**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2020

**AGRICULTURAL SCIENCES P1
MARKING GUIDELINE
(EXEMPLAR)**

MARKS: 150

This marking guideline consists of 9 pages.

SECTION A

QUESTION 1

1.1 1.1.1 C ✓✓
     1.1.2 A ✓✓
     1.1.3 A ✓✓
     1.1.4 D ✓✓
     1.1.5 C ✓✓
     1.1.6 B ✓✓
     1.1.7 C ✓✓
     1.1.8 C ✓✓
     1.1.9 D ✓✓
     1.1.10 C ✓✓   (10 x 2)   (20)

1.2 1.2.1 B only ✓✓
     1.2.2 Both A and B ✓✓
     1.2.3 None ✓✓
     1.2.4 Both A and B ✓✓
     1.2.5 A only ✓✓   (5 x 2)   (10)

1.3 1.3.1 Community ✓✓
     1.3.2 Food webs ✓✓
     1.3.3 Labour tenancy ✓✓
     1.3.4 Ruminants ✓✓
     1.3.5 Layers ✓✓   (5 x 2)   (10)

1.4 1.4.1 Xerophytes ✓
     1.4.2 Commercial ✓
     1.4.3 Co-operatives/Pool ✓
     1.4.4 Bos Taurus ✓
     1.4.5 Saanen goat ✓   (5 x 1)   (5)

                                                   TOTAL SECTION A: **45**

SECTION B

QUESTIONS 2: AGRI-ECOLOGY

2.1   2.1.1   **The type of energy flow illustrated in the diagram.**
- Ecological pyramid ✓   (1)

       2.1.2   **The number of trophic levels on the diagram.**
- 4 trophic levels ✓   (1)

       2.1.3   **The letter from the diagram where the following occurs:**
(a)   D ✓   (1)
(b)   C ✓   (1)
(c)   A ✓   (1)

       2.1.4   **The energy is transferred from letter C to letter B.**
- The animals in letter **B** are predators/hunters. They kill and consume/eat ✓ the animals in letter **C**. ✓   (2)

       2.1.5   **THREE abiotic components required by plants.**
- Water ✓
- Air/Carbon dioxide ✓
- Soil ✓
- Sunlight ✓   (Any 3 x 1)   (3)

2.2   **Pastures and veld management**

       2.2.1   **Definition of a pasture**
- A pasture is an area of land that is covered with plants ✓ and which is used by animals for grazing or browsing. ✓   (2)

       2.2.2   **The pasture that is poorly managed.**
- Pasture **A** ✓   (1)

       2.2.3   **The reason for your answer in QUESTION 2.2.2.**
- The pasture is overgrazed ✓
- Production is low ✓
- Production is 350 kg ✓   (Any 2 x 1)   (2)

       2.2.4   **The reason why pasture B is well managed.**
- The pasture is rested ✓
- High production per month – 1 200 kg ✓
- Pasture is not overgrazed ✓   (Any 2 x 1)   (2)

       2.2.5   **THREE farming practices that led to good pastural condition.**
- Stock rate ✓
- Animal ratio ✓
- Grazing systems ✓   (3)

2.2.6 **Calculation of percentage for pasture C**
- 350 kg + 1 200 kg + 600 kg + 900 kg = 3 050 kg ✓
- 600 kg / 3 050 kg x 100 ✓
- 19,7% ✓ (3)

2.2.7 **Feed to be produced at pasture D per year.**
- 900 kg x 12 months ✓ = 10 800 kg per year ✓ (2)

2.3 2.3.1 **The biome represented by letters A and B.**
A – Fynbos ✓
B – Grass land ✓ (2)

2.3.2 **The biome that is suitable for the following activities:**

(a) Grassland biome/B ✓ (1)
(b) Fynbos/A ✓ (1)
(c) Forest Biome/C ✓ (1)
(d) Savannah/D ✓ (1)

2.3.3 **THREE South African biomes not mentioned in the table**.

- Nama-Karoo ✓
- Thicket ✓
- Succulent Karoo ✓ (Any 2 x 1) (2)

2.4 **TWO negative effects of climate change in South Africa.**

- Reduced crop yield ✓
- Reduced livestock production ✓
- Reduced areas that are suitable for agriculture ✓
- Reduced soil fertility ✓
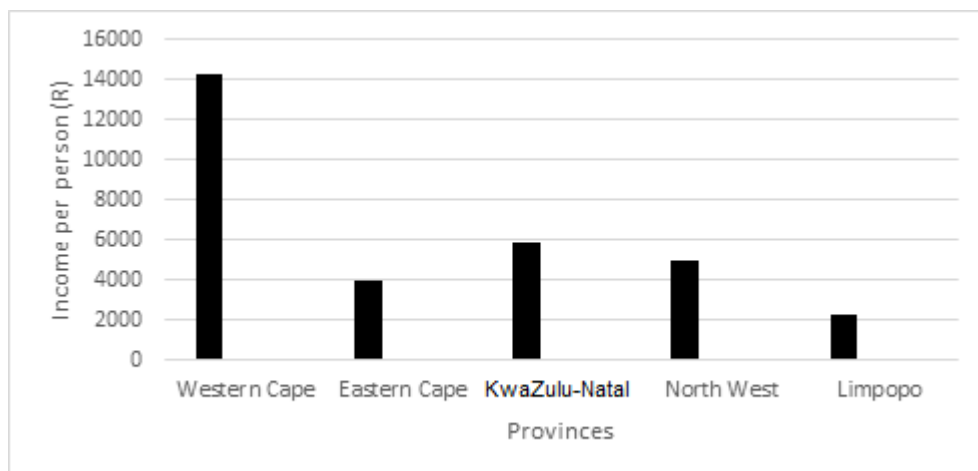- Increased pests' attacks ✓
- Reduced labour force ✓ (Any 2 x 1) (2)

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QUESTION 3: AGRO-INDUSTRY

3.1   3.1.1   (a) **The province that is very rich**.
 - Western Cape ✓   (1)

(b) **The province that is very poor.**
 - Limpopo ✓   (1)

3.1.2   **The reason for your answers to QUESTION 3.1.1.**
 - Western Cape has more income per person ✓
 - Limpopo has lowest income per person ✓   (2)

3.1.3   **The type of food depicted on the table.**
 - Staple food ✓   (1)

3.1.4   **The reason why the food is mostly used by people.**
 - It is a staple food ✓
 - It is cheaper ✓   (Any 1 x 1)   (1)

3.1.5   **THREE other types of food not mentioned in QUESTION 3.1.3**
 - Fresh food ✓
 - Processed food ✓
 - Preserved food ✓   (3)

3.1.6   **The bar graph that shows the provinces and income per person.**

Criteria for marking the graph
 - Correct heading ✓
 - Bar graph ✓
 - X-axis correctly calibrated/labelled (Provinces) ✓
 - Y-axis correctly calibrated/labelled (Income per person) ✓
 - Accuracy ✓
 - Correct units (R) ✓   (6)

3.2   3.2.1   **The number of people in South Africa during the year 2000.**
- 43/44 million ✓   (1)

3.2.2   **The trend depicted on the graph.**
- From 1968 to 2000, ✓ the population increased/had been increasing. ✓ /
- The population has been increasing ✓ over the number of years. ✓   (Any 1 x 2)   (2)

3.2.3   **THREE negative effects of growing population in the agricultural sector.**
- The demand for food increases ✓
- Farms become more mechanised and fewer farm labourers are needed ✓
- More people move to urban areas ✓
- Urban areas grow larger ✓
- The amount of agricultural land for food production decreases ✓
- Natural resources are degraded and depleted ✓
- Deforestation rates increase as more people need wood for fuel ✓
- Grazing land degenerates ✓
- Soil erosion due to poor farming practices ✓   (Any 3 x 1)   (3)

3.3   3.3.1   **The models of landownership depicted in PICTURES A, B and C.**
A – Communal land ✓
B – Private land ✓
C – State land ✓   (3)

3.3.2   **The picture from the diagram that matches the following laws.**
(a)   A/C ✓   (1)
(b)   B ✓   (1)

3.4   3.4.1   **The type of indigenous knowledge used by the farmer in the picture.**
- Intercropping ✓   (1)

3.4.2   **The reason to support your answer to QUESTION 3.4.1.**
- The farmer grows two different crops next to each other. ✓   (1)

3.4.3   **The reason for using intercropping**
- The farmer wanted to control/prevent plant pests/diseases. ✓   (1)

3.4.4   **TWO products the farmer produces**
- Maize ✓
- Green beans ✓   (2)

     3.4.5   **The differences between indigenous knowledge and scientific knowledge**

		Indigenous knowledge	Scientific knowledge	
(a)	Age of the knowledge	Knowledge of the past. ✓ Old knowledge ✓	Knowledge of the present. ✓ New knowledge ✓	
(b)	Method of learning	Learnt by experience ✓ Passed on through traditional rituals and storytelling ✓	Learnt by study and education ✓ Passed on through formal education and learning ✓	(4)

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QUESTION 4: ANIMAL STUDIES

4.1   4.1.1   **By-product for cattle breeds**
- B ✓ – kraal manure ✓   (2)

     4.1.2   **Identification of animal products**
(a) D ✓   (1)
(b) C ✓   (1)
(c) A ✓   (1)

     4.1.3   **Examples of indigenous beef breeds.**
- Afrikaner ✓
- Bonsmara ✓
- Drakensberger ✓
- Nguni ✓   (Any 3 x 1)   (3)

     4.1.4   **Examples of dairy breeds not mentioned in QUESTION 4.1.2**
- Guernsey ✓
- Ayrshire ✓   (2)

4.2   4.2.1   **Grazers on the diagram**
- A/sheep ✓
- C/donkey ✓   (2)

     4.2.2   **State whether animal B is a ruminant or non-ruminant.**
- Ruminant ✓   (1)

     4.2.3   **Reason for the answer to QUESTION 4.2.2.**
- The animal has a complex stomach. ✓
- The animal is a goat. ✓
- The animal has four chambered stomach. ✓   (Any 1 x 1)   (1)

4.2.4 **Reasons for the domestication of sheep.**
- Wool production ✓
- Mutton production ✓ (2)

4.2.5 **The farm animal from the diagram with the following qualities:**

(a) **Adapted to desert areas and very load vocalisation.**
- C / Donkey ✓ (1)

(b) **Resistant to fleece rotting and blowfly attack.**
- A / Sheep ✓ (1)

(c) **The animal is kept for meat production and it is indigenous.**
- B / Goat ✓ (1)

4.2.6 **TWO differences between mohair fibres and wool fibres**

Mohair fibres	Wool fibres
Smooth and glossy ✓	Soft and whitish in colour ✓
Curly ✓	Wavy ✓
Hollow centre ✓	Solid in the centre ✓
Natural crease resistance. ✓	Elastic ✓
No scales on the outer surface ✓	Have scales on the outer surface ✓

(Any 2 x 2) (4)

4.3 4.3.1 **The disease that is experienced by many countries.**
- African swine fever ✓

4.3.2 **The animal that will be affected by African swine fever**.
- Pigs ✓ (1)

4.3.3 **Explain how farmers can prevent the spread of African swine fever.**
The farmers must respect the rules, ✓ so that the disease does not become endemic. ✓ (2)

4.3.4 **Pork breeds**
- Minnesota ✓
- Duroc ✓
- Large white ✓
- Landrace ✓ (Any 2 x 1) (2)

4.4 4.4.1 **TWO requirements of healthy nest boxes for layers.**
- Warm ✓
- Dry ✓
- Protected ✓
- Water availability ✓
- Food availability ✓ (Any 2 x 1) (2)

4.4.2   **Basic requirements for successful production.**
- Housing ✓
- Management ✓
- Breeding ✓
- Nutrition/Feeding ✓   (Any 3 x 1)   (3)

4.4.3   **The name of meat producing chickens.**
- Broilers ✓   (1)

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TOTAL SECTION B: **105**
GRAND TOTAL: **150**