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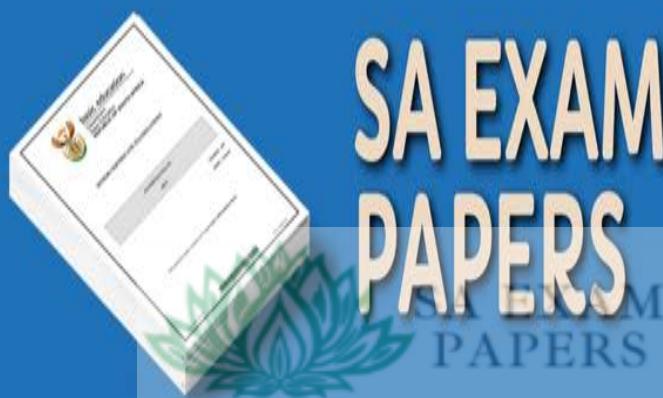
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NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2023

AGRICULTURAL SCIENCES P2 MARKING GUIDELINE

MARKS: 150

This marking guideline consist of 9 pages.

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

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.

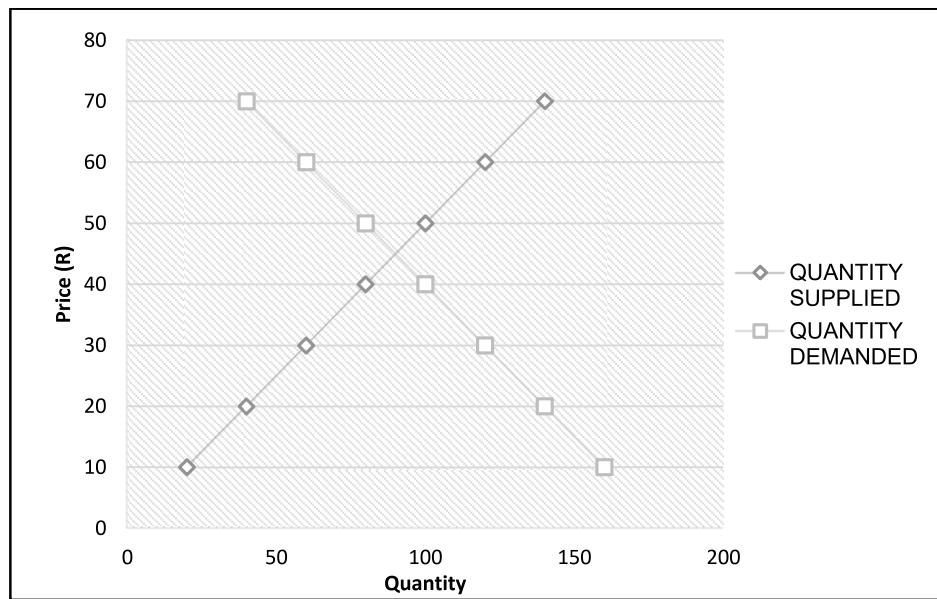
- Packaging must not contaminate the produce ✓
- Packaging must protect produce from physical damage ✓
- Packaging must be recyclable ✓
- Packaging should provide useful information about the product ✓

(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)

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)

- | | | | |
|-----|-------|---|-----------------|
| 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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) |

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 ✓

$$\begin{aligned} &= R740\ 000 \checkmark - R138\ 500 \checkmark \\ &= R601\ 500 \checkmark \end{aligned}$$
(4)

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)

[35]

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 F₁ 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 F₂ phenotypic ratio9 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 F₁ generation

AaBbCc ✓

(1)

4.2.3 Calculation of the plant's height

$$\begin{aligned} \text{AaBBCc} &= 40 \text{ cm} + (10 \text{ cm} \times 4) \checkmark \\ &= 40 \text{ cm} + 40 \text{ cm} \checkmark \\ &= 80 \text{ cm} \checkmark \end{aligned}$$

(3)

4.2.4 Characteristics associated with polygenic inheritance

Quantitative characteristics

(1)

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)
[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150