MARKING GUIDELINES

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SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE

SUID-AFRIKAANSE KOMPREHENSIEWE ASSESSERINGSINSTITUUT

FINAL APPROVED MARKING GUIDELINES	
DATE OF MEETING	
UMALUSI MODERATOR	
CHIEF MARKER	
INTERNAL MODERATOR	

SECTION A

QUESTION 1

1.1 MULTIPLE CHOICE

1.1.1 B ✓✓
1.1.2 D ✓✓
1.1.3 A ✓✓
1.1.4 D ✓✓
1.1.5 C ✓✓
1.1.6 B ✓✓
1.1.7 B ✓✓
1.1.8 A ✓✓
1.1.9 C ✓✓
1.1.10 B ✓✓ (10x2) **(20)**

1.2 MATCH COLUMN

1.2.1 E ✓✓
1.2.2 A ✓✓
1.2.3 F ✓✓
1.2.4 H ✓✓
1.2.5 G ✓✓ (5x2) **(10)**

1.3 AGRICULTURAL TERMS

1.3.1 Threats ✓✓
1.3.2 Grant/subsidy ✓✓
1.3.3 Clone ✓✓
1.3.4 Co-dominance ✓✓
1.3.5 Transgene ✓✓ (5x2) **(10)**

1.4 UNDERLINED WORD

1.4.1 outsourcing ✓
1.4.2 skilled ✓
1.4.3 Meiosis ✓
1.4.4 Mass ✓
1.4.5 Lipofection ✓ (5x1) **(5)**

TOTAL SECTION A: [45]

SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

2.1 Marketing

2.1.1 Definition marketing

Marketing is a consumer-orientated process that brings sellers and buyers together for the exchange of goods/services ✓ with the focus on satisfying the customer's wants, long-term planning and profit-motivated management. ✓ (2)

2.1.2 Main functions of marketing

Transport ✓
Storage ✓
Packaging ✓
Processing ✓
(Any 2) (2)

2.1.3 THREE advantages of processing raw agricultural products

Reduces wastage ✓
Increases the value of the product ✓
Storage period increases ✓
Overcomes over-supply ✓
Easier packaging and handling ✓
Provides job opportunities ✓
(Any 3) (3)

2.2 Supply and demand curve

2.2.1 Law of demand

The law of demand shows that there is a relationship between the price of a product and demand for it. ✓ The law states that the demand for a product is indirectly proportional to the price. ✓
D2 is higher than D2, but Price 2 is lower. ✓ (3)

2.2.2 Equilibrium price

When the price of the product settles at the point where demand is equal ✓ to supply. ✓ (2)

2.2.3 Relationship between price and supply

The market price and supply are directly ✓ proportional ✓ to each other.
When the price of food increases, ✓ the supply will also increase. ✓ (4)

2.3 Eco-labelling

2.3.1 Eco-labelling ✓ (1)

2.3.2 **Justify why it is eco-labelling**

- Label with seal of approval that it is produced with less negative impact on the environment. ✓
- Certifies that the product was produced in an environmentally friendly way. ✓
- Label informs consumer how resources were used during production. ✓ (3)

2.3.3 **TWO ways in which the eco-labelling influences consumer behaviour**

- Introduced as being environmentally friendly as a considered attribute at the point of sale. ✓
- Enables consumers to compare green shops. ✓ (2)

2.4 Internet marketing

2.4.1 Internet marketing ✓ (1)

2.4.2 **THREE advantages of internet marketing**

- Reach a global audience. ✓
- Very fast. ✓
- Cost is relatively low. ✓
- Customers have access 24 hours. ✓
- Can deliver products directly to customers. ✓
- Not capital intensive. ✓

(Any 3) (3)

2.5 Agricultural marketing chain

2.5.1 **TWO challenges faced by the farmer**

- Low prices from middlemen: The middlemen often exploit farmers by buying at very low prices and earning significant profits when they sell in urban markets. ✓
- Lack of direct access to markets: The farmer depends on intermediaries, limiting their ability to negotiate better prices. ✓ (2)

2.5.2 **THREE ways the farmer could improve his position in the agricultural marketing chain**

- Form a cooperative: Joining or forming a cooperative allows farmers to pool resources, access larger markets, and negotiate better prices collectively. ✓
- Sell directly to consumers: The farmer can explore direct sales options like farmer's markets or local grocery stores. ✓
- Value addition: Processing tomatoes into products like sauces or pastes can increase profitability. ✓ (3)

2.5.3 **Role of processing and value addition in improving the profitability**

Processing adds value to raw products ✓ by improving their shelf life, quality, and versatility. ✓ For example, converting fresh tomatoes into tomato sauce or canned tomatoes or preserves allows the farmer to: ✓

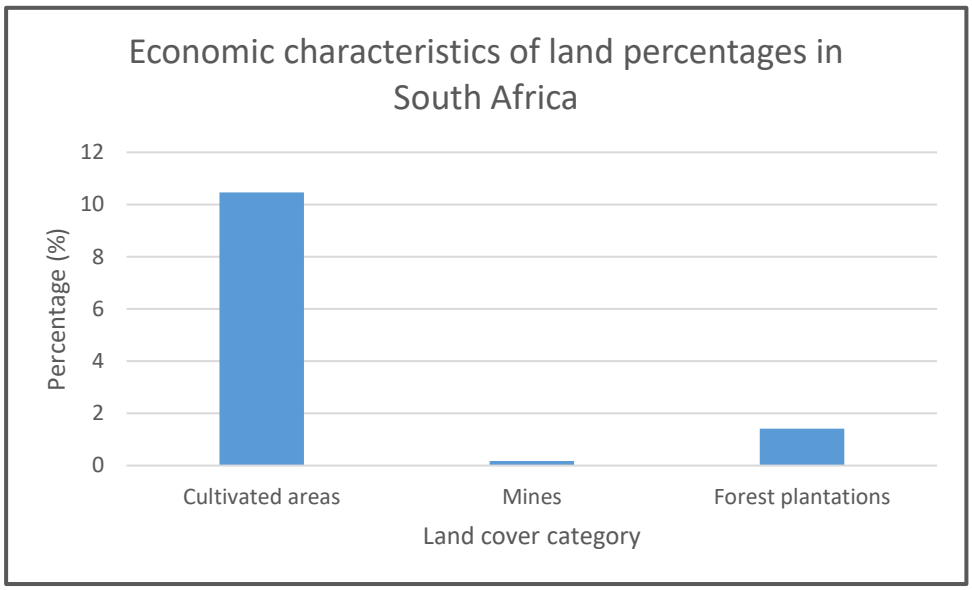
- Access more lucrative markets. ✓
- Reduce post-harvest losses. ✓
- Charge higher prices for processed goods compared to raw produce. ✓
- Attract consumers seeking convenience and quality. ✓
  (Any 4) (4)

[35]

QUESTION 3: PRODUCTION FACTORS

3.1 Economic characteristics of land

3.1.1 Bar graph



Marking guideline for bar graph

Criteria	Mark allocation
Heading	1
y-axis title	1
y-axis scale	1
x-axis scale	1
3 correct plotted bar graphs	3

(7)

3.1.2 Arable land as wealth

- Land is not produced, it was created. ✓
- Land is finite, it is not increasing. ✓
- Land does not naturally wear out, depreciate, spoil, or become old/obsolete. ✓
- Demand for land increases, therefore the price increases. ✓
- Land is re-useable (up to a point). ✓
- Land is vital to life and economic activity. ✓

(Any 3) (3)

3.1.3 **Increase land productivity of degraded areas**

- Restoring land potential/halting erosion. ✓
- Consolidate small uneconomical land units. ✓
- Soil analysis to determine which fertilisers to use. ✓
- Soil reclamation. ✓
- Farming land more efficiently. ✓
- Adaptation to scientific methods. ✓
- Improved management and re-vegetation. ✓
- Better control over water resources. ✓

(Any 3) (3)

3.2 **Farm labour scenario**

3.2.1 **TWO reasons for the decline in productivity during harvesting**

- Lack of skilled workers to handle specialised tasks (e.g., fruit picking). ✓
- High absenteeism among seasonal workers due to poor working conditions or low wages. ✓ (2)

3.2.2 **TWO strategies to address labour challenges**

- Offer training programmess to upskill workers and improve efficiency. ✓
- Provide incentives such as performance-based bonuses to reduce absenteeism. ✓
- Use recruitment strategies to hire skilled seasonal labour in advance of peak seasons. ✓ (2)

3.2.3 **Benefits of improving working conditions**

For the farm: Higher productivity, better quality of produce, and reduced labour turnover. ✓
For the workers: Improved morale, job satisfaction, and health, leading to fewer absences and better overall performance. ✓ (2)

3.3 **Comparison of upcoming poultry farmers**

3.3.1 **Calculation of profit of Farmer A and Farmer B**

Farmer A

Expenditure:

R67 500 + R100 000 + R50 000 + R240 000 + R40 000 + R12 000 = R509 500 ✓

Income:

R480 000 + R80 000 = R560 000 ✓
Profit of R560 000 - R509 500 = R50 500 ✓

Farmer B

Expenditure:

R90 000 + R100 000 + R50 000 + R350 000 + R40 000 + R15 000 = R645 000 ✓

Income:

R800 000 ✓
Profit of R800 000 - R645 000 = R155 000 ✓ (6)

3.3.2 **Strategy as advice to the farmer with the lower profit**

The farmer must increase the number of piglets ✓ and feed them for longer ✓ to make a better profit. Although farmer B had a higher feed cost, the income was higher because of the larger number of pigs in the production cycle. ✓ (3)

3.4 **Farm management**

3.4.1 **Definition of management as a production factor**

Management is the process of planning, organising, leading, and controlling ✓ all resources, such as labour, capital, and land, to achieve the goals of a farming enterprise efficiently. ✓ (2)

3.4.2 **Explanation of THREE critical management skills for a farm manager**

Planning skills: The ability to set goals, create schedules, and allocate resources to achieve specific outcomes. ✓
Leadership skills: The ability to motivate and guide workers, ensuring teamwork and efficient task completion. ✓
Financial management skills: The ability to budget, monitor expenses, and make informed financial decisions to keep the farm profitable. ✓
(3 explanations) (3)

3.4.3 **TWO challenges farm managers may face when managing resources**

Labour issues: High turnover rates, unskilled workers, or poor motivation can affect productivity. ✓
Resource scarcity: Limited availability of water, land, or capital can hinder efficient farming operations. ✓ (2)

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QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1

4.1.1 **Define the following terms**

a) **Gene**

A segment of DNA that codes ✓ for a specific trait or protein. ✓ (2)

b) **Gamete**

Reproductive cell, ✓ formed during meiosis. ✓ (2)

c) **Homozygous**

Having two identical alleles ✓ for a particular gene. ✓ (2)

4.1.2 **Importance of genetics in agriculture**

- Improved traits: Helps in breeding crops and livestock with desirable characteristics, such as high yield, disease resistance, or drought tolerance. ✓
- Selective breeding: Ensures that beneficial genes are passed to future generations. ✓
- Increased productivity: Allows for higher crop yields and improved livestock performance. ✓
- Adaptation to climate change: Genetic modifications can create plants and animals better suited to changing environmental conditions. ✓

(Any 3) (3)

4.1.3 **Punnet crossing**

Punnett Square for Rr (red) × rr (white):

✓

	r	r
R	Rr	Rr
r	rr	rr

✓ ✓

Genotypic ratio:

2 Rr (heterozygous) : 2 rr (homozygous recessive) = 1:1 ✓

Phenotypic ratio:

2 red : 2 white = 1:1 ✓ (5)

4.2 Genetic variation

4.2.1 Genetic mutation

A genetic mutation is a sudden change ✓ in the DNA of an organism. ✓ (2)

4.2.2 Occurrence in maize plants

- Spontaneous causes: Errors in DNA replication or cell division. ✓
- Induced causes: Exposure to radiation, chemicals, or environmental stressors. ✓ (2)

4.2.3 Role of genetic variation and mutations in natural selection

- Genetic variation and mutations provide the raw material for natural selection. ✓
- Individuals with advantageous mutations are more likely to survive, reproduce, and pass these traits to offspring, ✓ leading to evolutionary adaptation over generations. ✓ (3)

4.2.4 TWO ways the farmer could use mutated maize plants to benefit

- Selective breeding: ✓ Use seeds from the mutated plants to propagate future generations with desirable traits ✓ (e.g., larger cobs and taller plants).
- Hybridisation: ✓ Cross the mutated plants with other maize varieties to combine favourable traits, improving overall productivity. ✓ (4)

4.3 Genetically modified crops cultivation graph

4.3.1 Trend for GM Cotton Cultivation (1997–2022)

- GM cotton cultivation increased rapidly from 1997 to 2001, reaching a peak around 2004. ✓
- It then stabilised at a high level with minimal fluctuations until 2022. ✓ (2)

4.3.2 Possible reasons for trend in QUESTION 4.3.1

- Cotton has historically been prone to pest damage, and GM varieties resist pests like bollworm. ✓
- Stable market demand and suitability of GM cotton for South African climatic conditions supported its adoption. ✓ (2)

4.3.3 **Comparison of GM maize and GM soybean trends (2000–2022)**

- GM maize: Gradual increase in cultivation from 2000, with significant growth until 2015, followed by a decline around 2017, then partial recovery. ✓
- GM soybean: Sharp growth from 2002, surpassing 50 000 hectares by 2007, followed by a steady upward trend, though at a slower pace compared to maize. ✓

Contrast:

- Maize shows more fluctuations due to market and environmental factors. ✓
- Soybean shows steady growth, possibly due to its demand in both local and export markets. ✓ (4)

4.3.4 **Impact of GM crops on agricultural productivity in South Africa**

Benefits:

- Increased yield due to pest and disease resistance. ✓
- Reduced need for chemical pesticides, lowering costs for farmers. ✓ (Any 1)

Risks:

- Development of pest resistance to GM traits, reducing effectiveness over time. ✓
- Environmental risks such as potential impact on biodiversity and cross-contamination with non-GM crops. ✓

(Any 1) (2)

[35]

TOTAL SECTION B: [105]

GRAND TOTAL: [150]