



education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P2
SEPTEMBER 2024

MARKS: 150

TIME: 2½ hours

This question paper consists of 11 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 your 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 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, e.g. 1.1.11 C.

1.1.1 ... is the type of marketing where the price of a product is determined by government.

- A Co-operative marketing
- B Controlled marketing
- C Direct marketing
- D Free marketing

1.1.2 The quantity of a particular product consumers that are willing to purchase at a given price.

- A Supply
- B Price
- C Demand
- D Price determination

1.1.3 The centre of the supply and demand for goods or services that involve the interaction of sellers and buyers, refers to ...

- A a market.
- B a consumer.
- C market information.
- D equilibrium.

1.1.4 The following activities are involved in the processing of agricultural products:

- (i) Storage, drying and blending
- (ii) Fermenting, blending and drying
- (iii) Freezing, smoking and souring
- (iv) Milling, freezing and canning

Choose the CORRECT combination:

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

1.1.5 The total amount of money that comes into the business, through sales, and goes out through expenses.

- A Cash flow
- B Balance sheet
- C Expenditure
- D Net worth

1.1.6 The component of management that monitors the implementation of decisions and ensures that farm activities are performed according to plan.

- A Leading
- B Decision making
- C Motivation
- D Control

1.1.7 A person who identifies a business opportunity and is willing to take the risk of setting up their own business.

- A Intrapreneur
- B Manager
- C Entrepreneur
- D Labourer

1.1.8 The Labour Relations Act, 1995 (Act 66 of 1995), deals with the following issues:

- (i) Dispute resolution steps
- (ii) Safety measures for the use of hazardous substances
- (iii) The right to strike for all employees if the need arises
- (iv) Labour peace and democracy in the workplace

Choose the CORRECT combination:

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

1.1.9 An example of a dominant homozygous characteristic for colour in poultry.

- A CC
- B cc
- C Cc
- D CCc

1.1.10 An organism that transmits diseases, but does not contribute its own genes to a host.

- A Plasmid
- B Donor
- C Biolistic
- D Vector

(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–H) next to the question numbers (1.2.1 to 1.2.5) in the ANSWER BOOK, e.g. 1.2.6 J.

COLUMN A		COLUMN B	
1.2.1	The situation where the quantity of products supplied is less than the quantity demanded	A	labour productivity
		B	collateral
1.2.2	Description of skills and abilities of a farm manager	C	shortage
		D	sex link
1.2.3	A form of security required by banks before granting a loan	E	transport
1.2.4	A measurement used by managers to determine the production output of the labour force	F	labour evaluation
		G	surplus
1.2.5	Mechanism of inheritance resulting from genes located on a sex chromosome of the parent	H	competencies

(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 The channels of mass communication that include internet, TV and cell phones to help with product advertisement
- 1.3.2 A risk management strategy where the farmer uses different farming enterprises
- 1.3.3 The outward appearance of an organism
- 1.3.4 Selection method that focuses on the quality of the ancestors rather than the individual
- 1.3.5 A heterozygous individual/offspring of two genetically different parents

(5 x 2) (10)

- 1.4 Change the underlined word(s) in each of the following statements to make them TRUE. Write only the answer next to the question numbers (1.4.1 to 1.4.5) in the ANSWER BOOK.
- 1.4.1 When a market has only one seller and many buyers, it is termed monopsony.
- 1.4.2 In monetary terms a budget is needed to build, run or grow a business.
- 1.4.3 Gonosomes are chromosomes that are similar in shape.
- 1.4.4 The reappearance of a characteristic after it did not appear for a few generations, is termed epistasis.
- 1.4.5 Polyploidy is the ability of one parent to transmit more genetic characteristics to an offspring than the other parent. (5 x 1) (5)

TOTAL SECTION A: 45

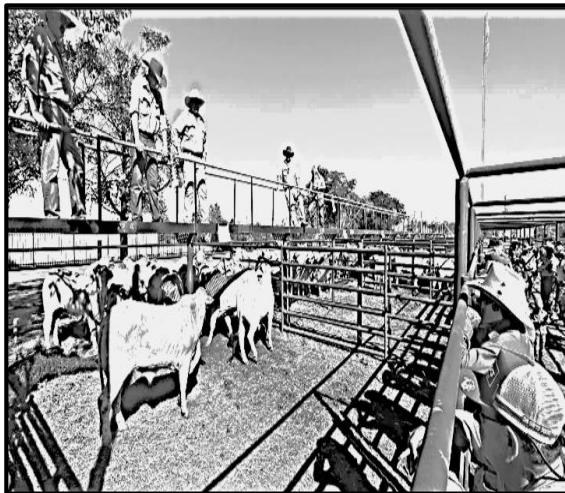
SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

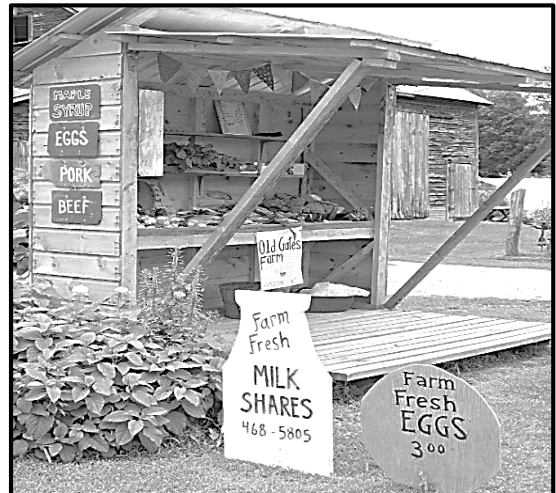
Start this question on a NEW page.

2.1 The pictures below represent the channels of a free market system.

PICTURE A



PICTURE B



2.1.1 Identify the marketing channels represented by PICTURE A and PICTURE B above. (2)

2.1.2 Give THREE benefits of the marketing channel in PICTURE A. (3)

2.1.3 State TWO disadvantages of the marketing channel in PICTURE B. (2)

2.2 Provide TWO differences between marketing and selling. (2)

2.3 List THREE reasons for drawing up a business plan. (3)

2.4 State TWO ways how to streamline and improve the agri-business chain. (2)

2.5 The table below shows the supply and demand of potatoes at different prices.

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
Price (Rands)	10	20	30	40	50
Quantity supplied (kg)	50	100	150	200	250
Quantity demanded (kg)	250	200	150	100	50

2.5.1 Draw a line graph to illustrate the supply and demand of potatoes at different prices. (6)

2.5.2 Deduce from the table above the trend of how price is affected by the changing supply over a period of five weeks. (2)

- 2.6 List THREE factors that will influence the demand of agricultural products. (3)
- 2.7

Young farmers started a business venture on 500 ha of land. They do not have sufficient capital and are also unskilled. The young farmers want to cultivate vegetables selling it to the community and supermarkets. The area has a low rainfall per annum with large areas of bush ideal for goats. The local university has volunteered to offer services and advice to the farmers.
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- Use the SWOT analysis and identify each of the following from the scenario:
- 2.7.1 TWO strengths (2)
- 2.7.2 TWO weaknesses (2)
- 2.7.3 ONE opportunity (1)
- 2.7.4 TWO threats (2)
- 2.8 Explain THREE roles of legislation in the effective marketing of agricultural products. (3)
- [35]**

QUESTION 3: PRODUCTION FACTORS

Start this question on a NEW page.

- 3.1 Land is the most important production factor in the agricultural industry.
- 3.1.1 State TWO economic characteristics of land. (2)
- 3.1.2 Give TWO functions of land. (2)
- 3.1.3 Indicate the techniques or methods on how to improve land productivity, as represented by each of the statements below:
- (a) Improve the water-holding capacity of soil by improving soil organic matter (1)
- (b) Combining legume crops and grain crops (1)
- (c) Reversing degradation process and halting soil erosion (1)
- 3.2 Labour is the cornerstone of agricultural production.
- 3.2.1 List TWO causes of labour shortages in the agricultural industry. (2)
- 3.2.2 Explain TWO methods how a farmer can address HIV/AIDS in the farming industry. (2)

3.2.3 The list below refers to the descriptions of labour legislations.

- Training employees to use machines
- Deals with health and safety in the workplace
- Compels employers to register and make provision for payment, should a worker get injured whilst on duty
- Regulates working hours, leave and minimum wages

Choose the description which is applicable to EACH of the legislations below:

- (a) Occupational Health and Safety Act (OHSA), 1993 (Act 85 of 1993) (1)
- (b) Compensation for Occupational Injuries and Diseases Act (COIDA), 1993 (Act 130 of 1993) (1)
- (c) Skills Development Act (SDA), 1998 (Act 97 of 1998) (1)
- (d) Basic Conditions of Employment Act (BCEA), 1997 (Act 75 of 1997) (1)
- 3.3 Give ONE benefit of the Unemployment Insurance Fund for farm workers. (1)
- 3.4 The table below indicates a cash flow budget of a farming enterprise.

ITEM	SALES PER WEEK	MONTHLY COSTS
Sheep sales	R40 500	
Cattle sales	R90 000	R80 000
Seedling sales	R300	
TOTAL:		

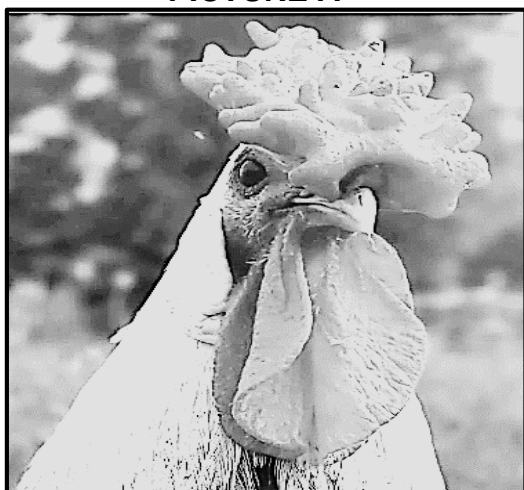
- 3.4.1 Calculate the monthly income of this farming enterprise. (4)
- 3.4.2 Suggest whether the farmer should continue with the enterprise or not. (1)
- 3.4.3 Motivate the answer in QUESTION 3.4.2 by calculating the profit/loss. (Formula and ALL calculations included) (3)
- 3.4.4 Identify ONE form of capital from the table above. (1)
- 3.4.5 State TWO methods of creating capital in a business. (2)
- 3.5 List TWO problems associated with capital as a production factor. (2)
- 3.6 Management plays an important role in any farming enterprise.
- 3.6.1 Define the term *management*. (2)
- 3.6.2 Suggest TWO managerial principles. (2)
- 3.7 Give TWO external forces that can disadvantage the farming enterprise. (2)

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QUESTION 4: BASIC AGRICULTURAL GENETICS

Start this question on a NEW page.

- 4.1 A homozygous tall (T) plant is crossed with a homozygous short (t) plant.
- 4.1.1 Determine the genotype of the tall plant. (1)
- 4.1.2 Use the Punnet square method to determine the offspring of the F₁-generation. (4)
- 4.1.3 Name the type of dominance in QUESTION 4.1.2. (1)
- 4.1.4 Justify the answer in QUESTION 4.1.3. (1)
- 4.2 The pictures below represent a pattern of inheritance in chickens.

PICTURE A**PICTURE B**

- 4.2.1 Identify the types of chicken combs in PICTURE A and PICTURE B. (2)
- 4.2.2 Predict the type of inheritance represented by PICTURE A and PICTURE B. (1)
- 4.3 Variation is the difference in phenotypes of plants or animals of the same species.
- 4.3.1 Name TWO internal causes of variation. (2)
- 4.3.2 Distinguish between *qualitative* and *quantitative* characteristics in relation to variation. (4)
- 4.4 Give TWO selection methods used by plant breeders. (2)

- 4.5 When farmers select animals for breeding programmes, three aspects are considered: heritability, estimated breeding value and biometrics. The selected individuals are mated using various breeding systems such as species crossing, crossbreeding and outcrossing.
- 4.5.1 List TWO related breeding systems NOT mentioned in the case study above. (2)
- 4.5.2 State ONE advantage of crossbreeding. (1)
- 4.5.3 Name TWO disadvantages of upgrading. (2)
- 4.5.4 Define the term *heritability*. (2)
- 4.5.5 Explain the implication of heritability in a breeding programme. (2)
- 4.6 Genetic modification involves altering the genetic material of living cells/organisms.
- 4.6.1 Give TWO examples of genetically modified crops. (2)
- 4.6.2 Present TWO aims of genetic modification in animals. (2)
- 4.6.3 Suggest TWO potential benefits of GMO's relevant to food safety. (2)
- 4.6.4 State TWO advantages of genetic modification over traditional methods. (2)
- TOTAL SECTION B: 105**
GRAND TOTAL: 150