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

MARKING GUIDELINES

MARKS: 150

This guideline consists of 10 pages

SECTION A

QUESTION 1

1.1

1.1.1 B √√
1.1.2 A √√
1.1.3 C √√
1.1.4 D √√
1.1.5 D √√
1.1.6 A √√
1.1.7 C √√
1.1.8 B √√
1.1.9 A √√
1.1.10 D √√

(2 x 10) (20)

1.2

1.2.1 A only √√
1.2.2 B only √√
1.2.3 None √√
1.2.4 Both A and B √√
1.2.5 A only √√ 5 x 2) (10)

1.3

1.1.1 Ecosystem √√
1.1.2 Biome √√
1.1.3 Indigenous knowledge √√
1.1.4 Sustainable agriculture √√
1.1.5 Primary minerals √√ (5 x 2) (10)

1.4

1.4.1 Grazers √
1.4.2 Photosynthesis √
1.4.3 Cooperatives √
1.4.4 Renewable √
1.4.5 Igneous rock √ (5 X 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2: AGRO- ECOLOGY AND AGRICULTURAL ECONOMICS

2.1

2.1.1. **Type of veld based on the case study**

Sourveld√

(1)

2.1.2. **Reasons why cattle become thin during winter**

- Sourveld has nutritional value√√
- Because of the cold, the cattle use most of energy for body heat√√

(Any 1) (2)

2.1.3. **What farmer needs to do to keep his livestock healthy**

- Provide licks/ supplements.√√
- Provide extra feed in the form of hay√√ (2)

(Any 1)

2.1.4. **Type of grazing**

Selective grazing√√ (2)

2.1.5. **THREE practices that have caused current veld condition**

- Rotational grazing√
- Overgrazing√
- Selective grazing√ (3)

2.1.6. **THREE measures that the farmer could implement to improve the present condition**

- Smaller herd√
- Rotational grazing√
- More camps√
- Fertilising√
- Complete rest for growing√
- Season√
- Sowing in of grass on bare patches√

(Any 3) (3)

2.2.1. **Levels of organisms from smallest level to largest level**

- D√
- C√
- A√
- E√
- B√ (5)

2.3.1. **Production chains**

- D√
- C√
- A√
- B√
- C√ (5)

2.4 **Food security**

2.4.1 - It is the ability of a country to produce enough food for all people√√.

- It is the measure of how available food is as well as a person's access to food (Any 1) (2)

2.4.2 **(a) TWO richest provinces**

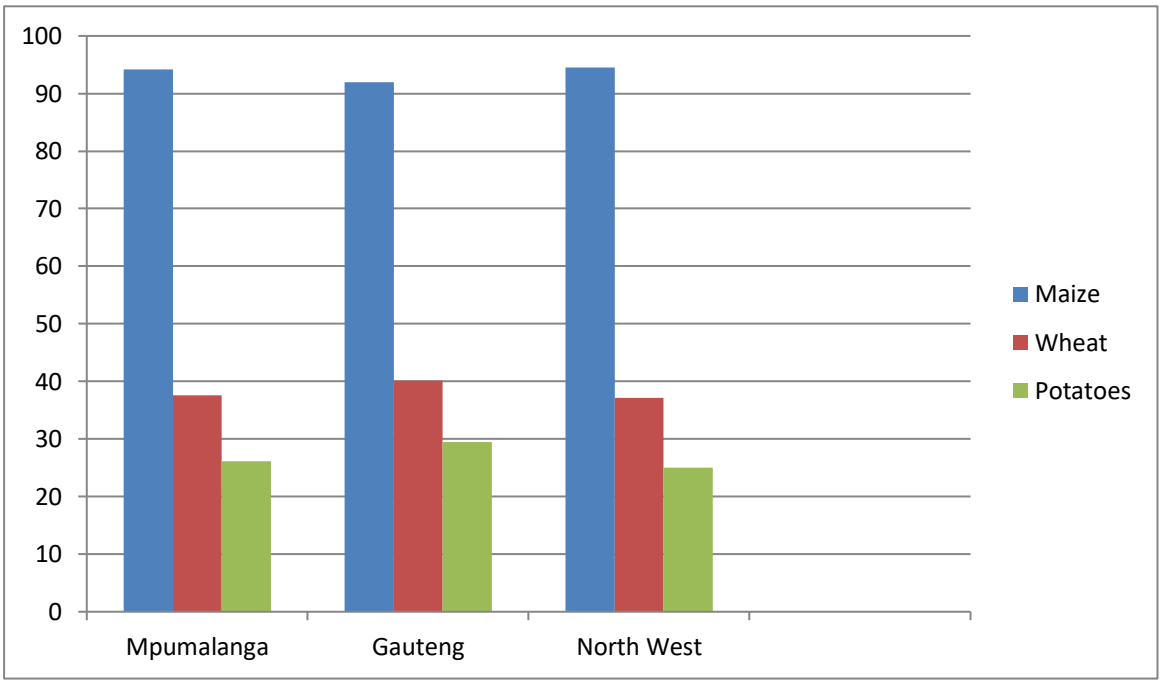
- Gauteng√
- Western Cape√ (2)

(b) TWO poorest provinces

- Limpopo√
- Eastern Cape√ (2)

2.4.1 **Bar graph**

Average consumption of maize, wheat and potatoes per person (kg) in Mpumalanga, Gauteng and North West.



Marking scale

- Correct heading√√
- Relevant bar graph√
- X- axis labelled√
- Y- axis labelled√
- Accuracy√ (6)

[35]

QUESTION 3: SUSTAINABLE NATURAL RESOURCES UTILISATION

3.1

3.1.1 **Land degradation**

- Loss of soil quality and production√
- The loss in the productive potential of soil as a result of human activities.√

(Any 1) (1)

3.1.2 **Physical degradation**

- soil erosion√
- waterlogging√
- soil crusting√
- structural decline√ (Any 2) (2)

Chemical degradation

- Salinitation√
- Acidification√
- Nutrient inbalance√
- Nutrient loss/ depletion√
- Leaching√ (Any 2) (2)

3.1.3 **Poor agricultural practices that causes soil degradation**

- Food security/ decrease in yields√
- Economic implication/ Threatens subsistence agriculture√
- Damage of dams, rivers and loss of soil fertility/ point of no return√ (3)

3.2 **Water Sources**

3.2.1 a. **Water source** is the store of water√ (2)

b. **Irrigation** is the artificial way of watering crops with water drawn from rivers or dams√ (2)

3.2.2

A- Windmill√

B. Rivers√

C. Dams√ (3)

3.3.1 **Differences between surface and ground water**

Surface water is the water that is drawn from rivers, dams and lakes.√√

Ground water is the water that is drawn from aquifers.√√ (2)

3.4.1 **Agricultural pollution** is the release of pollutants from agricultural activities into the air, water or the soil.√√ (2)

3.4.2 **Types of agricultural pollution**

- Soil pollution√
- Water pollution√
- Air pollution √ (3)

3.4.3 **Types of soil pollutants**

- Fertilisers√
- Pesticides√
- Agricultural waste√ (3)

3.5.1 **Agricultural Resources** are all the inputs that are necessary for agricultural production.√√ (2)

3.5.2 **Differences between renewable and non renewable resources**

Renewable Resources	**Non- Renewable resources**
Resources that can be replaced or replenished in a short time√√	Resources that cannot be replaced or replenished once they have been used up√√

1 mark for the table (5)

3.5.3 **Examples of renewable resources**

- Water√
- Machinery√
- Biofuel√
- Crops√

(Any 3) (3)

35]

QUESTION 4: SOIL SCIENCES AND ANIMAL SCIENCES

4.1 **Pie chart**

5% - organic components√
25%- soil water√
25%- sol air√
45% - inorganic rock particles√ (4)

4.2 **Different types of rocks**

Igneous Rocks	**Sedimentary Rocks**	**Metamorphic Rocks**
Granite√	Limestone√	Marble√
Dolerite√	Sandstone√	Quartzite√

1 mark for the table (7)

4.3 **Importance of soil in ecosystem**

- It is the medium in which plants can grow.√
- It anchors and provides support for plants.√
- It supplies plants with important inorganic nutrients.√
- It provides a habitat for soil organisms.√
- It provides water for plants organisms to respire.√
- It plays a role in the water cycles, which influence the balance of gases in the atmosphere.

(Any 5) (5)

4.3.2 **Difference between weathering and soil erosion**

Weathering is the process of soil formation from parent rock.√ Erosion is the removal/ destruction of the top soil.√ (2)

4.3.3 **Types of weathering of rocks**

- Physical or mechanical weathering√
- Chemical weathering√
- Biological weathering√ (3)

4.4

4.4.1 **Difference between ruminants and non ruminants**

Ruminants are animals that chew the cud√ and have four complex stomach or polygastric√. **Non- ruminants** do not chew the cud√ and have single stomach or are monogastric√ (4)

4.4.2 **Examples of ruminants and non- ruminants**

Ruminants

- sheep breeds√
- Goats breeds√
- Cattle/ cow breeds√

(Any 2) (2)

Non-Ruminants

- pigs√
- Fowls/ poultry/ chicken√ (2)

4.4.3 **Breeds of each of the following livestock**

a. Cattle - beef cattle breeds√
- dairy cattle breeds√
- dual purpose breeds√

(Any 2) (2)

b. Sheep - mutton/ meat breeds√
- Pelt breeds breeds√
- dual purpose breeds√

(Any 2) (2)

c. Poultry - broiler/ meat breeds√
- egg laying breeds√
- dual purpose breeds√

(Any 2) (2)

[35]

GRAND TOTAL : [150]