This memorandum consists of 11 pages
SECTION A

QUESTION 1

1.1 1.1.1 A ✓ ✓
     1.1.2 D ✓ ✓
     1.1.3 B ✓ ✓
     1.1.4 D ✓ ✓
     1.1.5 B ✓ ✓
     1.1.6 D ✓ ✓
     1.1.7 B ✓ ✓
     1.1.8 C ✓ ✓
     1.1.9 A ✓ ✓
     1.1.10 C ✓ ✓ (10 x 2) (20)

1.2 1.2.1 E ✓ ✓
     1.2.2 G ✓ ✓
     1.2.3 J ✓ ✓
     1.2.4 B ✓ ✓
     1.2.5 C ✓ ✓ (5 x 2) (10)

1.3 1.3.1 Elasticity ✓ ✓
     1.3.2 Cash flow ✓ ✓
     1.3.3 Breeding value ✓ ✓
     1.3.4 Epistasis ✓ ✓
     1.3.5 Inbreeding depression ✓ ✓ (5 x 2) (10)

1.4 1.4.1 Processing ✓
     1.4.2 Productivity ✓
     1.4.3 Lipofection ✓
     1.4.4 Co-dominance ✓
     1.4.5 Selection ✓ (5 x 1) (5)

TOTAL SECTION A: 45
SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

2.1 Scenario on marketing

2.1.1 Identification of the marketing functions
(a) Transportation ✓ (1)
(b) Storage ✓ (1)

2.1.2 Economic term for each of the following statements
(a) Packaging ✓ (1)
(b) Cold storage/refrigeration ✓ (1)
(c) Processing/value adding ✓ (1)

2.1.3 TWO advantages of processing agricultural products
- Prevents spoilage/perishability/increases shelf-life of products ✓
- The product is available throughout the year ✓
- Improves food safety by heating to sufficient temperatures ✓
- Easy to transport ✓
- Easy storage ✓
- Adds value to farm products/increases the value of products/higher income for the farmer ✓
- It provides job opportunities ✓
- Reduces wastage of excess produce ✓
- It is a way of overcoming over-supply of products ✓
- It allows for easier packing and handling of products/simplification of products ✓

(Any 2) (2)

2.2 Case study on production of peppers

2.2.1 Farmer who marketed with success
Farmer B ✓ (1)

2.2.2 Reason
- Farmer B sold the produce for a higher price/R8/kg ✓
- The farmer identified/researched consumer needs and therefore sold the produce at a profit ✓
- Farmer worked the costs and is selling at a profit ✓
- Secured future contracts ✓
- No use of a middle man ✓
- Packaging according to consumer needs/preference ✓

(Any 1) (1)

2.2.3 TWO aspects to develop marketing strategy
- Product ✓
- Consumer preference/demand ✓
- Promotion ✓
- Pricing ✓
- Placement/distribution ✓

(Any 2) (2)
2.2.4 **Marketing strategy used by Farmer B**  
- Research ✓  
- Marketing mix ✓ (Any 1) (1)

2.2.5 **TWO benefits of the marketing strategy to the farmer**  
- Sales/market/price are guaranteed ✓  
- No middleman/intermediary ✓  
- Secured a contract for the next season ✓  
- Promotion of products ✓ (Any 2) (2)

2.3 **Price experiment of oranges**  

2.3.1 **Hypothesis**  
- The price of oranges will influence ✓ the demand thereof ✓  
  OR  
- A fall in the price of oranges ✓ will lead to a high demand/profit ✓  
  OR  
- An increase in the price of oranges ✓ will lead to a lower demand/profit/high loss ✓  
  OR  
- Sales of oranges will decrease ✓ with a price increase ✓  
- Sales of oranges will increase ✓ with a price decrease ✓ (2)

2.3.2 **Factor that influenced the demand**  
- Price ✓ (1)

2.3.3 **Explanation of the factor influencing demand**  
- A fall in price of oranges ✓ leads to an increase in demand ✓  
  OR  
- A rise in price of oranges ✓ leads to a decline/decrease in demand ✓ (2)

2.3.4 **Impact of a higher price on profit margins**  
The increase in price ✓ leads to decrease in profit ✓ (2)

2.4 **Analysing the advert**  

2.4.1 **The type of labelling**  
Eco/green labelling ✓ (1)

2.4.2 **TWO reasons for the labelling**  
- Packed in recyclable material/biodegradable ✓  
- Organically produced ✓ (2)

2.4.3 **Justification for environmental friendliness**  
- Packaging on recyclable bags/materials ✓  
- Organically produced ✓ (Any 1) (1)

2.4.4 **Marketing approach to promote the product**  
Sustainable agricultural marketing/green/eco friendly marketing ✓ (1)
2.5 **SWOT Analysis**

2.5.1 **Linking statements with SWOT analysis**
- A - Strength ✓
- B - Opportunity ✓
- C - Weakness ✓
- E - Threat ✓

2.5.2 **How strengths/opportunities can improve the farming enterprise**
- The farmer can take an advantage of a land with access to irrigation/assistance of extension officer/financial assistance from Land bank (strength) ✓
- Demand for baby carrot (opportunity) ✓

2.6 **THREE personal characteristics of a successful entrepreneur**
- Leadership ✓
- Motivation ✓
- Self confidence ✓
- Commitment ✓
- Hard working/energetic ✓
- Perseverance ✓
- Market driven ✓
- Innovative/creativity ✓
- Positive attitude ✓
- Risk taking ✓
- Dynamic/flexibility ✓
- Success driven ✓
- Responsibility ✓
- Communication ✓
- Visionary/goal orientated ✓

(Any 3)

[35]
QUESTION 3: PRODUCTION FACTORS

3.1 Land as a production factor

3.1.1 Bar graph on population size and area of land over time

![Population size and available arable land over six decades](image)

**Criteria/rubric/marking guidelines**
- Correct heading
- Y-axis: Correctly calibrated and labelled (population size and available arable land)
- X-axis: Correctly calibrated and labelled (years)
- Correct units (millions and hectares)
- Bar graph
- All criteria presented correctly (6)

3.1.2 The economic characteristic of land
Land for agricultural purposes is limited/limitedness (1)

3.1.3 The impact of the limitedness of land on production
Increasing population is putting more pressure on the limited land resulting in a decrease in production

OR
The higher the population size
The lesser the arable land/production

OR
The lower the population size the more the arable land/production

OR
The more the arable land the more the production

OR
The lower the arable land the less the production (2)
3.1.4 **TWO measures to improve productivity of land**
- Development of disease-resistant cultivars and breeds ✓
- Knowledge on the wise use of fertilisers/pesticides ✓
- Appropriate use of land/better care of agricultural land ✓
- Adapting to/use of scientific methods/use of technology to improve yields ✓
- Increased knowledge on agricultural education/precision farming ✓
- Consolidation of uneconomic units ✓
- Mechanisation ✓
- Diversification ✓
- Adapting to appropriate policies/legislation ✓
- Water provision/management ✓

(Any 2) (2)

3.2 **Labour contract**

3.2.1 **Employee with unfair conditions of service**
Employee B ✓

(1)

3.2.2 **Justification**
- Long working hours/12 hours of work per day ✓
- Insufficient payment for work on Sunday/public holiday/R200 per day instead of R240 ✓
- Leave days not according to stipulation of legislation/10 days leave in 3 years ✓

(Any 2) (2)

3.2.3 **TWO labour legislation that could be used by employee**
- Labour Relations Act ✓
- Basic Conditions of Employment Act ✓

(2)

3.3 **Methods to increase labour productivity**

3.3.1 Physical planning of infrastructure/physical farm planning ✓

(1)

3.3.2 Training/skills development ✓

(1)

3.3.3 Adequate living/environmental conditions ✓

(1)

3.3.4 Mechanisation ✓

(1)
3.4 Cash flow budget statement

3.4.1 Mini cash flow budget

<table>
<thead>
<tr>
<th>Costs incurred</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>R4 000</td>
</tr>
<tr>
<td>Chicken feed</td>
<td>R7 000</td>
</tr>
<tr>
<td>Electricity</td>
<td>R2 500</td>
</tr>
<tr>
<td>Other costs</td>
<td>R1 500</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>R15 000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs/broilers sold/week</td>
<td>R10 000/R60 000</td>
</tr>
<tr>
<td><strong>Net cash/week</strong></td>
<td><strong>– R5 000/R45 000</strong></td>
</tr>
</tbody>
</table>

(4)

3.4.2 Net cash income for the month

- Egg income per week + broiler income per month – costs per month
- \( R10 000 \times 4 \) + R50 000 = R90 000 – (R15 000 \times 4) = R30 000

(3)

3.4.3 Business net worth based on the weekly cash flow

- Business cash flow per week is negative/positive (– R5000/R45 000)
- Cash flow cannot be used to determine the net worth or income of a business/cash flow maybe restricted at a particular time even when business is profitable

(2)

3.5 Problem associated with capital

3.5.1 Over- capitalisation

(1)

3.5.2 Risk factor/uncertainty

(1)

3.5.3 Scarcity of capital/interest rates

(1)

3.5.4 Depreciation

(1)

3.6 Management principle

3.6.1 Planning/decision making

(1)

3.6.2 Control

(1)

[35]
QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1 Crossing of a black-faced ram and white-faced ewe

4.1.1 Genotype of parent B
bb ✓

4.1.2 Indication whether parents are homozygous or heterozygous
Homozygous ✓

4.1.3 Reason
Parents have same alleles for a gene/pure bred ✓

4.1.4 Identification of the phenotype in the F₂ generation
- F: black-faced ✓
- G: black-faced ✓
- H: white-faced ✓

4.1.5 Indication of the genotypic and phenotypic ratio in F₂ generation
- Genotypic ratio 1:2:1 ✓
- Phenotypic ratio 3:1/3 black:1 white ✓

4.2 Estimated breeding values

4.2.1 Characteristic to select for in Bonsmara and Boer goat
Bonsmara - Meat tenderness ✓
Boer Goat - Post weaning weight ✓

4.2.2 Justification
The heritability of both characteristics is greater than 50%/controlled more by genes ✓✓

4.2.3 TWO reasons for not selecting for birth, fleece and lean meat
- Heritability is less than 50% ✓
- Characteristics will be more influenced by the environment/less controlled by genes ✓

4.3 Indication of the environmental factors causing variation

4.3.1 Light intensity/temperature/climate ✓

4.3.2 Feeding/nutrition ✓

4.3.3 Topography/relief/terrain ✓

4.3.4 Climate/low temperature ✓
4.4 Polygenic inheritance

4.4.1 Production of leghorn with BbGgkk genes
- B = 5 eggs ✓
- G = 5 eggs ✓
- 5 + 5 + 60 = 70 eggs ✓

4.4.2 Genotypes resulting in 90 eggs
BBGGKK ✓

4.4.3 Type of inheritance
Polygenic/quantitative ✓

4.5 Breeding heifers

4.5.1 Appropriate term for the phenomena represented by the data
Continuous variation/normal distribution/biometrics ✓

4.5.2 Number of heifers if 12% is selected
- Total :10+15+20+30+40+60+75+65+45+35+15+10+5 = 425 ✓
- 12% (0,12) x 425 ✓
- = 51 heifers ✓

4.5.3 Mass of the average animals
Average mass = 140 kg ✓

4.5.4 Farmer's intention
(a) Heifers with highest live mass
Selection for breeding purposes ✓
(b) Heifers with lowest live mass
Cull/slaughter/sell ✓

4.6 Techniques to genetically modify tomatoes

4.6.1 Technique
Genetic modification/engineering/manipulation/micro-injection ✓

4.6.2 TWO advantages of GM/micro-injection to the farmer
- Better yield/harvesting ✓
- Increased shelf life/storage ✓
- Improved quality/increased nutritional value/value adding ✓
- Increased resistance to diseases/insects/pests ✓
- Resistance to harsh conditions/drought ✓ (Any 2)

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4.6.3 **TWO socio-economic effects of food from genetically modified plants to the farmer**

- Small scale and poor farmers cannot afford GM crops/GM crops are expensive ✓
- A farmer is not allowed to re-use seeds from GM crops ✓
- The farmer may not use some seeds as they are sterile ✓
- Some consumers will not buy from the farmer due to ethical concerns ✓
- It encourages monopoly which does not allow small companies to develop/favours the producers and encourages exploitation of emerging farmers ✓

(Any 2) (2)

[35]

**TOTAL SECTION B:** 105

**GRAND TOTAL:** 150