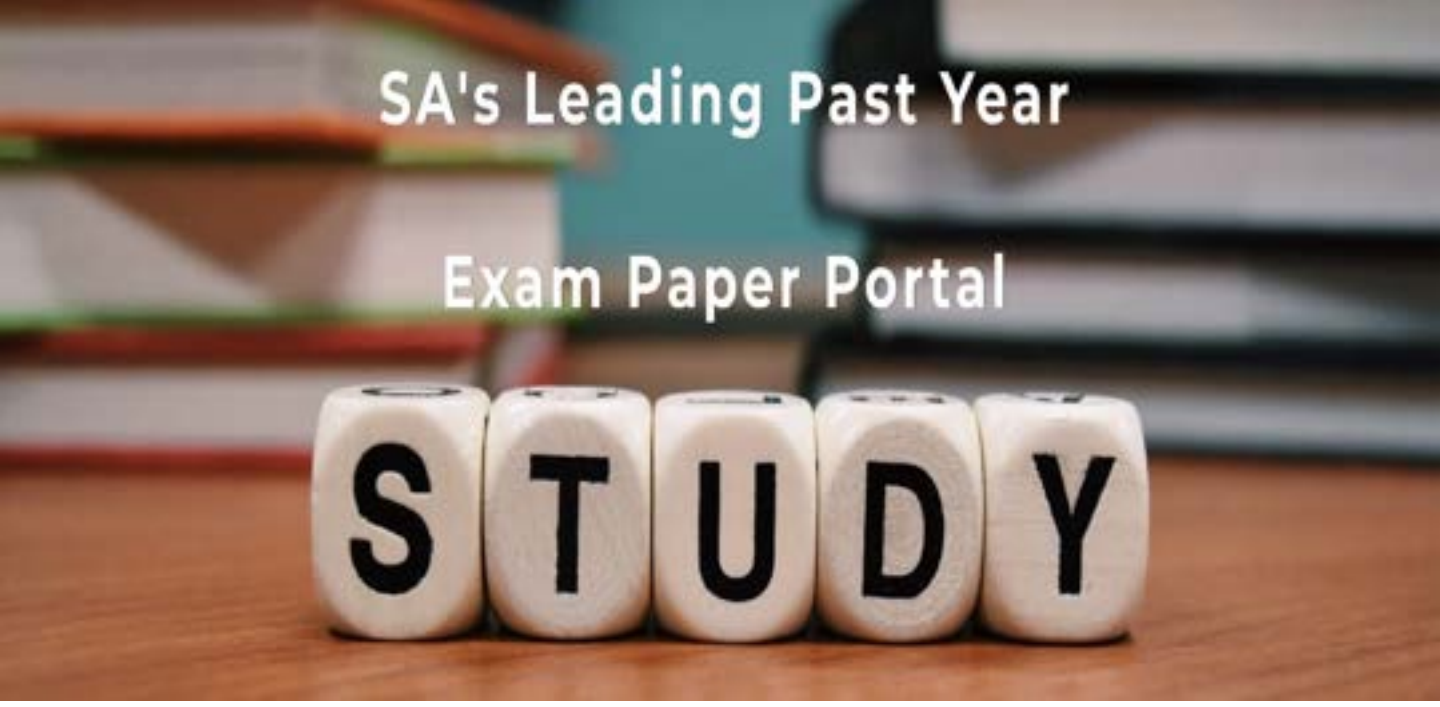

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GRADE 12

AGRICULTURAL SCIENCES P2

FEBRUARY/MARCH 2012

MEMORANDUM

MARKS: 150

This memorandum consists of 8 pages.

SECTION A

QUESTION 1.1

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

(10 x 2) (20)

QUESTION 1.2

1.2.1	**J✓✓**
1.2.2	**H✓✓**
1.2.3	**G✓✓**
1.2.4	**A✓✓**
1.2.5	**I ✓✓**

(5 x 2) (10)

QUESTION 1.3

1.3.1 Savings/Own capital ✓✓

1.3.2 Motivation ✓✓

1.3.3 Epistasis ✓✓

1.3.4 Homogenous ✓✓

1.3.5 Genetic modification/ manipulation/engineering ✓✓

(5 x 2) (10)

QUESTION 1.4

1.4.1 Market ✓

1.4.2 Storage ✓

1.4.3 Movable/medium-term ✓

1.4.4 Tenure reform ✓

1.4.5 Hybrid vigour/Heterosis ✓

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2

2.1 Income statements of two farmers

2.1.1 Farmer A has more profit than farmer B ✓

Farmer A Profit: = Income – Expenditure
= R240 000-118 000✓
= R122 000 ✓

Farmer B Profit: = Income – Expenditure
= R180 000 – 136 000✓
= - R44 000 ✓ (5)

2.1.2 Herbicides ✓
Labour ✓ (2)

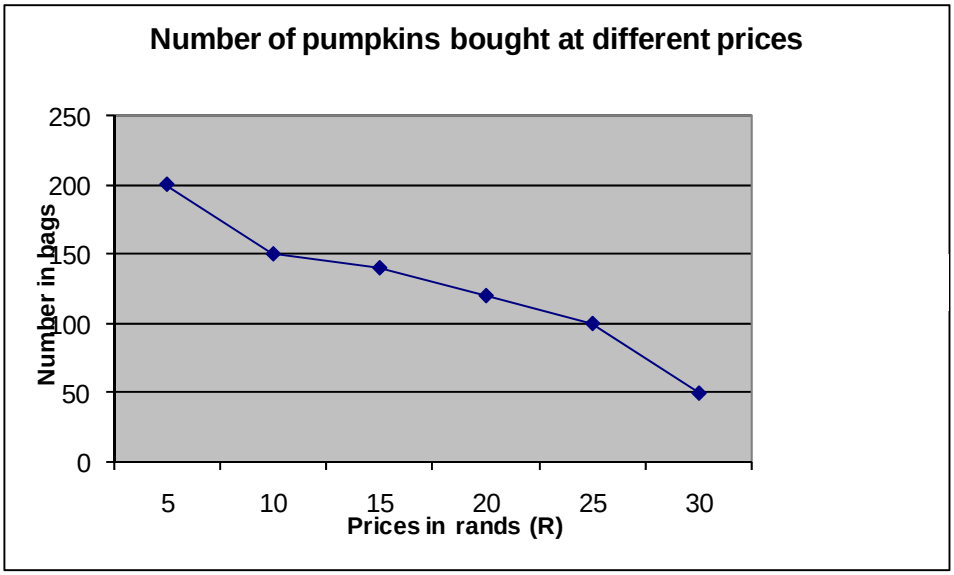
2.1.3 Herbicides:
- Make use of organic farming✓✓
- Companion cropping✓✓
- GM products✓✓ (Any 1) (2)

Labour:
- Switching to mechanisation ✓✓
- Labour numbers decrease by increasing productivity by physical planning ✓✓ (Any 1) (2)

2.2 Supply and demand

2.2.1 Factors determining the establishment of prices
- Supply✓
- Demand✓ (1)

2.2.2



Checklist for marking

Criteria	No evidence(0)	Evidence(1)
Heading	0	1
Labelled X axis	0	1
Labelled Y axis	0	1
Correct quantities	0	1
Correct prices	0	1
Line graph	0	1
Total		6 marks

(6)

2.2.3 R5,00✓
200 bags of pumpkins were sold/200 bags is the largest number✓ (2)

2.3 **Marketing strategies of emerging bee-keepers.**

2.3.1 **Product – The farmer must consider the following points**:
- Quality of the product✓
- Design of packaging the product✓
- The size of the product✓
- The variety of the product✓
- The brand/commercial name✓ (Any 3) (3)

2.3.2 **Placement – The farmer must consider the following points**:
- This is the process of distributing the product from one point to the other ✓
- This requires transportation, storage and refrigeration of the product. ✓
- The control of movement of goods is called logistics✓ (Any 2) (2)

2.4 **Change in equilibrium price and the demand curve.**

2.4.1 Equilibrium A: demand low✓
Equilibrium B: demand high✓

OR

The demand curve will ascend(increase)/demand for an agricultural food product will increase/more agricultural food product ✓ will be demanded✓ (2)

2.4.2 There is always a demand for an agricultural food product /people will always demand food/the demand for food✓ will always be high✓ (2)

2.4.3 The supply of an agricultural food product will descend/ decrease ✓✓ (2)

2.5 **Four steps for reducing and preventing flood damage in the future**.
- Ensure that there is a good understanding of past trends in rainfall patterns and flooding in that area.✓
- Test new production enterprises that are not more vulnerable to flood damage. ✓
- Manage enterprises in such a way to reduce risks.✓
- Take out an insurance against natural disasters (flooding).✓ (4)

[35]

QUESTION 3

3.1 **Scenario**

3.1.1 **TWO examples of floating capital**
- Vegetable seeds✓
- Fertilisers✓
- Insecticides✓
- Tools✓ (Any 2) (2)

3.1.2 Temporary labourers✓ – they were occasional labourers ✓ (2)

3.1.3 Loan/credit✓ (1)

3.1.4 **TWO ways to increase the productivity of the land**
- Increase the size of the vegetable garden/combining land into a more economic unit ✓
- Bought seeds/Adapt scientific methods of farming✓
- Effective use of capital/money ✓
- Water provision/irrigating the soil/supply irrigation system ✓ (Any 2) (2)

3.1.5 **FOUR components of successful management**
- Planning✓
- Control✓
- Decision making✓
- Motivation✓
- Organisation and co-ordination✓ (Any 4) (4)

3.1.6 **Differences between medium and short-term credits**

Medium-term credit:
- The interest rate is relatively high and
- the loan can be paid back within 10 years✓
- e.g. Machinery, greenhouse✓ (Any 2)

Short-term credit:
- The interest rate is very high and✓
- the loan can be paid back in less than 2 years✓
- This finance is required to purchase fuel, fertilisers and goods✓ (Any 2) (4)

3.2 **Work plan for rearing sheep**

3.2.1 **TWO duties requiring permanent workers**
- Herding✓
- Dipping✓
- Dosing✓ (Any 2) (2)

3.2.2 **FOUR ways to improve living conditions of workers**

- Adequate housing✓
- Adequate food and clothing✓
- Adequate recreation facilities✓
- Adequate leave✓
- Adequate wages, pension and bonus schemes✓
- Education and training possibilities✓ (Any 4) (4)

3.2.3 It is a seasonal activity/it only occurs at a particular season/done✓ in October✓ (2)

3.2.4 **TWO techniques of managing potential risks**

- Provision of shelter for protection against extreme conditions✓
- The farmer needs to find out whether climatic disasters is a common occurrence in the area (looking at historical data)✓
- Use a breed of sheep that is more adaptable to extreme climatic conditions prevalent in the area ✓ (Any 2) (2)

3.3 **Financial record keeping**

3.3.1 **Importance of keeping financial records**

Financial record keeping allows the farmer to analyse past and present (current) performance of the business/allows the farmer to plan✓ the future of the business. ✓ (2)

3.3.2 **Implication of overcapitalisation**

- When too much money is borrowed to invest in farming✓, a high interest rate may make the farm unprofitable✓
- Additional capital is not fully utilised✓ as a result; there is no value for money. ✓ (Any 1 x 2) (2)

3.3.3 **Use of farm assets as collateral**

The bank will only give credit when there is security✓, hence farm assets will act as security. ✓ (2)

3.4 **Labour problems**

3.4.1 **TWO ways to solve the lack of training**

- Enrol labourers for skills development✓
- Organise short-term courses for labourers✓
- Allow labourers to specialise in certain tasks✓ (Any 2) (2)

3.4.2 **TWO ways of motivating farm labourers no to go to industries**

- Provide financial incentives/performance rewards✓
- Provide adequate living conditions (adequate housing, food, recreation facilities, wages, pension, bonus, leave, medical aid, training possibilities✓
- Appreciation for work done✓ (Any 2) (2)

[35]

QUESTION 4

4.1 Breeding possibilities

4.1.1
(a) bb✓
(b) Bb✓
(c) bb✓
(d) Bb✓ (4)

4.1.2 50%✓✓ (2)

4.2 GMO crop

4.2.1 **Explanation of the technique**
- DNA is extracted from *Bacillus thuringiensis* ✓
- DNA is transferred to a maize plant/GMO plant ✓
- Different techniques are utilised to transfer the DNA ✓
- The GMO maize plant acquires resistance to maize stalk borer✓ (4)

4.2.2 **Benefits of GM crops**
- More productive with higher yields✓
- Resistant to pests and diseases hence reduce the use of chemicals✓
- Tolerant to harsh conditions✓
- Longer shelf life and better properties✓
- Better flavour, colour, texture and nutritional value✓
- Cheaper and more plentiful food ✓ (Any 3) (3)

4.2.3
- Possible spread of genes from GM crops into other wild plants e.g. creation of herbicide-resistant super weeds ✓
- Beneficial insects as well as pests could be killed ✓ (2)

4.3 Cloning

4.3.1
- No gametes fuse in the process of cloning ✓
- but cloning is the production of an individual natural fertilisation✓
- which is genetically identical to the one from which it was produced✓
- without organisms mating/both male and female animal involved ✓ (Any 2) (2)

4.3.2
- The manipulation of an ovum of an animal where the nucleus is removed✓
- and added into the egg cell with nucleus of the animal to be cloned✓
- embryo is implanted into the womb/uterus of a surrogate mother✓- developing embryo contains genetic material of the donor✓
- clone animal is produced✓ (Any 4) (4)

4.3.3 Farmers will be able to produce animals which are identical✓ to those they already have and prefer✓ (2)

4.4 **TWO desirable selection characteristics of livestock**
- Diseases and pest resistance✓
- Tolerance to extreme temperatures✓
- High feed conversion rate✓
- High fertility/fecundity✓ (Any 2) (2)

4.5 Breeding systems

4.5.1 **Suitable animal breeding system**
- Cross breeding ✓
- Substantiation –there are two breeds✓
- that are involved viz. Nguni and Brahman ✓ (3)

4.5.2 **Three advantages of cross breeding**
- Development of new breeds✓
- Hybrid vigour (heterosis) is accompanied by:
  - Greater meat production✓
  - Greater viability✓
  - Greater disease-resistance✓
  - Better motherly instincts✓
  - Fast growth rates✓
  - Increased fertility✓
  - Better food conversion✓
  - Better adaptation to environmental conditions✓ (Any 3) (3)

4.5.3 **Motivation of Brahman as a superior breed to the Nguni**
- Produce good heavy, early weaners✓
- Big breed compared to the small Nguni breed/taller – height and weight ✓
- Grow fast in feedlots✓
- Hardy and resistant to diseases✓ (Any 3) (3)

4.5.4 **ONE traditional value of the cattle amongst the Xhosa community**
- Old and devalued cows are slaughtered for traditional ceremonies✓ (1)

[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150