This memorandum consists of 10 pages.
SECTION A

QUESTION 1

1.1 Multiple-choice questions

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

(10 x 2) (20)

1.2 Column A/Column B

1.2.1 E ✓✓
1.2.2 F ✓✓
1.2.3 C ✓✓
1.2.4 H ✓✓
1.2.5 A ✓

(5 x 2) (10)

1.3 ONE word/term

1.3.1 Business plan ✓✓
1.3.2 Whole farm budget/farm budget ✓✓
1.3.3 Casual ✓✓
1.3.4 Dihybrid ✓✓
1.3.5 Polygenes/multiple genes ✓✓

(5 x 2) (10)

1.4 Change the underlined word

1.4.1 elasticity ✓
1.4.2 land ✓
1.4.3 diminishing ✓
1.4.4 interest ✓
1.4.5 atavism/mutation ✓

(5 x 1) (5)

TOTAL SECTION A: 45
SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT

2.1 Agricultural products

2.1.1 Graph on agricultural products and prices between 2010 and 2011

Marking graph with the following checklist/rubric:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes: 1 Mark</th>
<th>No: 0 Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bar graph</td>
<td>1 ✓</td>
<td></td>
</tr>
<tr>
<td>2 X-axis correctly labelled</td>
<td>1 ✓</td>
<td></td>
</tr>
<tr>
<td>3 X-axis sub topics correctly labelled (only these plant products)</td>
<td>1 ✓</td>
<td></td>
</tr>
<tr>
<td>4 Y-axis correctly labelled and unit</td>
<td>1 ✓</td>
<td></td>
</tr>
<tr>
<td>5 Correctly plotted for 2010/11</td>
<td>1 ✓</td>
<td></td>
</tr>
<tr>
<td>6 Correct heading</td>
<td>1 ✓</td>
<td></td>
</tr>
</tbody>
</table>

(6)

2.1.2 Highest price range:

- White maize ✓ (1)

2.1.3 Trend of crop and animal product prices

- The prices for animal products showed smaller increases/decrease/only lamb with a higher increased ✓ (2)
- Prices for plant products showed large increases over this period ✓
2.1.4 **Wheat prices on poor households**
- Bread price will go up/food becomes more expensive ✓
- Poor households will not afford to buy/affecting poor households badly due to affordability ✓
- More poverty/hunger/malnutrition ✓

(Any 2) (2)

2.1.5 **Measures by the farmer to deal with decreasing pork prices.**
- Improve on the quality of pork produced ✓
- Value adding ✓
- Broaden pork product range ✓
- Quota system/controlled marketing/reduce quantity of pork produced ✓
- Set up a business survival strategy ✓
- More control over demand and supply ✓
- More effective promotion/advertising. ✓
- Better financial management/reduce running costs/production costs/use cheaper rations/reduce expenses ✓

(Any 2) (2)

2.2 **Agribusiness chain**

2.2.1 Chain store ✓ (1)

2.2.2 Miller ✓ (1)

2.2.3 Consumer ✓ (1)

2.2.4 Maize producer ✓ (1)

2.2.5 Miller/chain store ✓ (1)

2.3 **Demand of meat during the Orange Africa Cup of Nations**

2.3.1 **Reaction of farmers**
- Farmers increased their supply as the prices increased ✓
- Continued to supply at high levels ✓

(2)

2.3.2 **TWO factors influencing increased demand**
- Number of consumers/tourists ✓
- Festive period/large sporting event ✓
- Income/buying power of consumers ✓
- Taste and preference of consumers/quality of the meat ✓

(Any 2) (2)

2.3.3 **THREE measures to overcome surplus**
- Processing/value-adding ✓
- Preservation with no value-adding ✓
- Direct marketing ✓
- Lowering of price/special promotions ✓
- Lowering the supply/control the supply ✓
- Dumping ✓
- Exporting ✓

(Any 3) (3)
2.4 Marketing system

2.4.1 Product for free marketing system
- Product A ✓
- Product A shows price fluctuation as a feature of free marketing system ✓

2.4.2 TWO outlets of a free market system
- Consumers/public/farm gate sales/farm stall sales ✓
- Wholesalers ✓
- Retailers ✓
- Factories ✓
- Municipal markets/auctions ✓
- Internet sales ✓
- Export sales ✓

(Any 2) (2)

2.5 Steps in decision making

2.5.1 Steps in correct order
- Identify the problem with regard to its importance ✓
- Analyse possible alternatives ✓
- Evaluate alternatives ✓
- Choose and follow the best solution ✓

(4)

2.5.2 TWO factors influencing effective decision making
- Speed with which decisions are taken/timing of the decisions ✓
- The degree of accuracy with which decisions are taken ✓
- The acceptability of the decision ✓
- Business sense ✓
- Social views/ethics ✓
- Economics ✓
- Profitability ✓
- Environmental sustainability ✓

(Any 2) (2)

QUESTION 3: PRODUCTION FACTORS AND MANAGEMENT

3.1 Implementation of land reform policy

3.1.1 TWO challenges of land reform implementation
- Delays in finalizing claims ✓
- Inappropriate principle of willing buyer willing seller ✓
- Land claim beneficiaries opted for money instead of land ✓
- Lack of support to new beneficiaries on how to farm ✓

(Any 2) (2)

3.1.2 TWO most appropriate land reform programmes
- Redistribution ✓
- Restitution ✓

(2)
3.1.3 THREE reasons for implementing land reform programme

- To correct injustices of the past apartheid era ✓
- To compensate/return land to the rightful owners ✓
- The need for land ownership to also reflect more the composition of the population ✓
- It forms part of the need for Black Economic Empowerment/BEE ✓
- It is part of the transformation initiatives for South African society ✓
- To alleviate poverty in rural communities ✓
- It is a driving force for rural development ✓

(Any 3) (3)

3.1.4 TWO aims of equity scheme

- To improve the working and living conditions of participants ✓
- To improve financial returns of participants ✓
- To increase job security ✓
- To improve tenure security ✓

(Any 2) (2)

3.2 Different farming enterprises

3.2.1 TWO risk management strategies and justification

- Diversification ✓ - the farmer has a number of different enterprises that is, crop, livestock and fodder production in order to spread the risk ✓
- Hedging ✓ - the farmer made future contracts/agreement with supermarket ✓
- Insurance ✓ - the farmer will insure the produce against unforeseen circumstances ✓
- Flexibility/contingency planning ✓ - the farmer will adapt to a crisis in an orderly way ✓
- Effective control and safety measures ✓ - the farmer will ensure that the product is appropriately prepared for the market place ✓
- Value adding/processing ✓ - the farmer can process/value add for a more stable market price ✓

(Any 2) (4)

3.2.2 FOUR management principles

- Planning ✓
- Organisation ✓
- Co-ordination ✓
- Motivation ✓
- Decision making ✓
- Control ✓
- Leadership ✓
- Implementation ✓

(Any 4) (4)
3.3 Family farming enterprise

3.3.1 THREE forms of capital

<table>
<thead>
<tr>
<th>Fixed capital ✓</th>
<th>Movable capital ✓</th>
<th>Working/floating capital ✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land ✓</td>
<td>Tractors/irrigation system ✓</td>
<td>Pesticides/fertilisers/seeds/grants/pension package ✓</td>
</tr>
</tbody>
</table>

(6)

3.3.2 TWO sources of capital for family farming enterprise

- Grant ✓
- Pension pay-out/government pay-out ✓
- Own savings ✓

(Any 2) (2)

3.3.3 The total value of assets:

R189 000,00 – pension/land
+R80 000,00 ✓ – grant/tractor + irrigation + production items
R269 000,00 ✓ (R58 000) (R7 000) (R15 000)

(2)

3.3.4 Net value of enterprise

- the difference between the total value of assets ✓
- and total value of liabilities ✓

(2)

3.4 Labour in farming

3.4.1 TWO characteristics of a permanent farm labourer

- Employed on a long term basis ✓
- Has an employment contract with the farmer ✓
- All the basic conditions of employment are known to the labourer ✓
- Lives mostly on the farm/accommodation on the farm ✓
- Performs daily routine duties/work on the farm ✓
- Shareholders/profit sharing ✓
- Special benefits ✓

(Any 2) (2)

3.4.2 TWO causes of loss of farm labour to industries

- Working conditions/working hours ✓
- Wages/incentives ✓
- Exposure to weather conditions ✓
- Career opportunities for workers ✓

(Any 2) (2)

3.4.3 TWO ways of retaining farm labour

- Better working conditions/reasonable working hours/replacement of part of manual labour by machinery ✓
- Adequate living conditions ✓
- Better wages/incentives ✓
- Motivation/appreciation ✓
- Better education/training/career opportunities ✓

(Any 2) (2)
QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1 Flower

4.1.1 Type of dominance
Incomplete/partial dominance ✓
Motivation - The heterozygous phenotype offspring is an intermediate between the two homozygous parents ✓ (2)

4.1.2 Genotype and phenotype of flower B
Flower B: Genotype – RW(WR) ✓
Phenotype – Pink ✓ (2)

4.2 Dark and white piglets

4.2.1 Phenotype percentage of pair 1 offspring
Pair 1: \( \frac{2}{4} \times 100 \) ✓ = 50% ✓ (2)

4.2.2 Punnet square for genotype of the offspring

<table>
<thead>
<tr>
<th></th>
<th>D</th>
<th>d ✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>DD</td>
<td>Dd ✓</td>
</tr>
<tr>
<td>✓ d</td>
<td>Dd</td>
<td>dd ✓</td>
</tr>
</tbody>
</table>

(4)

4.2.3 Phenotypic ratio
25% white:75% dark Or 1 white:3 dark Or white:darker = 1:3 ✓ Or (vice versa) (1)

4.2.4 Higher demand for white piglets
Pair 1 ✓
Motivation - 50% Or 2 of the offspring will be white ✓ (2)

4.3 Heritability characteristics

4.3.1 Characteristic to select
- Post weaning weight ✓
Motivation - 60% Or the highest heritability, meaning that the characteristic is more likely to be transferred to its offspring/more genetically influenced than environmentally ✓ (2)

4.3.2 Selection for fleece quality to improve the flock
- Not very effective ✓
- It has 17% Or the lowest heritability meaning it is more influenced by the environment/other factors than by genes ✓ (2)
4.3.3 **Calculation of estimated breeding value**

WA = wool production of the animal is 4 kg

WH = wool production of the flock is 3,5 kg

EBV = (WA – WH) x heritability of wool production

- EBV = (4 kg – 3,5 kg) x 0,65
- Or
- EBV = 0,5 kg x 0,65
- = 0,325 kg

(3)

4.4 **Horse, donkey and the mule.**

4.4.1 **Breeding system**
Species crossing

(1)

4.4.2 **Type of animal**
Mule/hinny

(1)

4.4.3 **TWO uses of the mule in farming**

- Used as draught animals for pulling implements/ploughing/working
- To carry loads/transport

(2)

4.5 **Genetically modified organisms**

4.5.1 **Difference in yield**
- 17 t/ha – 11t/ha
- = 6 t/ha

(2)

4.5.2 **The year GMO was introduced**
2012

**Motivation**
Visible /significant change in production/higher production

(2)

4.5.3 **TWO techniques used to develop genetically modified plant**

- Electroporation
- Micro-injection
- Agrobacterium tumefaciens/Agro bacterial transfer
- Gene gun/biolistics
- Recombinant DNA
- Viral carriers

(Any 2)

(2)

4.5.4 **Difference between conventional hybrid seed and GMO seed**

<table>
<thead>
<tr>
<th>Hybrid seed</th>
<th>GMO seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA not altered/Crossing of two in-bred lines (cultivars)</td>
<td>Altered DNA/Genes from another organism are inserted into a cell</td>
</tr>
</tbody>
</table>
4.5.5 **THREE advantages of genetic engineering**

- Faster/rapid results (yield) ✓
- More precise ✓
- Genes used are not limited to the same species ✓
- Increases genetic diversity ✓
- Improves control/management over diseases/pests ✓
- Saves/protects endangered species ✓
- Produces pharmaceuticals/medicines/vaccines ✓
- Food security ✓
- Reduces environmental pollution ✓

(Any 3) (3)

[35]

TOTAL SECTION B: 105

GRAND TOTAL: 150