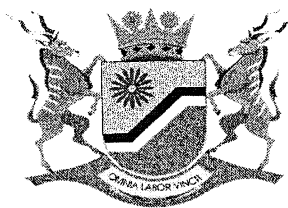


MPUMALANGA PROVINCIAL GOVERNMENT



DEPARTMENT OF EDUCATION

GRADE 12

AGRICULTURAL SCIENCES P2

PREPARATORY EXAMINATION 2009

MEMORANDUM

MARKS: 150

This memorandum consists of 8 pages.

SECTION A**QUESTION 1.1**

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

(10 x 2) (20)

QUESTION 1.2

1.2.1	G✓✓
1.2.2	F✓✓
1.2.3	H✓✓
1.2.4	I✓✓
1.2.5	A✓✓

(5 x 2) (10)

QUESTION 1.3

- 1.3.1 Silage✓✓
 1.3.2 75%✓✓
 1.3.3 Entrepreneurship✓✓
 1.3.4 Mutation/genetic engineering✓✓
 1.3.5 Cloning✓✓

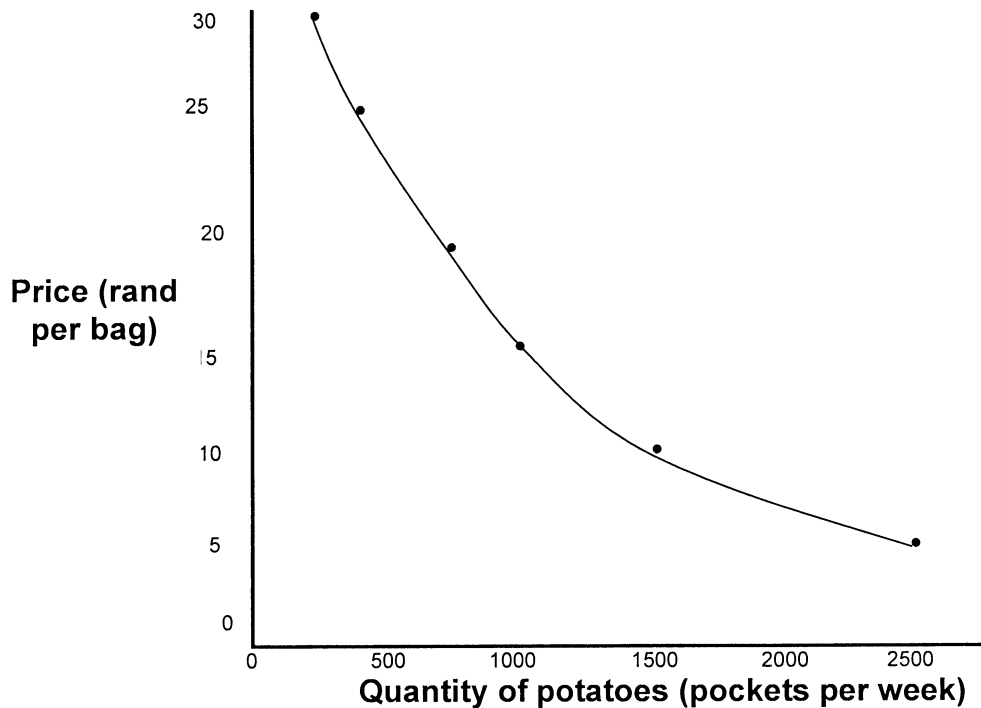
(5 x 2) (10)

QUESTION 1.4

- 1.4.1 Fixed capital (1)
 1.4.2 Pool ✓ (1)
 1.4.3 Seasonal ✓ (1)
 1.4.4 Dihybridism ✓ (1)
 1.4.5 Exotic ✓ (1)

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2****2.1 Demand ,Supply and Price****2.1.1 Graph for different prices and quantities of potatoes sold**

Mark graph with the following checklist:

Criteria	Yes: 1	No: 0
1. line graph		
2. axes are labelled		
3. points are plotted accurately		
4. units are indicated		
5. values and correct headings		
6. correct measured distances		

(6)

2.1.2 R 5-00 ✓ – because 2 500 pockets were bought by consumers ✓

(2)

2.1.3 Less demand leads to low price ✓
More demand leads to high price ✓

(2)

2.2 Marketing of tomatoes

2.2.1 Introducing another crop/cultivar ✓
Increase the price ✓

(2)

2.2.2 Stimulate the farmer to produce more in the next season ✓
loss of profit ✓ (2)

2.2.3 Introducing/adapting irrigation system ✓
fertilisation ✓
soil analysis ✓
soil cultivation ✓ (Any 2)
adjusting planting space/ (2)

2.3 Soil as a production factor

2.3.1 Soil is subject to the law of diminishing return ✓✓ (2)

2.3.2 The yield increases constantly ✓✓ (2)

2.3.3 The production does not increase at the same rate between
10 – 15 as is 5 – 10 quantities ✓✓ (2)

2.3.4 Applying crop rotation ✓
Mulching ✓
Addition of organic material ✓
Scheduled irrigation/water provision ✓ (Any 2) (2)

2.4 Free marketing of agricultural products

2.4.1 Directly to consumers ✓
Food processing factories ✓
Wholesalers ✓
Retailers ✓
Through intermediaries ✓ (Any 2) (2)

2.4.2 Surplus/shortage/quantity ✓
Real income of consumers ✓ (2)

2.4.3 Average prices guaranteed ✓
Protects against variation ✓
More time for farming activities ✓
Direct contact with consumers/Feedback from consumers ✓ (Any 2) (2)

2.5 Business planning/diversification

2.5.1 Wood industries/paper factories/ (1)

2.5.2 Equipment ✓
Transport ✓
Workers ✓
Clothing ✓ (Any 2) (2)

- 2.5.3 Employment and better salary ✓ (2)
[35]

QUESTION 3

3.1 **Case study: natural resources**

- 3.1.1 Aspects to be investigated
 • Slope ✓
 • Soil texture ✓
 • Soil depth ✓
 • Rockiness ✓
 • Erosion ✓
 • Availability of water for irrigation ✓ (Any 3) (3)
- 3.1.2 Negative impacts on the environment
 Water contamination with agro chemicals and fertilisers, soil erosion ✓
 Salination of soil from irrigation ✓ (2)
- 3.1.3 They may not care about the land , because it doest not belong to them ✓ (1)
- 3.1.4 Conservation of Agric Resources Act of 1983 (CARA) ✓
 National Water Act of 1998 ✓
 National Veld and Forest Fire Act of 1998 ✓
 Suitable Utilisation of Agric Resources Bill of 2000 ✓ (Any 2) (2)

3.2 **Production factors**

- 3.2.1 (a) A ✓ (1)
 (b) C ✓ (1)
 (c) D ✓ (1)
- 3.2.2 E ✓ – labour ✓ (4)
 F ✓ - land ✓
- 3.2.3 Land/F ✓ – land cannot be replaced ✓ (2)

3.3 **Farm labour**

- 3.3.1 Working hours ✓
 Leave ✓
 Payment/remuneration ✓ (3)

- 3.3.2 Seasonal workers are employed to do repetitive tasks on a farm such as harvesting/shearing and are released after completion of the task ✓✓
Casual workers are employees engaged temporarily throughout the year and carrying out a single task(fencing, building) ✓✓ (4)

- 3.3.3 HIV/Aids results in loss of skills and experience, hence drop in agricultural production ✓✓ (2)

3.4 Intensive sheep farming enterprise

- 3.4.1 Fixed cost – cost that is incurred regularly/constant(rent) ✓ (2)
Running cost – cost incurred occasionally/related to production output/fluctuates(production costs)✓

3.4.2
$$\text{Total cost for 10 000} = \frac{\text{R}220\,000}{\text{R}3\,022\,000} \times \frac{100}{1} = 7,2\%✓$$

$$\text{Total cost for 20 000} = \frac{\text{R}220\,000}{\text{R}6\,220\,000} \times \frac{100}{1} = 3,5\%✓$$

$$\text{Total cost for 30 000} = \frac{\text{R}220\,000}{\text{R}9\,220\,000} \times \frac{100}{1} = 2,3\%✓$$
 (3)

- 3.4.3 The percentage of fixed costs decreased the more the number of sheep in the feedlot increased✓ (1)

3.4.4
$$\begin{aligned} \text{Total cost:} &= \text{R}6000\,000 + \text{R}220\,000 = \text{R}6\,220\,000✓ \\ \text{Income} &= 20\,000 \text{ sheep} \times 350 = \text{R}7\,000\,000✓ \\ \text{Profit} &= \text{R}7\,000\,000 - \text{R}6\,220\,000 = \text{R}780\,000✓ \end{aligned}$$
 (3)
[35]

QUESTION 4

4.1 Schematic representation of genotypes

- 4.1.1 Female (AA) ✓ (2)

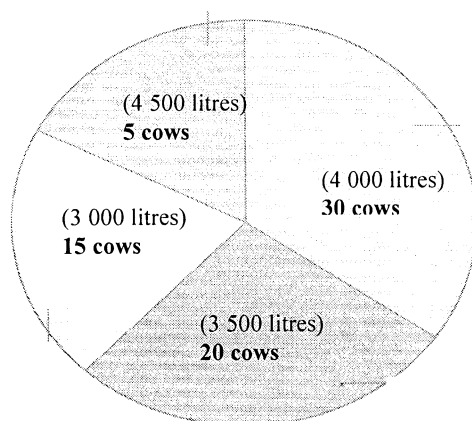
- 4.1.2 Somatic cells are diploid(double number of chromosomes) ✓
Reproductive cells are haploid(single chromosome/reduced) ✓ (2)

- 4.1.3 25% homozygotic(dominant) ✓
75% heterozygotic/
25% homozygotic(recessive) ✓ (3)

- 4.1.4 Recessive trait does not appear in the phenotype(physical appearance) ✓
Dominant trait appears in the phenotype(physical appearance) ✓ (2)

4.2 Average milk yield

4.2.1



Mark graph with the following checklist:

Criteria	Yes: 1	No: 0
1. pie graph		
2. charts are labelled		
3. chart divided accurately		
4. percentages indicated		
5. correct headings		
6. correct litres indicated		

(6)

- 4.2.2 All cows with average and above average milk yield ✓✓ (2)
4.2.3 4 000 litres ✓ (1)
4.2.4 Continuous variation ✓ (1)

4.3 Broiler production

- 4.3.1 Temperature ✓
Diseases ✓ (2)
4.3.2 Growth rate – directly linked to production output/income ✓✓ (2)
4.3.3 Manipulates growth/leads to accelerated growth ✓✓ (2)

4.4 Cattle breeding

- 4.4.1 Cross breeding/ (1)
- 4.4.2 Develop new breeds ✓
Adapt better in varying conditions/better vitality ✓
More resistance to diseases ✓
Gain in mass in relation to food intake ✓
Leads to heterosis ✓ (Any 2) (2)
- 4.4.3 He may make money by selling bulls/sell to farmer A/ (1)

4.5 Genetically modified crops

- 4.5.1 In 2002/ – there was sharp decrease production/yield ✓ (2)
- 4.5.2 Unexpected long term effects on food ✓
Unfavourable environmental impact ✓
Socio-economic concerns/expensive ✓ (Any 1) (1)
- 4.5.3 More productive ✓
Reduce the need for chemicals ✓
Resistance to herbicide ✓
Tolerant /adapt to conditions ✓
Better flavour, colour, texture and nutritional value ✓ (Any 3) (3)
- [35]**

TOTAL SECTION B: 105**GRAND TOTAL: 150**