

Confidential



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

AGRICULTURAL SCIENCES P2

NOVEMBER 2025

MARKS: 150

TIME: 2½ hours

This question paper consists of 16 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections, namely SECTION A and SECTION B.
2. Answer ALL the questions in the ANSWER BOOK.
3. Start EACH question on a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. You may use a non-programmable calculator.
6. Show ALL calculations, including formulae, where applicable.
7. Write neatly and legibly.

SECTION A**QUESTION 1**

1.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.1.1 to 1.1.10) in the ANSWER BOOK, e.g. 1.1.11 B.

1.1.1 The following statement does NOT apply to the marketing of agricultural products:

- A Marketing management is profit-orientated
- B Determines the needs of the consumers and supply accordingly
- C Focuses on the needs of the seller
- D Planning is long term, based on new products for future growth

1.1.2 The type of a buyer who works for commission, buys cattle at a certain price and sells them at a higher price:

- A Retailer
- B Broker
- C Wholesaler
- D Processing company

1.1.3 ONE of the following is NOT a reason for price fixing:

- A Elimination of competition
- B Increasing profit margins
- C Selling the same product, at the same price, by different producers
- D Improves accessibility of a product for consumers

1.1.4 The following statements are reasons for drawing up a business plan:

- (i) To determine whether it will be possible to implement the business idea successfully
- (ii) For paying back the bank loan
- (iii) To guide daily operations
- (iv) To determine the financial needs of the business

Choose the CORRECT combination:

- A (i), (ii) and (iii)
- B (ii), (iii) and (iv)
- C (i), (iii) and (iv)
- D (i), (ii) and (iv)

- 1.1.5 All the economic inputs that are required by farmers to produce goods and services are called ...
- A factors of production.
 - B demand.
 - C capital of production.
 - D supply.
- 1.1.6 Expenses, such as electricity, that are NOT related to one particular enterprise are known as ... costs.
- A overhead
 - B fixed
 - C variable
 - D gross
- 1.1.7 A plan of action by the farmer to recognise and deal with risks:
- A Risk anticipation
 - B Strategic risk management
 - C Contingency planning
 - D Risk-taking
- 1.1.8 The Unemployment Insurance Act, 2001 (Act 63 of 2001) regulates the following:
- (i) Employer and employee both contribute towards the fund
 - (ii) Provision of security for workers should they become unemployed
 - (iii) Protection of workers from unfair discrimination
 - (iv) The effects of unemployment for the employee
- Choose the CORRECT combination:
- A (ii), (iii) and (iv)
 - B (i), (iii) and (iv)
 - C (i), (ii) and (iii)
 - D (i), (ii) and (iv)
- 1.1.9 The following statement about heritability is NOT CORRECT:
- A Genes influence heritability of a characteristic.
 - B The environment influences the heritability of a characteristic.
 - C A proportion of physical visible differences from parents are passed on to the offspring.
 - D Compares similar characteristics among related individuals.
- 1.1.10 ONE of the following is a possible gene combination that can be produced by an individual with the **AaBb** genotype during the formation of the gametes:
- A Aa, Bb, AA, ab
 - B AA, aa, BB, bb
 - C AB, Ab, aB, ab
 - D AB, ab, BB, aa
- (10 x 2) (20)

- 1.2 Choose a term/phrase from COLUMN B that matches a description in COLUMN A. Write only the letter (A–J) next to the question numbers (1.2.1 to 1.2.5) in the ANSWER BOOK, e.g. 1.2.6 K.

COLUMN A		COLUMN B	
1.2.1	Placing stickers on products to promote them as environmentally friendly	A	supply
		B	economic characteristic
1.2.2	The chain that includes manufacturing and distribution of the product for the market	C	diversification
		D	eco-labelling
1.2.3	The space that is available for agricultural activities	E	qualitative
		F	green labelling
1.2.4	The strategy through which the farmer can spread the investment over several enterprises	G	quantitative
		H	land
1.2.5	A characteristic that takes on a whole range of values, without clear boundaries between the different classes	I	specialisation
		J	demand

(5 x 2) (10)

- 1.3 Give ONE word/term for each of the following descriptions. Write only the word/term next to the question numbers (1.3.1 to 1.3.5) in the ANSWER BOOK.

1.3.1 Changes in price due to seasonality of agricultural products

1.3.2 The difference between the value of assets and the value of liabilities

1.3.3 The scientific study of how genes and traits are passed on to the offspring from parents

1.3.4 A type of mutation with one or more extra or missing chromosomes in the set

1.3.5 The physical location of a gene on a chromosome (5 x 2) (10)

1.4 Change the UNDERLINED WORD in each of the following statements to make them TRUE. Write only the word next to the question numbers (1.4.1 to 1.4.5) in the ANSWER BOOK.

1.4.1 Mass market focuses on a specific product to satisfy specific needs of a market.

1.4.2 Planning is the management principle which involves the checking and verification of results or goals.

1.4.3 A Mendelian square is a table that shows how genetic characteristics are inherited from each parent and the possible genotypes of the offspring.

1.4.4 The random change in the genetic composition of a cell is known as variation.

1.4.5 A dihybrid has two identical alleles for a particular gene. (5 x 1) (5)

TOTAL SECTION A: 45

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

Start this question on a NEW page.

2.1 The supply of products may be more or less than the required quantities in a market. At times the market might be at equilibrium.

2.1.1 State the situation in a market when the products supplied are fewer than the products demanded. (1)

2.1.2 Name ONE factor that could have led to the situation in QUESTION 2.1.1. (1)

2.1.3 Explain the situation in a market when it is at equilibrium. (2)

2.2 A method of promoting a product is shown below.



2.2.1 Indicate the method of promoting products shown above. (1)

2.2.2 State TWO other methods of promoting products. (2)

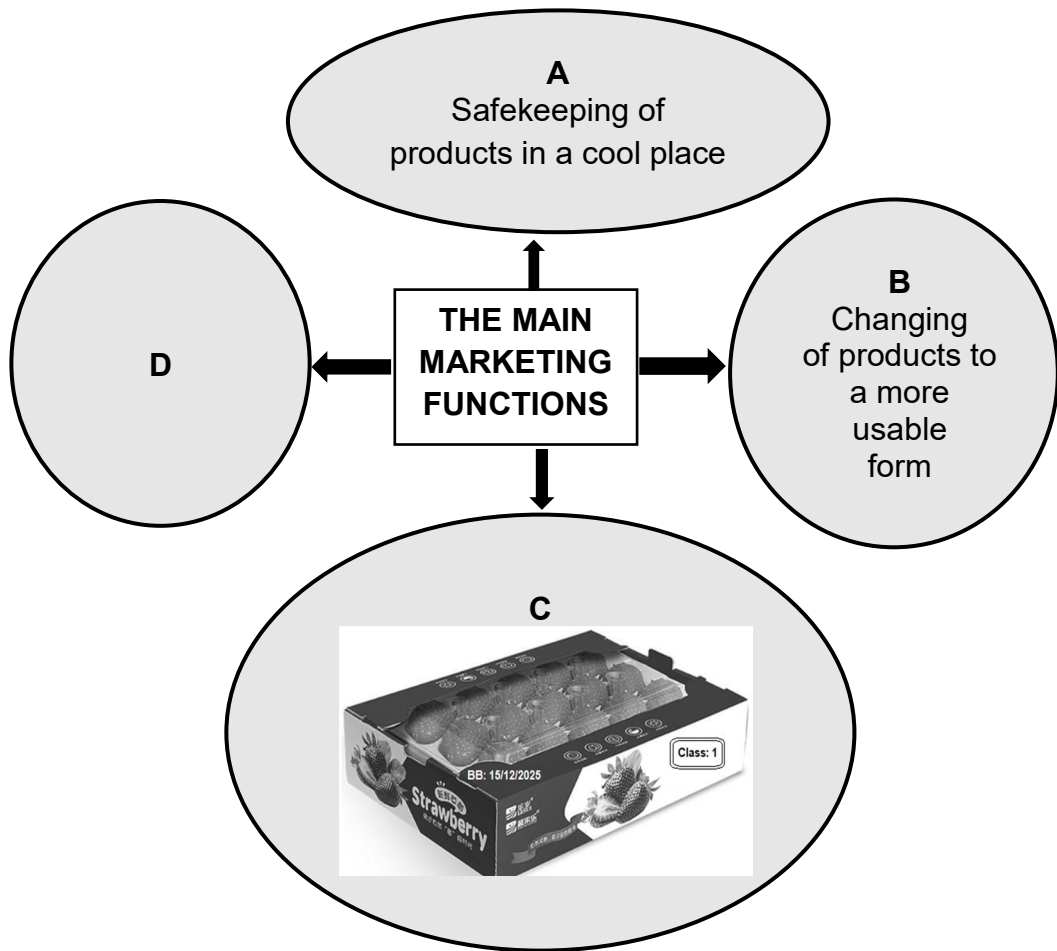
2.3 An avocado producer sold 500 bags of avocados at R50 each, while a maize producer sold 800 bags of maize at R300 each, and both were sold out. Due to the high demand of the products, prices went up and consequently a bag of avocados was sold at R55, while a bag of maize was sold at R500. The number of avocado buyers declined from 500 to 250, while those of maize declined from 800 to 790.

2.3.1 Identify the product that showed price inelasticity of demand. (1)

2.3.2 Give a reason to support the answer to QUESTION 2.3.1. (2)

2.3.3 Explain how the availability of substitute products contributes to price elasticity of demand. (2)

2.4 The schematic representation below shows agricultural marketing functions.



- 2.4.1 Identify the agricultural marketing function represented by **D**. (1)
- 2.4.2 Name TWO advantages of the marketing function in **B**. (2)
- 2.4.3 State ONE guideline that farmers should consider to ensure that the safety of products is maintained when performing the marketing function in **C**. (1)

2.5 The table below illustrates the price and demand of sheep over a period of six months.

	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.
Price (rands)	1 500	1 500	1 600	2 000	1 300	1 400
Demand of sheep	100	120	200	1 050	100	80

- 2.5.1 Draw a bar graph to show the relationship between the price and demand of sheep over a period of six months. (6)
- 2.5.2 Identify the month in which the farmer had the highest income from the sales of sheep. (1)
- 2.5.3 Deduce the factor that could have led to the higher demand of sheep in December. (1)

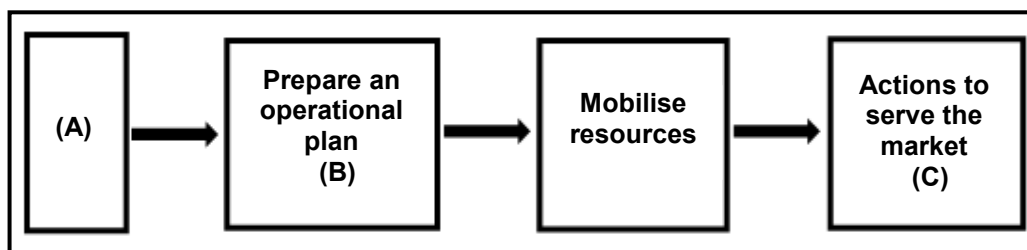
2.6 Name the marketing channel associated with EACH of the following statements:

2.6.1 The farmer sells eggs on the farm (1)

2.6.2 Fruit and vegetables are sold by an agent at the municipal market (1)

2.6.3 Products are electronically advertised and sold (1)

2.7 The illustration below indicates the different phases of the entrepreneurial process.



2.7.1 Identify the phases of the entrepreneurial process represented by **A** and **B** in the illustration above. (2)

2.7.2 Define the concept *entrepreneurship*. (2)

2.8 A business plan is needed before a business is started.

2.8.1 Indicate TWO aspects that potential investors look for in a business plan. (2)

2.8.2 Name TWO electronic resources that can be used as tools for drawing up a business plan. (2)

[35]

QUESTION 3: PRODUCTION FACTORS

Start this question on a NEW page.

3.1 The following are the economic characteristics of land as a production factor:

availability; appreciation; law of diminishing return;
collateral; specific environment

3.1.1 Match the following statements with EACH of the economic characteristics listed above:

(a) The price of land tends to increase over time. (1)

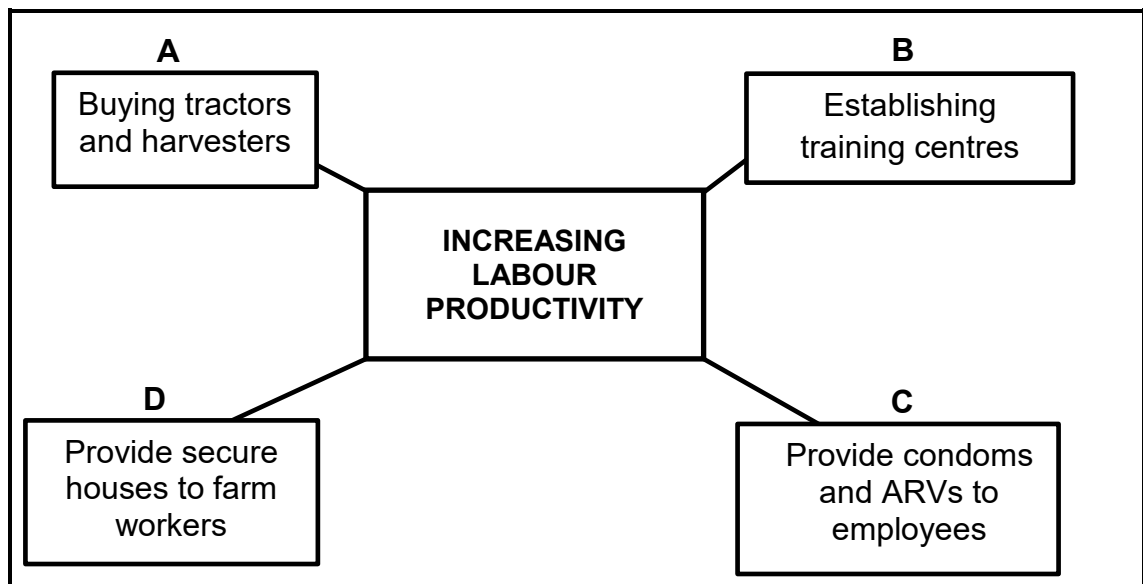
(b) Land is a valuable asset that farmers may use as security for a loan. (1)

3.1.2 Explain how EACH of the following farming methods may be used to increase land productivity:

(a) Use of scientific methods (2)

(b) Consolidation of small uneconomical land units (2)

3.2 The flow chart below shows different methods a farmer used to increase labour productivity.



3.2.1 Define the concept *labour productivity*. (2)

3.2.2 Deduce the labour problem that is addressed by the farmer in:

(a) B (1)

(b) C (1)

(c) D (1)

3.2.3 Indicate how the measure in **A** can increase labour productivity. (1)

3.3 Below is an extract of the components and the items from a contract signed between the farm worker and the farmer.

COMPONENT	ITEM
1. ...	4 October 2020 to retirement
2. JOB TITLE	Spray operator
3. LEAVE	One month paid leave per year
4. ...	07:00–17:00 daily
5. ...	Monthly salary/wage
6. PROTECTIVE GEAR	Overall, mask and gloves

3.3.1 Indicate the component of a contract that is represented by:

(a) 1 (1)

(b) 4 (1)

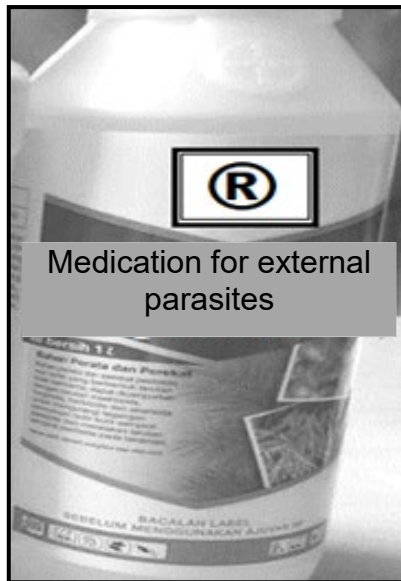
(c) 5 (1)

3.3.2 Name the labour legislation that addresses leave benefits. (1)

3.3.3 Identify the items that address compliance to the Occupational Health and Safety Act, 1993 (Act 85 of 1993). (1)

3.4 The pictures below represent different capital items on a farm.

PICTURE A



PICTURE B



PICTURE C



3.4.1 Identify the type of capital represented in the following:

(a) PICTURE C (1)

(b) PICTURE A (1)

3.4.2 Explain the type of credit that can be used to purchase the capital item in PICTURE B. (2)

3.5 The table below shows a financial record from April to July.

	APRIL	MAY	JUNE	JULY
INCOME				
Operating income	5 000	24 300	51 200	33 100
Capital sales	0	13 000	0	3 000
Non-farm income	500	3 000	4 500	5 100
EXPENDITURE				
Operating expenditure	2 100	7 500	13 500	7 500
Capital expenditure	0	3 000	0	0
Non-farm expenses (bank charges)	1 200	1 500	1 600	2 000
CASH FLOW SUMMARY				
Opening balance	8 000	10 200	38 500	A
Total income	5 500	40 300	55 700	41 200
Total expenses	3 300	12 000	15 100	9 500
Profit/Loss	2 200	28 300	40 600	B
Closing balance	10 200	38 500	79 100	C

3.5.1 The financial record in the table above is NOT an Income Statement. Give a reason to support the statement. (2)

3.5.2 Determine the value of **A**. (1)

3.5.3 Calculate the value of EACH of the following:

(a) B (2)

(b) C (2)

3.5.4 Give a reason that supports the viability of the enterprise above. (1)

3.6 A farming enterprise can be influenced by different forces.

3.6.1 Identify the external force represented by EACH of the following:

(a) An increase in the VAT on commodities (1)

(b) New emerging markets for farm products (1)

3.6.2 Indicate the source of risk linked to the following:

(a) QUESTION 3.6.1(a) (1)

(b) QUESTION 3.6.1(b) (1)

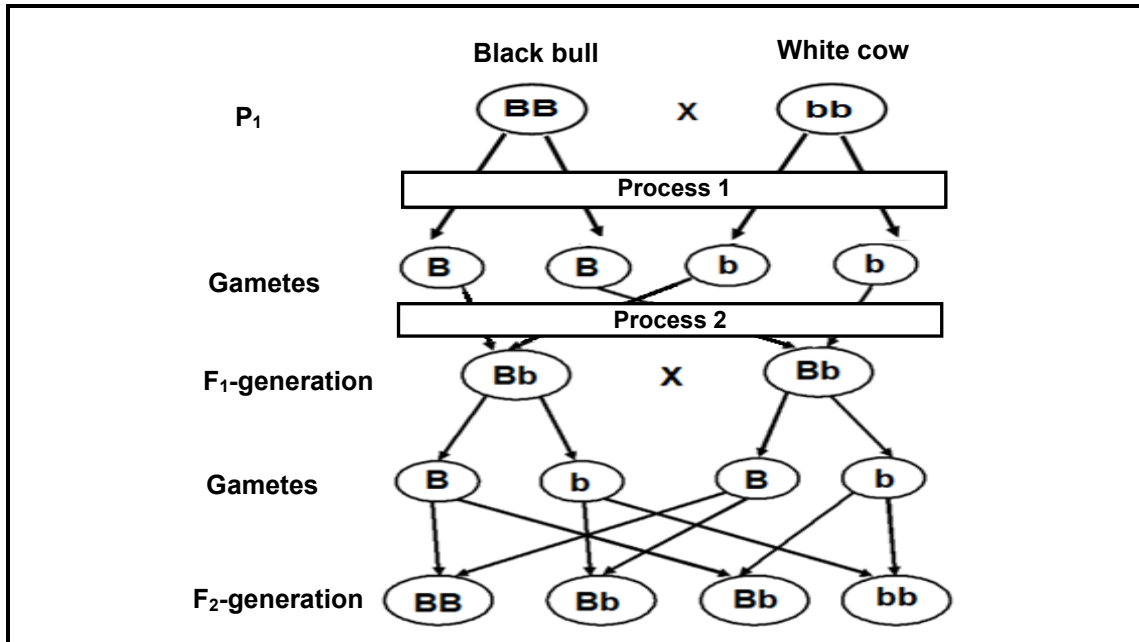
3.7 Name TWO general management skills needed to manage a farming business. (2)

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QUESTION 4: BASIC AGRICULTURAL GENETICS

Start this question on a NEW page.

4.1 The genetic diagram below illustrates a cross between two cattle breeds.



4.1.1 Name the type of crossing illustrated in the genetic diagram above. (1)

4.1.2 Give a reason for the answer to QUESTION 4.1.1. (1)

4.1.3 Identify the processes in the genetic diagram above:

(a) PROCESS 1 (1)

(b) PROCESS 2 (1)

4.1.4 Give EACH of the following:

(a) The number of black offspring in the F₂-generation (1)

(b) The phenotype of the F₁-generation (1)

4.1.5 Indicate the genotypic ratio of the F₂-generation. (1)

4.2 In pea plants, spherical seeds (D) are dominant over dented seeds (d). Two plants that are heterozygous for the seed shape trait, were crossed.

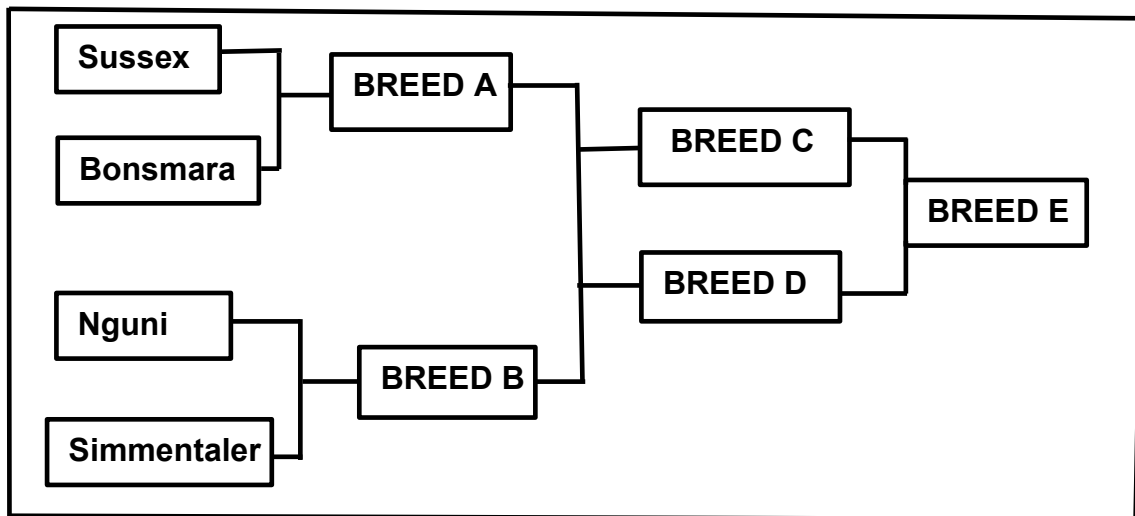
4.2.1 Use a Punnett square to determine the genotype of the F₁-generation. (4)

- 4.2.2 Give the fraction of the F₁-generation that should have spherical seed shape. (1)
- 4.2.3 Assume that 900 pea plants were produced as the F₁-generation during the experiment. Calculate the number of plants that will have spherical seeds. (2)
- 4.3 Identify the different patterns of inheritance represented by EACH of the following statements:
- 4.3.1 A plant with purple flowers is crossed with a plant with white flowers and all offspring have both purple and white colours in the same flower. (1)
- 4.3.2 Milk production is influenced by a combination of many genes. (1)
- 4.3.3 There are four alleles for the **C** gene that controls coat colour in rabbits. (1)
- 4.3.4 The development of a grey-coloured calf from the crossing of a white cow with a black bull (1)
- 4.4 The picture below shows differences between individuals of the same species.



- 4.4.1 Identify the characteristic in the animals above that is influenced by the following causes of variation:
- (a) Genetic (1)
- (b) Environmental (1)
- 4.4.2 State TWO important aspects of variation. (2)

4.5 The illustration below shows different breeds on which animal breeders based their selection.



4.5.1 Identify the following in the illustration:

- (a) Type of breeding system between BREED C and BREED D (1)
- (b) Type of selection in the illustration above (1)

4.5.2 Give a reason for the answer to QUESTION 4.5.1(a). (1)

4.5.3 Indicate TWO disadvantages of the breeding system in QUESTION 4.5.1(a). (2)

4.5.4 Name the method of selection that was used to obtain BREED E, based on the performance of the Nguni and the Bonsmara. (1)

4.6 Scientists conducted an experiment to test the effect of genetic modification on insect resistance in maize plants. They used maize seeds with an insect-resistant gene and a normal seed. Both seeds were grown in an environment with corn borers.

4.6.1 Formulate a hypothesis based on the experiment. (1)

4.6.2 Indicate TWO socio-economic impacts of genetically modified maize seeds on small-scale farmers. (2)

4.6.3 State TWO advantages of genetic modification over traditional methods. (2)

4.6.4 State TWO aims of the genetic modification of plants and animals. (2)

[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150