education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P2

FEBRUARY/MARCH 2010

MEMORANDUM

MARKS: 150

This memorandum consists of 9 pages.

SECTION A

QUESTION 1.1

1.1.1	**A**	**B**	**X✓✓**	**D**
1.1.2	**A**	**X✓✓**	**C**	**D**
1.1.3	**X✓✓**	**B**	**C**	**D**
1.1.4	**X✓✓**	**B**	**C**	**D**
1.1.5	**A**	**X✓✓**	**C**	**D**
1.1.6	**A**	**B**	**X✓✓**	**D**
1.1.7	**X✓✓**	**B**	**C**	**D**
1.1.8	**X✓✓**	**B**	**C**	**D**
1.1.9	**A**	**X✓✓**	**C**	**D**
1.1.10	**A**	**B**	**X✓✓**	**D**

(10 x 2) (20)

QUESTION 1.2

1.2.1	**E**√√
1.2.2	**B**√√
1.2.3	**C**√√
1.2.4	**A**√√
1.2.5	**D**√√

(5 x 2) (10)

QUESTION 1.3

1.3.1 Entrepreneurs √√

1.3.2 Restitution/land restitution √√

1.3.3 Overcapitalisation √√

1.3.4 Dihybridism √√

1.3.5 Genetic engineering / modification √√

(5 x 2) (10)

QUESTION 1.4

1.4.1 labour√

1.4.2 segmentation √

1.4.3 losses/risk √

1.4.4 retail √

1.4.5 atavism √

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2

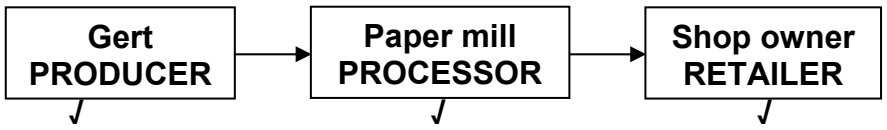
2.1 The dairy farmer that changed to a wood operation

2.1.1 Yes ✓ **and** (1)
Recognise a business opportunity ✓
Willing to take a risk to start this business venture ✓ (Any 1) (1)

2.1.2 Buy new equipment ✓
Built more storage facilities ✓
Retraining of labour ✓
Development of a market for wood ✓
Sell old dairy equipment ✓
Sell cattle ✓
Rent out his pastures ✓ (Any 4) (4)

2.1.3 Chipped and sent for paper production ✓
Compressed wood ✓
Changed into charcoal ✓
Cut for construction / mining ✓
Bark extract for leather production ✓ (Any 2) (2)

2.1.4



✓ ✓ ✓ (3)
[11]

2.2 Budget of a rose producer

2.2.1 Planning ✓ (1)

2.2.2 Floral shops ✓
Nurseries ✓
Fertiliser / Compost retailers ✓ (3)

2.2.3 Total returns – Total cost = Total Profit
R477 500 ✓ – R143 565.30 ✓ = R333 934.80 ✓ (3)

2.2.4 Access to loan ✓
Access to support and advisory services ✓
Access to land ✓
Access to training programs ✓ (Any 2) (2)
[9]

2.3 **Invention to store wine**

2.3.1 Storage of wine✓ (1)

2.3.2 Skin had been replaced with plastic ✓
Waxed cardboard carton ✓
Fitted with a tap ✓ (Any 2) (2)

2.3.3 Marketing skills✓
Creative / Innovative skills✓
Financial skills✓ (Any 2) (2)

2.3.4 The tap does not allow air into the wine✓
No bacteria and air into the wine✓
No oxidation possible (skin collapses as wine is poured) ✓
Greater efficiency when storing this wine✓
Packaged wine is easier to transport✓ (Any 4) (4)
[9]

2.4 **Demand and supply curve**

2.4.1 (a) A ✓ (1)
(b) B ✓ (1)

2.4.2 At the stage where the quantities sold are less ✓ than 7 ✓
Where the demand is more ✓ than the supply ✓
Where the supply is less ✓ than the demand ✓ (Any 2) (2)

2.4.3 Any value between R8.00 and R9.00 (1)

2.4.4 Controlled marketing ✓
Coordinated supply / reduce production ✓ (Any 1) (1)
[6]

[35]

QUESTION 3

3.1 **Pie diagram that represent the usage of water**

3.1.1 Crop production / Farming industry / irrigation enterprises ✓ **and** (1)
The largest part of the pie diagram is represented by this industry ✓
Irrigation and crop production is water intensive ✓ (Any 1) (1)

3.1.2 **Capital**: Dam / Wind pump / crops / livestock / irrigation equipment / Buildings / Orchard ✓
Labour: Man working ✓
Land: Cropping fields / pastures ✓ (3)

3.1.3 Irrigation / crop rotation / spacing of crops ✓ (1)
[6]

3.2 Agri-business chain

3.2.1 Represent all activities / processes of an agricultural product ✓
From the production on the farm to the purchase of the final product by the consumer✓
Includes processes like the preparation of soil, care of crops and animals ✓, processing, packaging and marketing ✓ (Any 2) (2)

3.2.2 (a) livestock / cattle / sheep / vehicle / lorry ✓ (1)
(b) fences / sheds / broiler units / orchards and fields / land ✓ (1)

3.2.3 Fixed / permanent labour used throughout the year ✓
Seasonal labour used during peak periods (e.g. harvesting / pruning) ✓
Casual labour used to erect a fence or fix a road or building ✓
(Any 2) (2)

3.2.4 Good infrastructure / roads ✓
Good utilisation of resources ✓
Diversification lowers the risk / animals and crops are produced ✓
Farm is neat / good fences / animal look healthy / in good condition ✓
Good spacing of crops / trees in orchard ✓ (Any 2) (2)
[8]

3.3 **Graph of assets in a wheat production enterprise**

3.3.1 A ✓
Value decreases over time / wear and tear on movable capital items decreases their value ✓ (2)

3.3.2 Tractors ✓
Harvesters ✓
Trailers ✓
Planters ✓
Implements ✓
Fertilisation equipment ✓
Spray equipment ✓ (Any 2) (2)

3.3.3 The value of these assets increase over time / investment become more valuable over time ✓
The value of these assets does not decrease like the value for assets in graph A ✓
These assets are not subjected to wear and tear ✓ (Any 2) (2)

3.3.4 Overcapitalisation occur when too much capital is invested in an enterprise ✓ **and**
The value of the asset as a whole will not increase with the same value as that which has been invested ✓
The wheat farmer may have invested too much capital into his/her fixed assets and the value of his/her farm did not increase with the same value ✓ (Any 2) (2)
[8]

3.4 **Candidates for position on commercial farm**

3.4.1 Candidate 1 or Candidate 2 (any male) ✓
Candidate 3 (female) ✓
The farmer needed to appoint a candidate from each gender and therefore a male and female candidate as indicated ✓ (3)

3.4.2 Basic Condition of Employment Act ✓✓ (2)

3.4.3 **Employment contract**

Parties involved:
Farm Owner (Employer): …… ✓
Farm Worker ((Employee): …… ✓

Description of Conditions of employment / including remuneration / termination of contract ✓
Date: …….. ✓

Checklist for marking:

Criteria	**Evidence 1 mark**	**No-evidence 0 mark**
Particulars of employer		
Particulars of employee		
Description of conditions		
Date		

(4)

3.4.4 Training / skills development program ✓
Financial incentives / extra bonuses / access to produce at lower prices (staff prices) / production bonuses / partnerships in enterprise / housing subsidies etc. ✓ (2)

3.4.5 Report this matter to the relevant authorities / police services ✓
Assist her in counselling program / medical treatment ✓
Upgrade security/ security guards / lights / fences ✓ (Any 2) (2)
[13]

[35]

QUESTION 4

4.1 Schematic representation of the crossing of two parent animals

4.1.1 50%✓ (1)

4.1.2

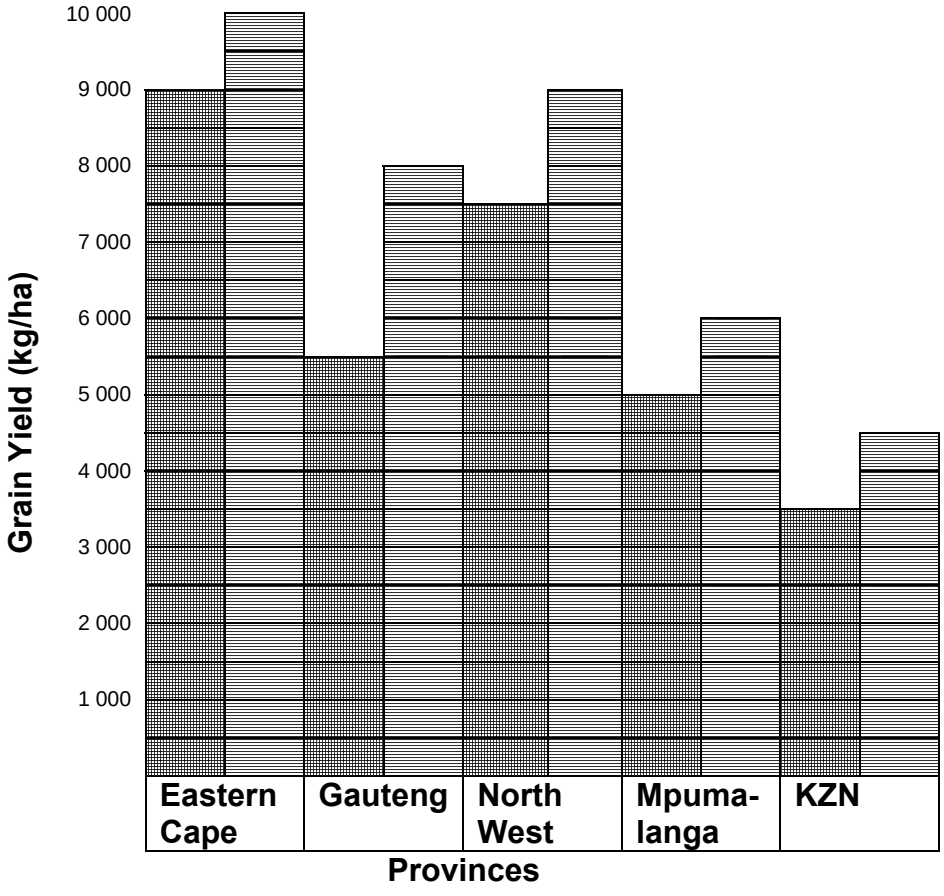
A	B	C
Shape ✓	Colour ✓	Colour ✓

(3)

4.1.3 Shape – square ✓
Colour – white ✓ (2)
[6]

4.2 Data on Non-GM maize and GM maize

4.2.1 **The graph for the yield performance of Non-GM maize compared to GM maize in five different provinces**



Key:	Non-GM maize
	GM maize

CRITERIA	INDICATORS		
Correctness of values	Incorrect values and no indicators **0**	Mostly correct values or indicators correct **1**	All values correct and all indicators correct **2**
Correctness of graph	Not a bar graph and no heading **0**	Bar graph or correct Headings **1**	Bar graph and correct headings. **2**
Neatness	No neat bars and did not use a ruler for lines and no measured distances **0**	Neatly drawn bars or used a ruler for lines or measured distances. **1**	Neatly drawn bars and used a ruler for lines and measured distances. **2**
TOTAL	**(6)**		

(6)

4.2.2 Kwazulu-Natal (1)

4.2.3 7 900 – 5 700 = 2 200 ✓

2 200 / 7 900 X 100 ✓ = 27.8% or 28%✓ (3)

4.2.4 Higher yields ✓
More resistance against pests / maize stalk borer ✓ (2)
[12]

4.3 **Kobus Stofburg's breeding programme for dairy cows.**

4.3.1 **Two quantitative traits/characteristics of the breeds**
Temperament ✓
Heat tolerance/resistance ✓ (2)

4.3.2 **Three reasons**
Improvement of the body size, frame, hooves, legs and udders ✓
The growth rate of the crossed calves ✓
Long productive lives ✓
Production of more milk ✓
Heat tolerance/resistance ✓
Good temperament ✓ (Any 3) (3)

4.3.3 **Two parents of the crossed calves**
Holstein cows ✓
SA Dairy Swiss ✓ (2)

4.3.4 Cross breeding ✓
the homozygous/pure bred Holstein cows were mated with the homozygous/pure bred SA Dairy Swiss bulls ✓ (2)
[9]

4.4 **External factors affecting the height of the crops.**

4.4.1 **Three external factors**
Soil factors (chemical/nutritional -pH, fertility, leaching, organic matter or physical- properties, texture, structure etc) ✓
Temperature ✓
Light intensity ✓
Diseases and pests ✓
Moisture content in the soil ✓ (3)

4.4.2 Height of the crops ✓ (1)

[4]

4.5 **Graph for the variation in fat content**

4.5.1 Holstein breed✓ (1)

4.5.2 Holstein / Ayrshire✓ (1)

4.5.3 Jersey✓ (1)

4.5.4 Difference in performance between individuals in the population / variation between individuals in the population for fat production in milk✓ (1)

[4]

[35]

TOTAL SECTION B: 105

GRAND TOTAL: 150