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**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 pastoral condition.**
 • Stock rate ✓
 • Animal ratio ✓
 • Grazing systems ✓ (3)

2.2.6 Calculation of percentage for pasture C

- $350 \text{ kg} + 1\,200 \text{ kg} + 600 \text{ kg} + 900 \text{ kg} = 3\,050 \text{ kg}$ ✓
- $600 \text{ kg} / 3\,050 \text{ kg} \times 100$ ✓
- 19,7% ✓

(3)

2.2.7 Feed to be produced at pasture D per year.

- $900 \text{ kg} \times 12 \text{ months} = 10\,800 \text{ kg per year}$ ✓

(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 ✓

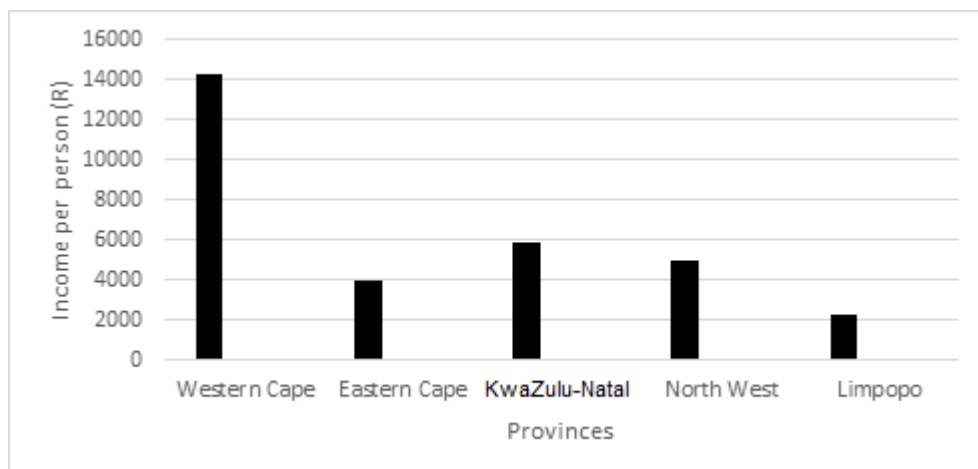
(Any 2 x 1)

(2)

[35]

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 ✓
(b) C ✓
(c) A ✓

(1)

(1)

(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 loud 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)

[35]

TOTAL SECTION B: 105

GRAND TOTAL: 150