Province of the
EASTERN CAPE
EDUCATION

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NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

AGRICULTURAL SCIENCES P2 MARKING GUIDELINE

MARKS: 150

This marking guidelines consists of 12 pages.

SECTION A

QUESTION 1

1.1	1.1.1	A ✓✓		
	1.1.2	C ✓✓		
	1.1.3	B ✓✓		
	1.1.4	B ✓✓		
	1.1.5	D ✓✓		
	1.1.6	A ✓✓		
	1.1.7	B ✓✓		
	1.1.8	C ✓✓		
	1.1.9	B ✓✓		
	1.1.10	C ✓✓	(10 x 2)	(20)
1.2	1.2.1	E ✓✓		
	1.2.2	D ✓✓		
	1.2.3	G ✓✓		
	1.2.4	B ✓✓		
	1.2.5	A ✓✓	(5 x 2)	(10)
1.3	1.3.1	Marketing chain/ agri-business chain/ value chain ✓✓		
	1.3.2	Remuneration/wages/salary ✓✓		
	1.3.3	Prepotency ✓✓		
	1.3.4	Sex-linked ✓✓		
	1.3.5	Heritability ✓✓	(5 x 2)	(10)

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1.4 1.4.1 Entrepreneur ✓

1.4.2 Depreciation ✓

1.4.3 Heterosis/ hybrid vigour ✓

1.4.4 Estimated breeding value/ EBV ✓

1.4.5 Gene gun ✓ (5 x 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

2.2 2.1.1 **Shift of the supply curve**

- The shift indicates an increase in supply which results in an increase in quantity supplied ✓ (1)

2.1.2 **Explanation**

- (a) **Production cost:** A decrease in production cost makes production more profitable, ✓ encouraging producers to supply more at each price, shifting the supply curve to the right ✓ (2)

- (b) **Technology:** An improvement in technology increases efficiency and lowers production costs, ✓ enabling more production causing the supply curve to shift rightward. ✓ (2)

2.1.3 **Effect of rightward the shift of supply curve on equilibrium price**

- The shift leads to a decrease in the equilibrium price. ✓ (1)

2.1.4 **Hypothetical supply curve**

- The supply curve slopes upward from left to right because, as the price increases more suppliers are willing to supply their produce to maximise profit. ✓✓ (2)

2.2 2.2.1 **TWO factors that hamper the marketing of onions**

- Over supply/excess supply ✓
- Perishability/spoilage ✓
- Lack of storage facilities ✓
- Fluctuation of price/ fall in price ✓ (Any 2 x 1) (2)

2.2.2 **TWO marketing functions addressing problems hampering marketing of onions identified in QUESTION 2.2.1**

- Processing/value adding ✓
- Storage ✓
- Packaging ✓ (Any 2 x 1) (2)

2.2.3 **Differentiation between the two buyers**

- **Retailer:** A direct seller who purchases produce to sell it to final customers. ✓
- **Broker:** An intermediary who arranges transactions between producers and buyers for a commission ✓ (2)

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2.3 2.3.1 **Identify a marketing system related to the marketing channel in the passage above**

- Free marketing system ✓ (1)

2.3.2 **Give TWO advantages of contract marketing channel in the passage**

- Secured and predictable market for the produce ✓
- Elimination of middlemen ✓ (2)

2.3.3 **TWO disadvantages of contractual marketing channel**

- Limited flexibility/contract terms bound producers and miss other market opportunities/ fixed contract price ✓
- Limited bargaining power ✓
- Cash flow implications if contract is breached ✓ (Any 2 x 1) (2)

2.3.4 **Challenges of involving middlemen to the producers**

- Middlemen charges commission which increases costs, ✓ which reduces profit margins ✓
- Middlemen buy product from farmers at low prices and sell at much highe prices which results exploitation of farmers ✓ (Any 2 x 1) (2)

2.4 **Marketing channels of free marketing systems.**

- (a) Creative ✓
- (b) Self confidence ✓
- (c) Leadership ability ✓
- (d) Passionate and focussed ✓ (4)

2.5 2.5.1 **Definition of a *business plan***

- **Business plan:**
  A written document that outlines a company's goal ✓ and resources needed to achieve its objectives guiding operations and decision-making. ✓ (2)

2.5.2 **Components of the business plan**

(a) Marketing Plan:

- Target market analysis ✓
- Customer segments ✓
- Competitors information ✓
- Market needs ✓ (Any 2) (2)

(b) Financial plan:

- Financial projections/cash flow budgets/income statement ✓
- Funding requirements ✓
- Financial ratios and indicators/ability to pay back a loan ✓

(Any 2) (2)

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2.5.3 **TWO importance reasons of setting realistic goals**

- Realistic goals ensure the business allocates resources efficiently ✓
- Improves chances of achieving measurable results ✓
- Provide clear attainable benchmark for performance evaluation ✓
- Helps with proper planning ✓
- Makes the business plan more believable to investors and financial institutions ✓ (Any 2 x 1) (2)

2.5.4 **Components of SWOT analysis**

- (a) Weaknesses ✓ (1)
- (b) Opportunities ✓ (1)

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QUESTION 3: PRODUCTION FACTORS

3.1 Economic characteristics of land

3.1.1 (a) **Agricultural land has inflexible production cycle:**

- Production process of agricultural land is fixed ✓ in the short term by crop cycles or plant growth season, that cannot be easily altered or reversed or accelerated ✓ to react to changing markets. (2)

(b) **Land is subject to the law of diminishing returns;**

- As more variable inputs are added to a fixed amount of land, output will initially rise proportionally ✓ until a point is reached where each additional unit of input yields no extra output. ✓ (2)

3.1.2 **State TWO economic functions of land**:

- It is an asset that the owner can show on a balance sheet ✓
- Land provides space for agricultural activities ✓
- It provides food ✓
- Land is a source of raw materials ✓
- Land is a source of minerals ✓ (Any 2) (2)

3.1.3 **Methods to improve the productivity of land**

- (a) Improving water management/Implement irrigation efficiency techniques/water-harvesting techniques ✓
- (b) Restoring land potential/Sustainable land management practices/Soil conservation practices ✓ (2)

3.2 3.2.1 Types of Labour

- (a) Casual ✓
- (b) Permanent ✓
- (c) Seasonal ✓ (3)

3.2.2 **The document signed by workers and employer:**
Contract of employment ✓ (1)

3.2.3 **The piece of legislation applicable to the following:**

- (a) Basic conditions of employment Act, 1977 (Act 75 of 1997)/ BCEA ✓ (1)
- (b) Labour Relations Act, 1995 (Act 66 of 1995)/ LRA ✓ (1)
- (c) Compensation for Occupational Injuries and Diseases Act, 1993 (Act 130 of 1993)/ COIDA ✓ (1)

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3.3 3.3.1 **TWO advantages of having motivated workers from the research.**

- Fewer motivated workers are needed to complete the same task/it takes 10 motivated workers to complete the same task that needs 15 demotivated workers. ✓
- Faster task completion/motivated workers finish the task in fewer days/motivated workers needs 15 days while demotivated workers takes 25 days to complete the same task ✓ (2)

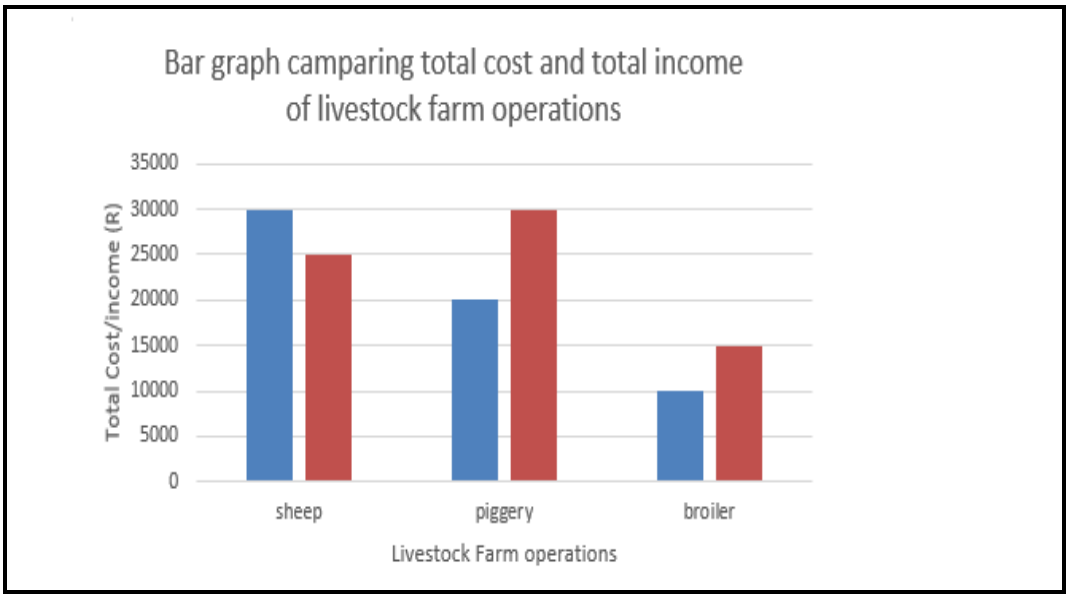
3.3.2 **TWO economic measures that farmer B can implement to motivate workers**

- Performance based bonuses/
- Provide incentives for workers ✓
- Paying higher salaries ✓
- Entering into partnership deals with workers ✓
- Supplying farm products at reduced prices to workers ✓
- Medical insurance and pension ✓ (Any 2) (2)

3.3.3 **Hypothesis that can guide the research**

- Motivated farm workers increases labour productivity by reducing the number of workers and time needed to complete tasks ✓/motivated farm workers complete tasks faster than demotivated workers (1)

3.4 3.4.1 **Bar graph comparing total cost and total income of livestock farm operations.**



Marking criteria for the bar graph

- Correct caption ✓
- Variable on y-axis correctly labelled and calibrated (Total Cost / Income) ✓
- Variable on x-axis correctly labelled and calibrated (Livestock farm operations) ✓
- Units indicated on y-axis (R) ✓
- Bar graph ✓
- Accuracy (80 % + correctly plotted) ✓ (6)

3.4.2 **Farm operation from the table that is not viable**
- Sheep farming ✓ (1)

3.4.3 **Justify your answer to QUESTION 3.4.2**
Its total cost (R30 000) is greater than its total income (R25 000)/there is a loss of R5 000. ✓ (1)

3.4.4 **TWO problems of capital**
- Capital is scarce ✓
- Depreciation ✓
- Overcapitalisation ✓
- Undercapitalisation ✓
- Capital is expensive ✓
- High interest ✓
- High risk ✓ (Any 2) (2)

3.5 3.5.1 **THREE sources of risk**
- Production risk/ Technical risk ✓ (3)
- Market and price risk ✓
- Financial risk ✓

3.5.2 **Risk management strategies**

- (a) Risk sharing ✓ (1)

- (b) Diversification ✓ (1)

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QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1 4.1.1 **Genotype of the unknown ewe**
- Bb ✓ (1)

4.1.2 **Type of the cross**
- Monohybrid cross ✓ (1)

4.1.3 **Motivation:**
- The cross involves one gene pair controlling one trait. (1)

4.1.4 **Punnet square**

♀ / ♂	**B**	**b**
B	**BB**	**Bb**
b	**Bb**	**bb**

Marking criteria
- Correct male gametes ✓
- Correct female gametes ✓
- Correct genotype of offspring ✓
- Punnet square populated with gametes and offspring ✓ (4)

4.1.5 **Determine the genotypic ratio of the F_1**
- **1BB : 2Bb : 1bb** ✓✓ (2)

4.1.6 **Mendel's Law of Inheritance:**

(a) Law of segregation ✓

(b) Law of independent assortment ✓ (2)

4.1.7 **Difference between *incomplete dominance* and *co-dominance***
- *Incomplete dominance:* Heterozygotes show an intermediate phenotype ✓
- *Co-dominance*: Both alleles are fully expressed in the heterozygote ✓ (2)

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4.2 4.2.1 **Genotype of the following chickens**

- (a) (I) 1 : Aa ✓ (1)
- (b) (II) 3 : aa ✓ (1)

4.2.2 **Justification**

- (a) 1 – The unaffected individual must carry one normal allele **(A)** and one water-belly allele **(a)** for it to produce affected offspring. ✓
- (b) 3 – Water belly allele is recessive and can only be expressed when both alleles are recessive. ✓ (2)

4.2.3 **Determine whether water belly is a recessive or dominant genetic disorder**

- Water belly is a recessive genetic disorder ✓
- **Motivation:** The trait appears only in homozygous recessive individuals. ✓ (2)

4.3 4.3.1 **Internal cause of variation**

- **A** : Meiosis ✓
- **B** : Fertilisation ✓ (2)

4.3.2 **TWO climatic cause of variation**

- Temperature ✓
- Rainfall ✓
- Light intensity/ sunlight ✓, humidity ✓, wind ✓ (Any 2 x 1) (2)

4.3.3 **State the selection method that requires verifiable records of the ancestral linage.**

- Pedigree ✓ (1)

4.4 4.4.1 **Breeding system shown in the picture**

- Cross breeding ✓ (1)

4.4.2 **THREE advantages of cross breeding**

- Produces progeny with high heterosis or hybrid vigour ✓
- Increases genetic variation ✓
- Rapid economic way to improve a profitable characteristic in the herd ✓
- Produces progeny that are more resistant to diseases ✓ (Any 3) (3)

4.4.3 **Disadvantages of closely related mating**

- Cause a loss of genetic variation/loss of genetic diversity ✓
- The offspring are more susceptible to diseases ✓
- Leads to inbreeding depression ✓
- Increases the expression of lethal genes ✓ (Any 2) (2)

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4.5 **Genetic modification techniques**

4.5.1 • Microinjection ✓ (1)

4.5.2 • Lipofection/ Liposomes ✓ (1)

4.5.3 • Electroporation ✓ (1)

4.6 **TWO potential environmental hazards of using Genetic Modification.**

- Transgenes can spread to wild relatives causing super weeds ✓
- Non target species may be affected ✓
- Reduces biodiversity ✓
- Pollution of the environment ✓ (Any 2) (2)

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TOTAL SECTION B: 105
GRAND TOTAL: 150

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