3.5.1 Briefly explain the term 'agricultural resources' (2)

3.5.2 Tabulate the difference between renewable and non- renewable resources (5)

3.5.3 Give THREE examples of renewable resources (3)

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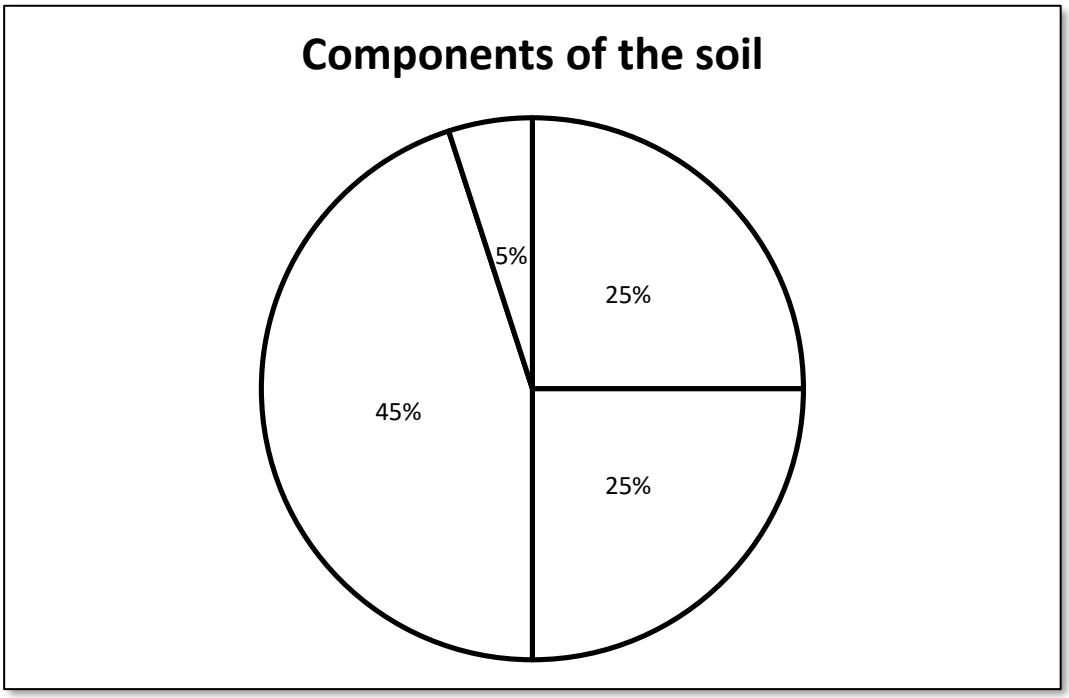
QUESTION 4

SOIL SCIENCES AND ANIMAL SCIENCES

4.1 Soil is the complex mixture of different components.

The pie chart below indicates percentages of the different components of the soil. Study the pie chart and classify the components according to the percentage.



(4)

4.2 Draw a table with three columns with the following headings: 'Igneous rocks', 'Sedimentary rocks' and 'Metamorphic rocks'. Classify each of the following rocks by writing it in the appropriate column.

4.2.1 Granite

4.2.2 Limestone

4.2.3 Dolerite

4.2.4 Marble

4.2.5 Sandstone,

4.2.6 Quartzsite (7)

4.3 Without soil, humankind would not survive. Soil is the source of many different products.

4.3.1 Briefly describe at least FIVE importance of the soil in ecosystems (5)

4.3.2 Differentiate between ‘weathering” and ‘soil erosion’ (2)

4.3.3 Identify THREE types of weathering of rocks (3)

4.4 Farm animals are classified according to the way in which their stomachs function. There are ruminants and non- ruminants.

4.4.1 Briefly explain at least TWO differences between ruminants and non-ruminants (4)

4.4.2 Classify the following farm animals into ruminants or non-ruminants:

Sheep; pig, goat, fowls (4)

4.4.3 State any TWO breeds or classifications of each of the following livestock:

a. cattle (2)

b. sheep (2)

c. poultry (2)

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GRAND TOTAL 150

TOTAL SECTION B: 105