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GRADE 12

SEPTEMBER 2021

**AGRICULTURAL SCIENCES P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 10 pages.

SECTION A**QUESTION 1**

1.1	1.1.1	C ✓✓		
	1.1.2	A ✓✓		
	1.1.3	B ✓✓		
	1.1.4	D ✓✓		
	1.1.5	A ✓✓		
	1.1.6	C ✓✓		
	1.1.7	D ✓✓		
	1.1.8	C ✓✓		
	1.1.9	C ✓✓		
	1.1.10	B ✓✓	(10 x 2)	(20)
1.2	1.2.1	D ✓✓		
	1.2.2	E ✓✓		
	1.2.3	A ✓✓		
	1.2.4	C ✓✓		
	1.2.5	F ✓✓	(5 x 2)	(10)
1.3	1.3.1	Codominance ✓✓		
	1.3.2	Atavism ✓✓		
	1.3.3	Cash flow ✓✓		
	1.3.4	Price fixing ✓✓		
	1.3.5	Budget ✓✓	(5 x 2)	(10)
1.4	1.4.1	Variation ✓		
	1.4.2	Selling ✓		
	1.4.3	Seasonal ✓		
	1.4.4	Balance sheet ✓		
	1.4.5	Capital ✓	(5 x 1)	(5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING**

2.1 2.1.1 **Condition that exists on the market at R5**
Market equilibrium ✓ (1)

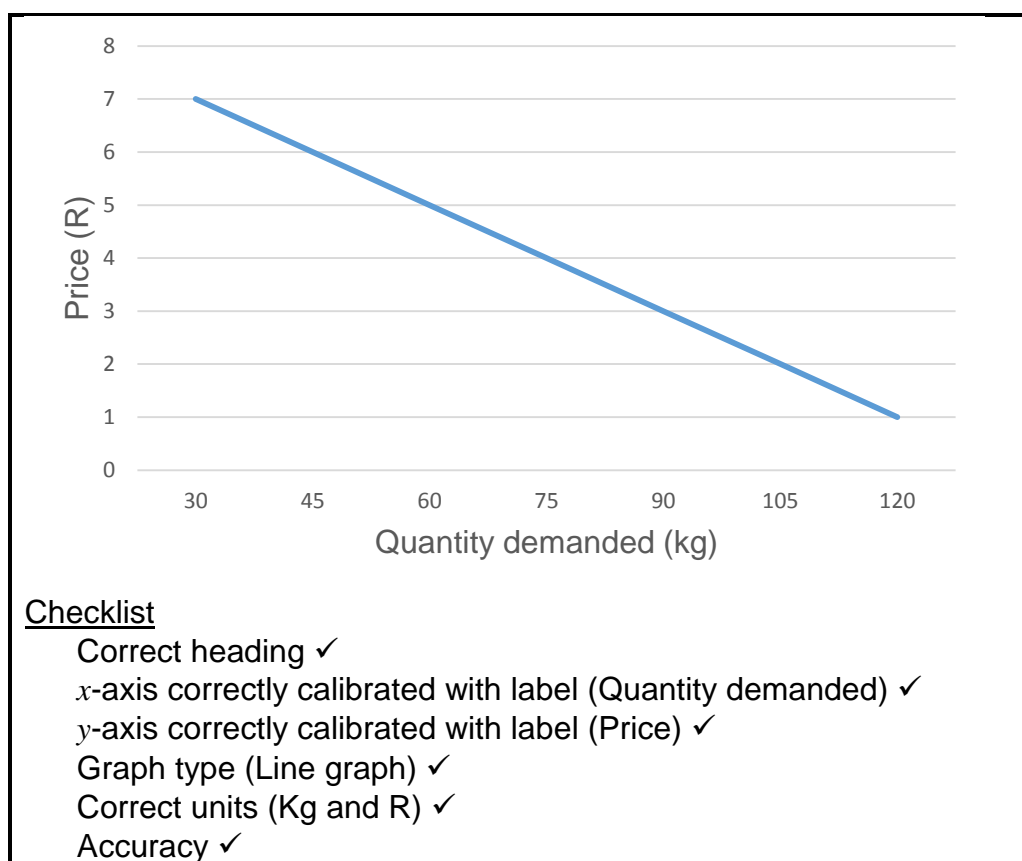
2.1.2 **Law of supply from the table**
The higher the price ✓ the higher the quantity supplied ✓ (2)

2.1.3 **TWO factors that could have affected the demand of peaches**

- Changes in consumer preferences ✓
- Number of consumers on the market ✓
- Festive seasons ✓
- Complementary products ✓
- Availability of substitutes ✓

(Any 2 x 1) (2)

2.1.4 **Line graph showing the demand of peaches**



2.2 2.2.1 **Caption for the diagram**
Marketing chain / Agri-business chain ✓ (1)

2.2.2 **Labels for A and B**
A – Supply chain ✓
B – Demand chain ✓ (2)

- 2.2.3 **THREE marketing functions in the diagram**
- Transport ✓
 - Storage ✓
 - Processing ✓
- (3)
- 2.2.4 **TWO ways of streamlining the agri-business chain**
- Improving road infrastructure ✓
 - Improving access to market information ✓
 - Marketing collectively ✓
 - Processing products close to where they are produced ✓
 - Using cold storage and refrigerated trucks ✓
 - Grading and standardisation of products ✓
- (Any 2 x 1) (2)
- 2.3 2.3.1 Exporters and importers ✓ (1)
- 2.3.2 Brokers ✓ (1)
- 2.3.3 Consumers ✓ (1)
- 2.3.4 Food processing companies ✓ (1)
- 2.3.5 Retailers ✓ (1)
- 2.4 2.4.1 **The marketing channel illustrated**
- Stock sales ✓ (1)
- 2.4.2 **Marketing system associated with the marketing channel**
- Free marketing ✓ (1)
- 2.4.3 **Motivation for use of the channel above by the farmers**
- Payment is guaranteed ✓
 - Seller has access to a wider market than the local one ✓
- (2)
- 2.4.4 **TWO other marketing channels available to the farmers**
- Internet marketing ✓
 - Direct marketing ✓
 - Farm gate marketing ✓
 - Fresh produce marketing ✓
- (Any 2 x 1) (2)
- 2.5 2.5.1 **Definition of a business plan**
- It is a document ✓ that describes a business you want to start and states what its goals and objectives are. ✓ (2)

2.5.2 TWO important aspects of a business plan

- Secure funding ✓
- To guide daily operations ✓
- To determine financial needs ✓
- To test the feasibility of a business idea ✓
- To allow the entrepreneur to foresee problems ✓
- To reposition/analyse the business ✓
- To gain knowledge about marketing opportunities and competitors ✓
- To ensure effective business management ✓
- Mapping out the objectives/goals of the enterprise ✓
- Provides information on the internal/external business environment ✓
- Provision of time frames ✓

(Any 2 x 1) (2)

2.5.3 ONE example of an entrepreneurial success factor

- Leadership ✓
- Risk-taking ✓
- Perseverance ✓
- Motivation ✓
- Market driven ✓

(Any 1 x 1) (1)

[35]

QUESTION 3: PRODUCTION FACTORS

- 3.1 3.1.1 **Definition of land**
An area of ground ✓ used for farming and agricultural production. ✓ (2)
- 3.1.2 **Identification of economic functions of land shown in diagrams A and B.**
A – Land provides physical space needed for production processes. ✓
B – Land provides physical space where the farmer produces products. ✓ (2)
- 3.1.3 **TWO economic characteristics of land as a production factor**
 - Land is limited. ✓
 - Urban development affects land availability. ✓
 - The value of land appreciates over time. ✓
 - Land is indestructible. ✓
 - The production capacity of land varies widely. ✓
 - Land is subject to the law of diminishing returns. ✓ (Any 2 x 1) (2)
- 3.1.4 **TWO measures a farmer can take to improve the productivity of land B**
 - Consolidation of uneconomic farming units ✓
 - Use of scientific farming methods ✓
 - Water management ✓
 - Use of farming methods that are suited to the area ✓ (Any 2 x 1) (2)
- 3.2 3.2.1 **Problem associated with labour described in the passage**
HIV/AIDS ✓ (1)
- 3.2.2 **TWO measures farmers can take to address the problem identified in QUESTION 3.2.1.**
 - Awareness campaigns ✓
 - Providing access to condoms ✓
 - Ensuring access to treatment (STI's) and anti-retroviral drugs through government programmes. ✓
 - Nutritional schemes ✓
 - Avoid multiple partners ✓
 - Support groups ✓ (Any 2 x 1) (2)
- 3.2.3 **TWO other problems associated with labour**
 - High cost of labour ✓
 - Limited education ✓
 - Availability of labour ✓
 - Strikes ✓
 - Abuse of alcohol and drugs ✓ (Any 2 x 1) (2)

- 3.2.4 **TWO strategies that can be used by farmers to improve labour productivity**
- Motivating labourers ✓
 - Having the right type and number of labourers ✓
 - Upskilling/training the workforce ✓
 - Provision of adequate living conditions ✓ (Any 2 x 1) (2)
- 3.3 3.3.1 **Identification of budget**
Enterprise budget ✓ (1)
- 3.3.2 **An example of a variable cost**
- Seed ✓
 - Fertiliser and lime ✓
 - Machinery fuel ✓
 - Labour costs ✓
 - Harvesting ✓ (Any 1 x 1) (1)
- 3.3.3 **Justification of answer to QUESTION 3.3.2**
The cost above increases ✓ with the level of production. ✓ (2)
- 3.3.4 **Calculation of profit/loss**
Profit = Income – Expenses ✓
OR
= R2 100 – (R100+R700+R100+ R600+R450+R100+ R300+R200+R100) ✓
= R2 100 – R2 650 ✓
= - R550 ✓ **OR** Loss of R550 (3)
- 3.3.5 **Deduction of enterprise viability**
The enterprise is not viable ✓ due to the loss ✓ (2)
- 3.4 3.4.1 **Identification of farm record**
Farm inventory ✓ (1)
- 3.4.2 **Importance of an inventory list**
Allows the farm to track available assets for insurance purposes ✓ or to determine if equipment may need to be repaired ✓
To track equipment loss to natural disasters or theft ✓ (Any 1 x 1) (1)
- 3.4.3 **Type of capital in the document**
Movable capital ✓ (1)
- 3.4.4 **Problem associated with capital that is unique to movable capital**
Depreciation ✓ (1)

3.4.5 TWO methods used to create capital

- Savings ✓
- Production ✓
- Credit/grants ✓

(Any 2 x 1) (2)

3.5 3.5.1 Internal and external forces affecting the company in the passage above.

Internal force – skilled workforce ✓ / aging equipment ✓
External force – increased competition ✓

(2)

3.5.2 Type of risk faced by the company

Market and price risk ✓

(1)

3.5.3 Explanation of how the internal and external forces lead to the risk mentioned in QUESTION 3.5.2.

Increased competition and aging equipment will result in the company's products being more expensive than that of the competitors ✓ resulting in low sales. ✓

(2)

[35]

QUESTION 4: BASIC AGRICULTURAL GENETICS4.1 4.1.1 **Punnet square**

	R	r ✓
R	Rr	Rr
r ✓	Rr	rr ✓

✓

Rubric

Punnet square with gametes and offspring genotypes ✓

Correct male gametes ✓

Correct female gametes ✓

Correct offspring genotype ✓

(4)

4.1.2 **Genotypic ratio**

3 Rr : 1 rr ✓

(1)

4.1.3 **Probability of spherical seeds being produced** $\frac{3}{4} \times 100$ ✓

75 ✓ % ✓

(3)

4.1.4 **Type of dominance and reason**

Complete dominance ✓ Only one characteristic was expressed in heterozygote offspring ✓

(2)

4.1.5 **Deduction whether seed shape is qualitative or quantitative**

Qualitative ✓

(1)

4.1.6 **Motivation for answer to QUESTION 4.1.5.**

The characteristic is controlled by a gene pair. ✓

(1)

4.2 4.2.1 **Identification of mutation type**

Chromosomal mutation ✓

(1)

4.2.2 **Identification of mutation types**

B – Duplication ✓

C – Inversion ✓

D – Translocation ✓

(3)

4.2.3 **Importance of variation**

- It is the basis for selection ✓
- It is used to improve crop varieties and livestock breeds ✓

(2)

4.2.4 **An example of a physical mutation agent**

Radiation/Gamma rays/X-rays/alpha particles ✓

(1)

4.3	4.3.1	Identification of animal C Mule ✓	(1)
	4.3.2	Identification of breeding system Species crossing ✓	(1)
	4.3.3	Motivation of answer to QUESTION 4.3.1 above Involves mating of animals ✓ of different species ✓	(2)
	4.3.4	TWO benefits of animal C over animal A Animal C is more disease and pest resistant than animal A ✓ Animal C is more hardy/resistant to extreme environmental conditions than animal A ✓	(2)
	4.3.5	TWO disadvantages of breeding method depicted above <ul style="list-style-type: none"> It is of little practical importance since only few animal species can interbreed ✓ Products of species crossing are infertile ✓ 	(2)
4.4	4.4.1	Identification of plant improvement method Genetic engineering/Genetic modification ✓	(1)
	4.4.2	ONE advantage of this technology that is mentioned in the passage Improve crop productivity/food security ✓	(1)
	4.4.3	TWO advantages of genetic engineering over traditional plant improvement methods <ul style="list-style-type: none"> They are faster ✓ They are more precise ✓ They are not limited to individuals of the same species ✓ 	(Any 2 x 1) (2)
	4.4.4	TWO current applications of GM technology in plants <ul style="list-style-type: none"> Development of disease resistant plants ✓ Development of herbicide resistant plants ✓ Longer shelf life ✓ Improved nutritional content ✓ 	(Any 2 x 1) (2)
	4.4.5	TWO potential human health risks of GMO <ul style="list-style-type: none"> Allergies ✓ Unknown effects on human life ✓ Food safety concerns ✓ 	(Any 2 x 1) (2)
			[35]
			TOTAL SECTION B: 105
			GRAND TOTAL: 150