

EXAMINATION		NATIONAL SENIOR CERTIFICATE	
GRADE		12	
DATE		NOVEMBER 2025	
SUBJECT		AGRICULTURAL SCIENCES	
PAPER		2	
MARK TOTAL		150	
DURATION (HOURS)		2½	
NUMBER OF PAGES		15	



SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
 SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT



INSTRUCTIONS AND INFORMATION

1. This question paper consists of **TWO** sections, namely **SECTION A** and **SECTION B**.
2. Answer **ALL** the answers in the **ANSWER BOOK**.
3. Start the answer to each question at the top of a new page.
4. Number the answers exactly as the questions are numbered.
5. Non-programmable calculators may be used.
6. Show **ALL** calculations, including formulae, where applicable.
7. Write neatly and legibly, in **BLUE** ink only.



SECTION A

QUESTION 1

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

1.1.1 Obtaining goods and/or services in exchange for cash.

- A Selling
- B Buying
- C Marketing
- D Bartering

1.1.2 ... is making a product more profitable by processing it.

- A Protection
- B Selling
- C Insuring
- D Value adding

1.1.3 The agricultural commodity that will serve the same purpose as another product is generally referred to as a ... commodity.

- A complementary
- B competitive
- C substitute
- D reserve

1.1.4 The normal process which the farmer must follow to get the product from the farm to the consumers.

- A Market penetration
- B Market segment
- C Market niche
- D Market chain



1.1.5 The labourers who receive part of their wages in benefits are:

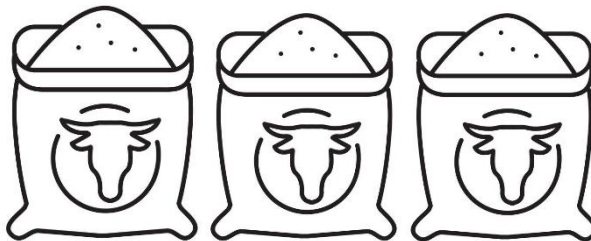
- A Casual workers
- B Holiday workers
- C Permanent workers
- D Seasonal workers

1.1.6 The following can be linked with techniques to increase the productivity of land:

- i) Pooling of resources like machinery and fertilisers
- ii) Continuous overcultivation of land
- iii) Drainage and irrigation
- iv) Changing the physical properties of the soil

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

1.1.7 The illustration below is an example of ... capital.



- A fixed
- B floating
- C unpaid
- D moveable

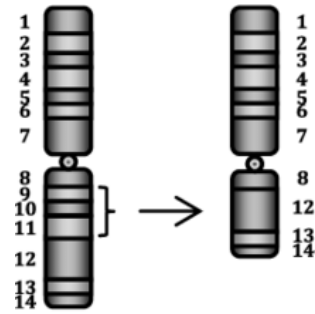
1.1.8 Farmers who had stock theft in a rural area of the country will experience a direct influence on the ... of their farming enterprises.

- A risk management
- B health programme
- C labourers
- D pasture management

1.1.9 The passing on of characteristics from one generation to the next is ...

- A dominance.
- B homozygous.
- C heredity.
- D heterozygous.

1.1.10 The illustration below indicates ... in chromosome mutation.



- A inversion
- B deletion
- C duplication
- D translocation

(10x2) **(20)**



- 1.2 Choose a description from **COLUMN B** that matches a term/phrase 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**, for example 1.2.6 K.

COLUMN A		COLUMN B	
1.2.1	Contract	A	Person who identifies a business opportunity and takes risks to convert an idea into a profitable business.
1.2.2	Entrepreneur	B	Refers to a plant or grouping of plants bred for desirable characteristics.
1.2.3	Production potential	C	Process of converting an idea by organising resources to start and grow a new profitable business.
1.2.4	Cash flow	D	Land's capability of producing crops.
1.2.5	Inbreeding depression	E	A factor that guarantees a secure market, volume of sales and price for produce.
		F	Ability of land to support agricultural productivity.
		G	A decrease in performance with each generation caused by the crossing of two plants or animals that are closely related.
		H	Movement of money into and out of a business over a particular period.
		I	Appearance of a red calf after crossing of homozygous red parents.
		J	Capital that is invested in a more permanent way.

(5x2) (10)



- 1.3 Give the **CORRECT AGRICULTURAL 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**, for example, 1.3.6 Bile.
- 1.3.1 External factors of a SWOT analysis that identify negative elements that may form obstacles to business success.
- 1.3.2 A sum of money provided for a specific purpose by a government that does not have to be repaid.
- 1.3.3 A precise replica of a specific gene or a complete organism.
- 1.3.4 Both alleles are equally dominant.
- 1.3.5 A gene that has been transferred from one species to another. (5x2) (10)
- 1.4 Change the **UNDERLINED WORD(S)** in **EACH** of the following statements to make them **TRUE**. Write only the appropriate word(s) next to the question numbers (1.4.1 to 1.4.5) in the **ANSWER BOOK**.
- 1.4.1 When a business gives certain activities or functions to another business to perform on its behalf, it is capitalisation.
- 1.4.2 Specialised tasks on the farm are done by formal labour.
- 1.4.3 Homozygosis is a type of cell division that produces four haploid daughter cells.
- 1.4.4 Family selection is a method of selection based on phenotype only.
- 1.4.5 Electroporation is when small bubbles of fat called liposomes are used as carriers of selected DNA. (5x1) (5)

TOTAL SECTION A: [45]

SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

Start this question on a NEW page.

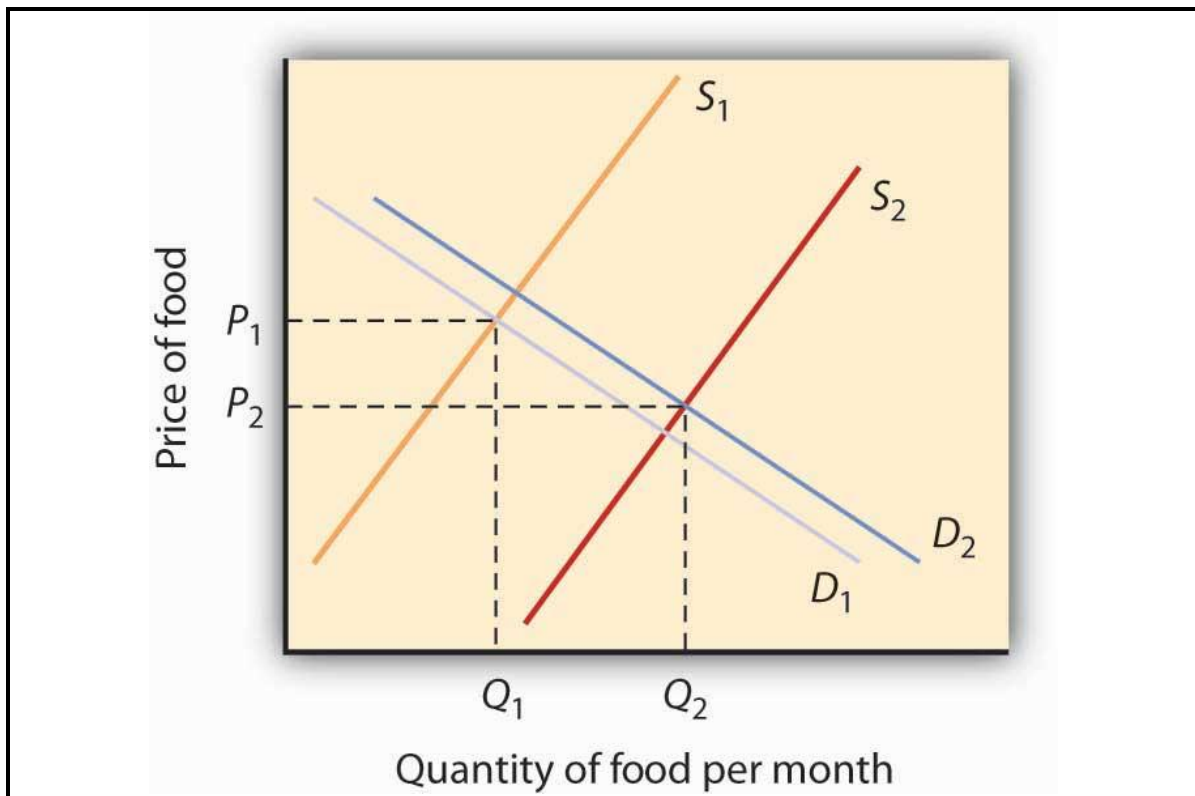
2.1 Marketing is an essential function in any economic system.

2.1.1 Give a definition for 'marketing'. (2)

2.1.2 State TWO main functions of agricultural marketing. (2)

2.1.3 List THREE advantages of processing raw agricultural products. (3)

2.2 Study the graph indicating supply and demand curves below.



[Source: <https://open.lib.umn.edu/principles/economics/chapter/3-3-demand-supply-and-equilibrium/>]

2.2.1 Explain the 'law of demand' by referring to the graph above. (3)

2.2.2 Define the *equilibrium price*. (2)

2.2.3 Discuss the relationship between the supply and price in the graph above. (4)

2.3 Study the photograph below and answer the questions.



[Source: <https://proveg.org/article/environmental-impact-labelling-options-and-impacts-for-retailers-and-brands/>]

2.3.1 Identify the type of labelling in the photograph above. (1)

2.3.2 Justify your answer in QUESTION 2.3.1. (3)

2.3.3 State TWO ways in which the labelling type identified in QUESTION 2.3.1 influences consumer behaviour. (2)

2.4 The following advertisement was published on a social media platform:



2.4.1 Identify the type of marketing in the example above. (1)

2.4.2 Give THREE advantages of the type of marketing in QUESTION 2.4.1 (3)



2.5 A tomato farmer grows high-quality produce but struggles to get good prices for his crops. The farmer sells the produce directly to middlemen, who then transport it to urban markets.

2.5.1 Identify TWO challenges faced by the farmer in this scenario. (2)

2.5.2 Suggest THREE ways the farmer could improve his position in the agricultural marketing chain to earn better profits. (3)

2.5.3 Explain the role of processing and value addition in improving the profitability of agricultural products like tomatoes. (4)

[35]

QUESTION 3: PRODUCTION FACTORS

Start this question on a NEW page.

3.1 Study the table with the % arable land in South Africa.

Land cover category	Area (Hectares – millions)	Percentage (%)
Bare and degraded areas	5,45	4,47
Cultivated areas	12,76	10,46
Grasslands	24,30	19,92
Indigenous forests	0,52	0,43
Mines	0,20	0,17
Forest plantations	1,72	1,41
Shrublands and herb lands	42,27	34,66
Urban areas	1,85	1,51
Waterbodies	0,68	0,55
Wetlands	0,87	0,72
Woodlands and bushlands	31,34	25,70
Total	121,96	100

[Source: https://www.dffe.gov.za/sites/default/files/docs/part2_land.pdf]

3.1.1 Draw a bar graph using the percentages of **economic characteristics** of land (cultivated areas, mines and forests) to indicate the land cover as in the table above. (7)

3.1.2 Explain why arable land is seen as wealth. (3)

3.1.3 Land productivity needs to be increased to meet the worldwide increased food demand for the growing population.
Suggest strategies which can increase the productivity of the degraded areas to meet this need. (3)

3.2 A commercial fruit farm employs both seasonal and permanent workers. The farm manager notices a decline in productivity during peak harvesting seasons due to a lack of skilled labour, and high absenteeism.

3.2.1 Identify TWO possible reasons for the decline in productivity during harvesting. (2)

3.2.2 Suggest TWO strategies the manager could implement to address the labour challenges. (2)

3.2.3 Discuss how improving working conditions can benefit both the farm and its labourers. (2)



- 3.3 Study the data below of two upcoming pig farmers in the Gauteng province over a \pm 20-week production period.

Farmer A

Expenditure	Rands	Income	Rands
Cost price of piglets (R450 @ piglet)	R67 500	Pig sales (R3 200 @ pig 40 kg)	R480 000
Wages	R100 000	Manure sales	R80 000
Electricity for heating	R50 000		
Feed	R240 000		
Veterinary services	R40 000		
Maintenance	R12 000		

Farmer B

Expenditure	Rands	Income	Rands
Cost price of piglets	R90 000	Pig sales (R4 000 @ pig 70 kg)	R800 000
Wages	R100 000		
Electricity for heating	R50 000		
Feed	R350 000		
Veterinary services	R40 000		
Maintenance	R15 000		

- 3.3.1 Calculate the net profit of Farmer **A** and Farmer **B**. Show all your calculations. (6)
- 3.3.2 Suggest a strategy you will give as advice to the farmer with the lower profit to make the enterprise more profitable. (3)



3.4 Management of resources is very important to be a successful farmer.



[Source: <https://mottech.com/news/automating-agriculture-the-future-of-farming/>]

- 3.4.1 Define management as a production factor and explain why it is essential in farming operations. (2)
- 3.4.2 Explain THREE management skills that are critical for a successful farm manager. (3)
- 3.4.3 Discuss TWO challenges farm managers may face when managing farm resources. (2)

[35]

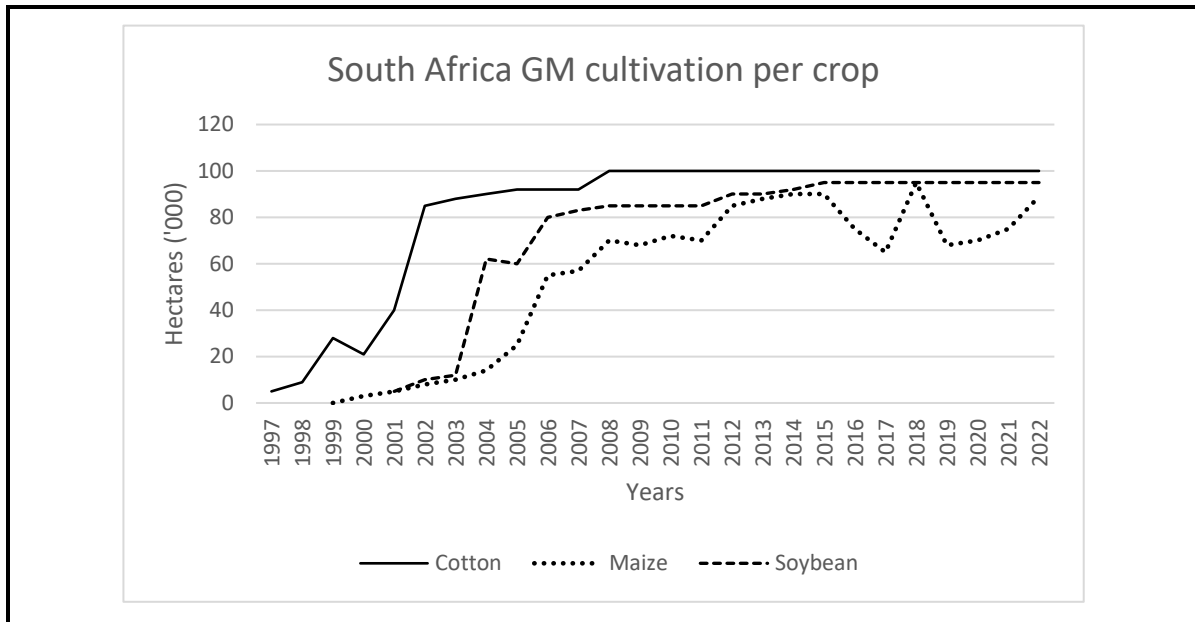


QUESTION 4: BASIC AGRICULTURAL GENETICS

- 4.1 With the use of basic genetic principles, farmers can select and propagate plants and animals with desired traits.
- 4.1.1 Define the following terms:
- a) Gene (2)
 - b) Gamete (2)
 - c) Homozygous (2)
- 4.1.2 Explain the importance of genetics in agriculture. (3)
- 4.1.3 A farmer crosses a red-flowered plant (Rr) with a white-flowered plant (rr). Use a Punnett square to determine the genotypic and phenotypic ratios of the offspring. (5)
- 4.2 A farmer notices that a few maize plants in their field grow taller and produce larger cobs than the others. Upon investigation, it is found that these plants have undergone a genetic mutation.
- 4.2.1 Define the term '*genetic mutation*'. (2)
- 4.2.2 Explain how mutations might occur in maize plants. (2)
- 4.2.3 Discuss the role of genetic variation and mutations in natural selection. (3)
- 4.2.4 Explain TWO ways the farmer could use these mutated maize plants to benefit future crop production. (4)



- 4.3 South Africa possessed the world's seventh largest GM (genetically modified) crop area at 3,2 million hectares in 2022. Within this, maize forms the bulk of the country's GM area, 72% of South Africa's total.



[Source: <https://www.agribusinessglobal.com/special-sections/gm-seed-market-situation-and-potential-in-africa-and-middle-east/>]

- 4.3.1 Identify the trend for GM cotton cultivation from 1997 to 2022. (2)
- 4.3.2 Discuss possible reasons for the trend identified in QUESTION 4.3.1. (2)
- 4.3.3 Compare and contrast the trends for GM maize and GM soybean cultivation from 2000 to 2022. (4)
- 4.3.4 Explain how the acceptance of GM crops could impact agricultural productivity in South Africa. Provide a benefit and a potential risk. (2)

[35]

TOTAL SECTION B: [105]

GRAND TOTAL: [150]