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Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2023

AGRICULTURAL SCIENCES P2 MARKING GUIDELINE

MARKS: 150

This marking guideline consist of 9 pages.

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SECTION A

QUESTION 1

1.1	1.1.1	B ✓✓		
	1.1.2	C ✓✓		
	1.1.3	C ✓✓		
	1.1.4	A ✓✓		
	1.1.5	B ✓✓		
	1.1.6	D ✓✓		
	1.1.7	C ✓✓		
	1.1.8	D ✓✓		
	1.1.9	B ✓✓		
	1.1.10	A ✓✓	(10 x 2)	(20)
1.2	1.2.1	G ✓✓		
	1.2.2	D ✓✓		
	1.2.3	E ✓✓		
	1.2.4	C ✓✓		
	1.2.5	F ✓✓	(5 x 2)	(10)
1.3	1.3.1	Marketing chain ✓✓		
	1.3.2	Elasticity ✓✓		
	1.3.3	Labour ✓✓		
	1.3.4	Management ✓✓		
	1.3.5	Heritability ✓✓	(5 x 2)	(10)
1.4	1.4.1	Entrepreneur ✓		
	1.4.2	SWOT ✓		
	1.4.3	Biometrics ✓		
	1.4.4	Aneuploidy ✓		
	1.4.5	Estimated Breeding Value ✓	(5 x 1)	(5)

TOTAL SECTION A: 45

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SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

2.1 2.1.1 **Identification of marketing function**

Packaging ✓ (1)

2.1.2 **Guidelines that govern the marketing function in QUESTION 2.1.1.**

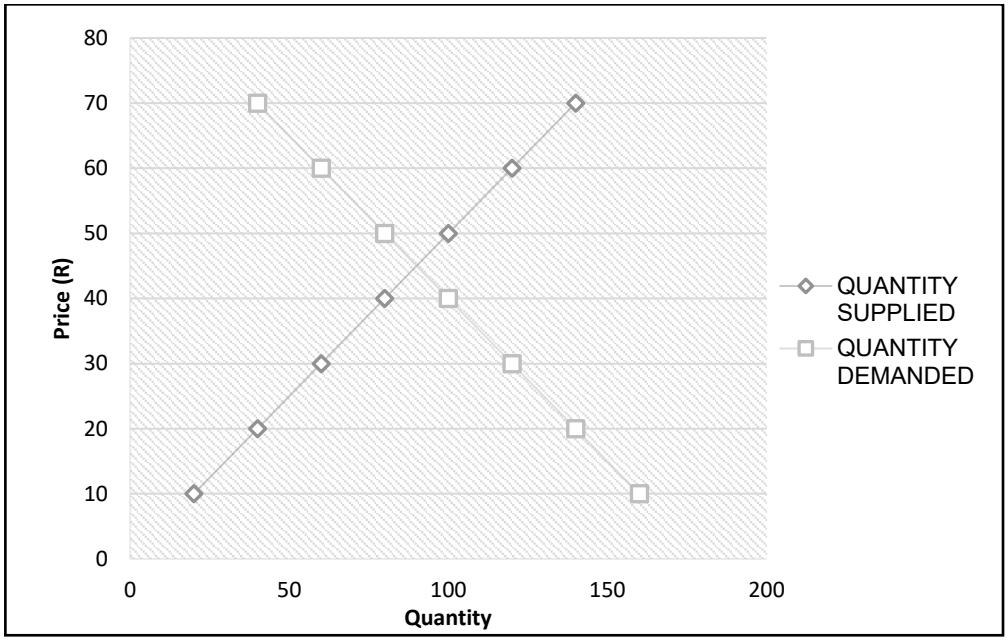
- Packaging must not contaminate the produce ✓
- Packaging must protect produce from physical damage ✓
- Packaging must be recyclable ✓
- Packaging should provide useful information about the product ✓

(Any 2 x 1) (2)

2.1.3 **Definition of *marketing.***

Marketing is the activity or business ✓ of promoting and selling products or services, including market research and advertising. ✓ (2)

2.2 2.2.1 **Quantities of a product supplied and demanded at different prices**



Checklist

- Correct heading ✓
- x-axis correctly calibrated with label (Quantity) ✓
- y-axis correctly calibrated with label (Price) ✓
- Graph type (Line graph) ✓
- Correct units (R) ✓
- Accuracy (80 % + correct plotting) ✓ (6)

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2.2.2 **Deduction of equilibrium price**
R45 ✓ (1)

2.2.3 **The law of supply**
The higher the price ✓ the higher the supply ✓

OR

The lower the price ✓ the lower the supply ✓ (2)

2.2.4 **Factors that affect the supply of a product**
- Technology ✓
- Production costs ✓
- Government subsidies ✓
- Environmental conditions ✓
- Competitive products ✓
- Political instability ✓ (Any 2 x 1) (2)

2.3 2.3.1 **Identification of marketing approaches**
A – Mass marketing ✓
B – Niche Marketing ✓
C – Multi-segment marketing ✓ (3)

2.3.2 **Identification of a marketing approach that would suit small businesses**
Marketing approach **B** ✓ (1)

2.3.3 **Motivation of answer to QUESTION 2.3.2**
- It has cheaper marketing costs ✓
- Less competition from big businesses ✓
- Producers enjoy a monopoly ✓ (Any 2 x 1) (2)

2.4 2.4.1 **Naming the process**
Eco labelling ✓ (1)

2.4.2 **Definition of *sustainable marketing***
It is the adoption of farm activities that are ecologically friendly and socially healthy ✓ (1)

2.4.3 **Requirements for green product pack**
- Recyclable ✓
- Biodegradable ✓ (2 x 1) (2)

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2.5 2.5.1 **Identification of main problem faced by farmers**
Farmers have no control over pricing ✓ (1)

2.5.2 **Identification of solution**
Farmers working together ✓ (1)

2.5.3 **Identification of marketing system**
Co-operative marketing ✓ (1)

2.5.4 **Advantages of marketing system identified in QUESTION 2.5.3**
- Ability to meet market requirements for volume and consistent supply ✓
- Economies of scale ✓
- Bargaining power ✓
- Access to better infrastructure ✓
- Access to professional expertise ✓
- Access to funding ✓ (Any 2 x 1) (2)

2.6 2.6.1 **Justification for the use of business plans**
- They are used to secure funding ✓
- Guide daily operations ✓
- Determine financial needs ✓
- Gain knowledge about marketing opportunities ✓
- To foresee problems, which reduce risk ✓ (Any 2 x 1) (2)

2.6.2 **How electronic resources are used in drafting business plans**
- Business plan templates can be obtained online ✓
- Online business planning experts who provide advice and guidance ✓
- Financial formulae that do calculations automatically to get accurate numbers and figures ✓
- Design tools for a professional-looking business plan ✓
- Measurement tools to measure the impact of your business plan ✓

(Any 2 x 1) (2)
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QUESTION 3: PRODUCTION FACTORS

3.1 3.1.1 **Explanation of economic characteristics of land**
Land is subject to the law of diminishing returns ✓ (1)

3.1.2 **Methods that can be used to improve the productivity of land**
- Water management/irrigation/rainwater harvesting ✓
- Restoring the land's potential ✓
- Consolidation of uneconomic land units ✓
- Use of scientific farming methods ✓
- Improving soil fertility ✓ (Any 2 x 1) (2)

3.1.3 **Economic functions of land**
- Enables production of food ✓
- Provides physical space for human settlements ✓
- Provides physical space for agricultural activities ✓
- It is an asset that can be used as collateral ✓
- It is a source of minerals ✓ (Any 2 x 1) (2)

3.2 3.2.1 **Piece of legislation that empowers workers to carry out strikes**
Labour Relations Act / Act 66 of 1995 ✓ (1)

3.2.2 **Other issues addressed by Act in QUESTION 3.2.1**
- Involvement of employees in decision making ✓
- Prevents unfair labour practices ✓
- Gives employees /employers right to form trade unions / associations ✓
- Provides procedures for the resolution of labour disputes ✓

(Any 2 x 1) (2)

3.2.3 **Possible causes of strike action**
- Poor remuneration / Low wages ✓
- Poor working conditions ✓
- Unfair labour practices ✓ (Any 2 x 1) (2)

3.2.4 **TWO strategies to increase labour productivity**
- Having the right type and number of workers ✓
- Giving clear instructions to workers ✓
- Providing the right type and number of tools or equipment ✓
- Motivating workers ✓ (Any 2 x 1) (2)

3.3 3.3.1 **Identification of financial record**
Income statement ✓ (1)

3.3.2 **Calculation of net income**
Net income = Income – Expenses ✓
= R740 000 ✓ – R138 500 ✓
= R601 500 ✓ (4)

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3.3.3 **Comment on the farm's profitability**
The farm is profitable ✓ because the net income is positive ✓ (2)

3.3.4 **Identification of fixed costs**
- Depreciation ✓
- Insurance ✓ (2)

3.3.5 **Uses of financial records on farm**
- Manage the capital of the farm ✓
- Analyse past and current performance of the farm business ✓
- Plan the future of the business ✓
- Apply for loans ✓
- Provide information for tax purposes ✓ (Any 2 x 1) (2)

3.4 3.4.1 **Definition of an *asset***
An item of property ✓ owned by a person or company, regarded as having value. ✓ (2)

3.4.2 **Identification of type of capital**
Movable capital ✓ (1)

3.4.3 **Type of credit used to finance capital shown above**
Medium term credit ✓ (1)

3.4.4 **Sources of finance that can be used to purchase the capital item**
- Commercial banks ✓
- The land bank ✓
- Trust companies ✓
- Potential investors ✓ (Any 2 x 1) (2)

3.4.5 **Identification of farm record**
Inventory (1)

3.5 3.5.1 **Internal forces that affect businesses**
- Cash flow ✓
- Workforce competence ✓ (2)

3.5.2 **A force that can be improved through in-service training**
Workforce competence ✓ (1)

3.6 **Identification of appropriate management skill**

3.6.1 Interpersonal and communication skills ✓ (1)

3.6.2 Financial management skills ✓ (1)
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QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1 4.1.1 **Identification of cross**
Dihybrid cross ✓ (1)

4.1.2 **Identification of dominant traits**
- Black ✓
- Solid ✓ (2)

4.1.3 **Genotype A**
AaBb ✓ (1)

4.1.4 **Mendelian law that is unique to a dihybrid cross**
Law of independent assortment (1)

4.1.5 **Punnet square to determine Fs generation genotype**

	aB	ab ✓
aB	aaBB	aaBb
ab ✓	aaBb	aabb ✓

✓

Rubric
Punnet square with gametes and offspring genotypes ✓
Correct male gametes ✓
Correct female gametes ✓
Correct offspring genotype ✓ (4)

4.1.6 **F_2 phenotypic ratio**
9 Black and solid : 3 Black and brown : 3 Spotted and brown: 1 Spotted and brown ✓✓ (2)

4.2 4.2.1 **Contribution of each additive allele**
60 cm ÷ 6 ✓= 10 cm ✓ (2)

4.2.2 **Genotype of F_1 generation**
AaBbCc ✓ (1)

4.2.3 **Calculation of the plant's height**
AaBBCc = 40 cm + (10 cm x 4) ✓
= 40 cm + 40 cm ✓
= 80 cm ✓ (3)

4.2.4 **Characteristics associated with polygenic inheritance**
Quantitative characteristics (1)

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4.3 **Identification of mechanism of inheritance**

4.3.1 Epistasis ✓ (1)

4.3.2 Co-dominance ✓ (1)

4.3.3 Incomplete dominance ✓ (1)

4.3.4 Multiple alleles ✓ (1)

4.4 4.4.1 **Selection method described in the passage**
Mass selection ✓ (1)

4.4.2 **Possible causes of the differences in performance**
- Recombination of genes / Crossing over of chromosomes (Meiosis) ✓
- Mutations ✓
- Fertilisation ✓ (Any 2 x 1) (2)

4.4.3 **TWO uses of selection in animal improvement**
- Create new breeds ✓
- Improve existing breeds ✓
- Foundation for selection ✓ (Any 2 x 1) (2)

4.5 **Identification of breeding method**

4.5.1 Outcrossing ✓ (1)

4.5.2 Inbreeding ✓ (1)

4.5.3 Cross breeding ✓ (1)

4.5.4 Line breeding ✓ (1)

4.6 **Explanation of how use of GMOs will result in the specified risks**

4.6.1 Herbicide resistant genes in GMOs ✓ might be transferred to wild plants thereby making them herbicide resistant. ✓ (2)

4.6.2 Farmers may use excessive amounts of herbicides in fields where they grow herbicide resistant crops ✓ leading to water and soil pollution. (2)
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TOTAL SECTION B: 105
GRAND TOTAL: 150

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