

## AGRICULTURAL MANAGEMENT PRACTICES

Time: 3 hours

200 marks

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### **PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY**

1. This question paper consists of 11 pages and an Answer Sheet of 3 pages (i–iii). Detach the Answer Sheet from the centre of the question paper and ensure that it is handed in together with the Answer Book.
  2. Answer ALL the questions.
  3. This question paper consists of TWO sections:  
Section A must be answered on the attached Answer Sheet.  
Section B must be answered in the Answer Book, except for Question 3.1.1 and Question 3.2, which must be answered on the Answer Sheet.
  4. Read ALL the questions carefully and make sure that you answer only what is asked.
  5. Start EACH question on a NEW page.
  6. Number the answers as the questions are numbered in the question paper.
  7. Non-programmable calculators may be used.
  8. ALL calculations must be rounded off to TWO decimals unless stated otherwise.
  9. It is in your own interest to write legibly and to present your work neatly.
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**SECTION A****QUESTION 1**

1.1 Various options are provided as possible answers to the following questions. Choose the answer and make a cross (X) in the block (A–D) next to the question number (1.1.1–1.1.10) on the attached Answer Sheet.

1.1.1 One of the following features listed below is NOT recorded in a soil map.

- A Soil temperature
- B Soil structure
- C Soil pollution
- D Soil depth

1.1.2 The amount of moisture that the soil can retain after rainfall or irrigation is known as ...

- A drainage.
- B soil water.
- C water holding capacity.
- D cation exchange capacity.

1.1.3 The most important factor affecting the choice of a farming enterprise is ...

- A the climatic conditions on the farm.
- B the availability of labour.
- C the condition of the roads on the farm.
- D the natural vegetation found on the farm.

1.1.4 A beef cattle farmer, who breeds weaner steers, finishes the steers in a feedlot on the farm and then slaughters them in a small abattoir on the farm. This is an example of ...

- A horizontal integration.
- B co-operative farming.
- C vertical integration.
- D controlled marketing.

1.1.5 One of the following reflects the daily flow of money in a farming enterprise.

- A The budget.
- B The balance sheet.
- C The income statement.
- D The cash flow statement.

1.1.6 The Occupational Health and Safety Act, 1993 (Act 85 of 1993) states that every worker must ...

- A receive training to improve their skills.
- B be provided with appropriate protective clothing and equipment.
- C be treated humanely during work hours.
- D be paid according to the minimum wage guidelines.

1.1.7 This is the amount of product that a farmer has to sell to cover all costs.

- A Break-even point
- B Supply and demand
- C Market equilibrium
- D Gross margin

1.1.8 The following shows a typical example of a seasonal worker.

- A A worker who is employed to perform shearing and wool classing duties during the annual sheep shearing.
- B A worker who is employed to build a new shed and then leaves the farm.
- C A worker who is responsible for daily feeding of cattle and sheep.
- D A worker who assists with the maintenance of farm equipment throughout the year.

1.1.9 The following is NOT a valid reason for dividing grazing land into camps.

- A For effective management of the grazing.
- B To utilise leftover fencing materials.
- C To allow for portions of the grazing to be rested for a period.
- D To group homogenous areas of grazing.

1.1.10 One of the following is NOT a function of agricultural marketing.

- A Application of fertiliser
- B Advertising
- C Transport
- D Processing

(20)

- 1.2 Choose a description from COLUMN B that matches a term in COLUMN A. Write only the letter (A–M) next to the question number (1.2.1–1.2.10) on the attached Answer Sheet, for example 1.2.11 N. Each description in COLUMN B may be used only ONCE.

<b>COLUMN A</b>	<b>COLUMN B</b>
1.2.1 Mechanisation	A A type of farming system that is practised on a restricted area of land with high input costs.
1.2.2 Agritourism	
1.2.3 Moveable capital	B Chemical substance that increases nutrients in the soil.
1.2.4 Producer organisation	C Assets that are transportable, such as livestock.
1.2.5 Sourveld	D A mechanism that can be used by farmers to reduce risk in the farming operation.
1.2.6 Long-term credit	E An entity that supports the farmer through research for a specific production enterprise.
1.2.7 Fertiliser	F The situation in the market where the demand in the market is exactly equal to the supply in the market.
1.2.8 Market equilibrium	
1.2.9 Insurance	G A type of credit used by a farmer to purchase seed and fertiliser required to establish the next crop.
1.2.10 Extensive farming	H A type of farming system that is practised on a large area of land with minimal input costs.
	I Type of natural grazing generally found in high summer rainfall regions and that has limited nutritional value, especially in winter.
	J A type of credit used by a farmer to purchase land and to make fixed improvements that require high capital investment.
	K The partial replacement of labour by capital investment in machinery.
	L A farming enterprise that accommodates people visiting the farm to expose them to agricultural activities.
	M Type of natural grazing found in lower summer rainfall regions and that has high nutritional value throughout the year.

(20)

1.3 Give the CORRECT agricultural term for each of the following descriptions. Write only the term next to the question number (3.1–3.10) on the attached Answer Sheet, for example 1.3.11 Manufacturing.

- 1.3.1 A process whereby food is heated to a specific temperature for a short time to destroy most microorganisms that could cause food spoilage.
- 1.3.2 The loss or decline in value of assets such as vehicles, machinery and tools that is caused by age, wear and tear.
- 1.3.3 A financial statement that indicates the profit/loss made by an agricultural enterprise during a certain period.
- 1.3.4 A written acknowledgment of having received a specified amount of money or goods
- 1.3.5 Grass banks strategically placed on sloped arable fields to prevent soil erosion.
- 1.3.6 A list of all the general ledger accounts (both revenue and capital) contained in the ledger of a business.
- 1.3.7 A complete list of items on a farm such as raw materials, equipment and goods in stock.
- 1.3.8 A list of goods sent or services provided, with a statement of the sum due for these.
- 1.3.9 An estimate of expected income and expenditure for a farm business for a specific period.
- 1.3.10 The farming cost that constitutes the portion of the total cost which remains unchanged for a specific production process, regardless of whether more or fewer products are produced. (10)

<b>50 marks</b>
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**SECTION B****QUESTION 2 FARM PLANNING (PHYSICAL AND FINANCIAL)**

- 2.1 Read the article titled "**You can't succeed without mistakes**", then answer the following questions.

**You can't succeed without mistakes**

Marriam Mulungu has faced many challenges and made huge mistakes in her farming career – but that's the only way to learn, she says.

Marriam Mulungu (42), the 2010 Gauteng Entrepreneur of the Year, says she inherited her love of farming from her 82-year-old mother.

As a young girl, Marriam helped her mother harvest maize on a small plot on the outskirts of Mamelodi, Pretoria. "My parents are originally from Polokwane, where they were subsistence farming" recalls Marriam.

Currently, Marriam produces about 5 600 eggs/day, which she markets through Nathoo Supermarket in Bronkhorstspruit, Mpumalanga. Every morning she collects, cleans and sorts the eggs according to size. She packs them according to the supermarket's specifications and delivers the eggs to the store, right on time.

**Getting started**

When Marriam began farming, she decided to start with pigs, but she didn't do her research. Using her savings, she bought a small 2 ha farm in Nootgedacht outside Bronkhorstspruit in 2003.

Her first embarrassing mistake occurred while stocking the farm – she bought 10 sows and 10 boars, instead of one boar for all the sows. Marriam sold nine of the boars and started breeding with one.

However, she hadn't done any environmental impact studies. The farm was too close to town and she had to move. Also, because her land wasn't properly fenced, her pigs roamed freely, with some giving birth on neighbouring farms. In 2005 she bought a 2 ha plot further away from Bronkhorstspruit, in Durley on the way to Witbank.

Because her operation was growing, she applied for a bigger farm through the Proactive Land Redistribution Strategy in 2006. A year later, she was granted the 175 ha farm she currently occupies.

**More mistakes**

"When I moved here, I had so many challenges," recalls Marriam. The farm was originally a broiler farm, so she decided to include broilers in her operation – and hired a specialist to teach her.

"I did very well until winter," she says. "I had no idea why many farmers stopped production then. I went ahead and bought more chickens. I thought I was going to make a lot of money."

Instead, cold temperatures in the area resulted in Marriam losing almost 30 000 chickens – so she decided to shut down her broiler business.

[Adapted from: *Farmer's Weekly*, Friday, 7 October 2011]

- 2.1.1 When Marriam was a child, her parents were subsistence farmers. Explain the concept "subsistence farmer". (2)
- 2.1.2 Marriam is currently running an egg production enterprise. Determine whether this enterprise is commercial or subsistence and explain your answer. (3)
- 2.1.3 Marriam experienced a number of problems with her pig enterprise. Identify the **THREE** main problems and explain how these could have been prevented through proper planning. (9)
- 2.1.4 If Marriam wanted to produce broilers over the cold winter months, suggest how she could modify her production system to allow her to produce broilers during the cold season. (4)
- 2.2 A group of land beneficiaries have recently acquired a farm of 450 ha in Mpumalanga. The farm contains mainly veld and has about 100 ha of arable land. It was previously farmed for commercial purposes, but has not been in production for the past eight years.  
The land beneficiaries have received a government grant to assist them in establishing the farm, and have occasional contact with the government extension services.
- 2.2.1 List **FOUR** factors that determine whether land is arable or not. (4)
- 2.2.2 Discuss the challenges that these land beneficiaries are likely to experience while establishing the farm as a viable enterprise. (4)
- 2.2.3 The land beneficiaries have decided to start with a single enterprise on the farm. Name **SIX** important factors they would have to consider when selecting a suitable enterprise. (6)
- 2.2.4 Suggest **TWO** suitable enterprises that could be introduced on the farm. Give reasons for your choice of enterprises. (4)
- 2.2.5 Supply **TWO** reasons for the land beneficiaries to compile a farm budget for the selected farming enterprises. (2)
- 2.2.6 Identify **THREE** daily tasks that could be carried out in a farming enterprise. (3)
- 2.3 Precision farming is becoming a feature of large-scale commercial crop production.
- 2.3.1 Define "precision farming" in the context of crop production. (2)
- 2.3.2 Suggest **TWO** advantages and **TWO** disadvantages of using precision farming on South African farms. (4)
- 2.3.3 List **THREE** pieces of equipment or resources that would be used in precision farming for crop production. (3)
- [50]**

**QUESTION 3**      **ENTREPRENEURSHIP, RECORDING, MARKETING,  
BUSINESS PLANNING AND ORGANISED AGRICULTURE**

Start this question on a NEW page.

- 3.1 The table below represents the supply and demand schedule for a crop.

Price (R/kg)	Quantity demanded per week (kg)	Quantity supplied per week (kg)	Surplus (kg)	Shortage (kg)
10	600	0		600
15	500	100		400
20	400	200		200
25	300	300		0
30	200	400	200	

- 3.1.1 Draw a line graph on the attached Answer Sheet that represents the supply and demand schedule from the values given in the table above. (5)
- 3.1.2 Determine the price of the product at the point of market equilibrium. (1)
- 3.1.3 Is the supply and demand mechanism indicated above a characteristic of a free-market system or a controlled market? Explain your answer. (2)
- 3.1.4 South Africa is currently experiencing a severe drought. Discuss the impact of drought on the price of maize in South Africa. (2)
- 3.1.5 In 2016 South Africa received imports of large quantities of frozen chicken portions from South America, which is being sold at low prices in South African supermarkets. Discuss the impact of these imports on the supply and demand curve for chicken in South Africa. (2)
- 3.2 A farmer sold a batch of weaner calves on 31 March 2015 for R73 000 and he sold a further batch of weaners on 25 April 2015 for R54 000. His marketing costs of 5% of the sale price was paid on the day of each sale. The farmer paid R47 000 for the delivery of cattle feed on 17 June 2015 and paid a further R27 000 for protein blocks for the cattle on 3 August 2015.
- Draw up a complete Income and Expenditure Statement for this period. Use the table provided on the Answer Sheet to structure your answer. (9)

- 3.3 Read the article titled "**A first in SA maize milling**" and answer the following questions.

## **A first in SA maize milling**

**By Luyolo Mkentane**

Soweto businessman Xolani Ndzaba has always had an entrepreneurial spirit. He spoke to Luyolo Mkentane about how he founded Lethabo Milling, SA's first black-owned milling company.

Xolani Ndzaba, owner of Lethabo Milling, still remembers the day his father Victor brought him a bag of oranges. "I owned my first business when I was eight years old. I sold those oranges at school and later progressed to selling peanuts and apples," says the 50-year-old businessman from Emdeni in Soweto.

The entrepreneurial bug had hit Ndzaba and he soon moved on to sell perfumes on trains around Soweto. When his father passed away in 1977, he was sent to live with relatives at Lady Frere in the Eastern Cape for a year. "This is where I fell in love with *ukungqusha* [a traditional maize milling process]. I herded cattle, milked cows and ploughed the fields during my twelve months there."

Ndzaba started working in 1987 at SA Breweries as a labourer, and soon progressed to machine operator and then supervisor in the packaging department. Ndzaba remained at SA Breweries for 21 years, after which he worked at a Tiger Brand company called Bromor Foods, and at Papa Super Maize Meal as its commercial manager.

"In late 2010 I started working on the Lethabo Milling project," explains Ndzaba.

He says that there is always opportunity in food because people eat every day and maize meal is a staple food for most South Africans. "Over a billion people globally are food-insecure and go to bed hungry, and a large number are in sub-Saharan Africa. I wanted to come up with a product that was affordable for our people and that would also change the face of the industry."

When he decided to launch Lethabo Milling, there were no other black-owned companies and he commends government for creating programmes aimed at ensuring black participation in the mainstream economy. After working on the Lethabo project for a couple of months, Ndzaba took a leap of faith in 2011 and approached Massmart to buy his brand, Lethabo Super Maize Meal.

"Their reaction was simple: give us a sample that we can test at the laboratory. After it was tested and found fit for human consumption, we drew up a marketing agreement where they committed to buying from me. The agreement was finalised after their merger with Wal-Mart in 2012."

Following this, Ndzaba obtained a R4,2 million loan from Absa bank to acquire a milling facility and as well as another R4 million for working capital. "Massmart gave us a R1,6 million grant to refurbish the milling facility we acquired at Ventersburg in the Free State according to their standards."

Lethabo Milling, which Ndzaba runs with his wife, Thembi, supplies Massmart with 10 000 t of maize meal per annum, which is split between Massmart's private label brand Econo-maize meal and Lethabo Super Maize Meal.

"So far, we are doing very well. We are happy. Lethabo Milling is self-sustaining as I'm not involved in any other business," says Ndzaba, who is a new member of the National Chamber of Milling. Asked about future growth, Ndzaba says that he intends looking at the possibility of selling other food commodities in addition to maize.

[Adapted from: *Farmers Weekly*, Wednesday, 28 October, 2015]

- 3.3.1 Identify **SIX** characteristics that make Ndzaba a successful entrepreneur. (6)
- 3.3.2 In order to apply for finance for the milling facility, Ndzaba would have compiled a business plan. List the **FIVE** main components of a business plan and provide a brief description of each component. (10)
- 3.3.3 Give an example of a fixed asset item in the maize milling business. (1)
- 3.3.4 Give an example of a current asset that would be used in the maize milling business. (1)
- 3.3.5 Identify the marketing channel used by Lethabo Milling. (1)
- 3.3.6 Ndzaba "commends government for creating programmes aimed at ensuring black participation in the mainstream economy". Identify the government initiative to which Ndzaba is referring and elaborate on the goals of government in this initiative. (4)
- 3.4 James is the manager of a 1 000-cow beef herd that is run off natural grazing (veld).
- 3.4.1 Give **TWO** reasons for good record-keeping in this farming system. (2)
- 3.4.2 Discuss **TWO** advantages and **TWO** disadvantages of using a computerised record-keeping system for the beef enterprise. (4)
- [50]**

#### **QUESTION 4                    HARVESTING, PROCESSING, MANAGEMENT AND AGRITOURISM**

**Start this question on a NEW page.**

- 4.1 Management involves a number of roles. State the management role involved in the following scenarios.
- 4.1.1 Recording staff leave in the leave register. (1)
- 4.1.2 Awarding a wage bonus for achieving a production target. (1)
- 4.1.3 Preparing a weekly roster for tractor activities. (1)
- 4.1.4 Preparing a business plan for a new enterprise. (1)
- 4.1.5 Arranging farmworkers into work teams based on specific skills. (1)
- 4.2 South Africa is currently experiencing the worst drought in decades.
- 4.2.1 Discuss the impact of the drought on the agricultural industry in South Africa. (7)
- 4.2.2 In your **OWN** opinion, which farming enterprise in South Africa will be worst affected by the drought? Explain your answer. (2)

- 4.3 A farmer who is producing 100 ha of maize is trying to decide whether to harvest the grain using hand harvesting or machine harvesting.
- 4.3.1 Give **TWO** advantages of using hand harvesting for maize grain, and **TWO** disadvantages of hand harvesting maize grain. (4)
- 4.3.2 Determine which method of harvesting would be most suitable for this farmer. Give a reason for your answer. (2)
- 4.3.3 Name **TWO** factors that would determine the suitable time for harvesting maize grain. (2)
- 4.3.4 Give **THREE** ways in which the quality of maize can deteriorate as a result of poor post-harvest handling and storage. (3)
- 4.4 4.4.1 Give **THREE** reasons for the grading of agricultural produce such as meat. (3)
- 4.4.2 Name the **FIVE** characteristics on which the grading of beef carcasses is based. (5)
- 4.4.3 Discuss the importance of the cold chain in the handling and storage of fresh meat and explain how this is achieved. (3)
- 4.5 A meat processor is looking for a suitable packaging material for fresh meat that is to be sold in the supermarkets.
- 4.5.1 List **FIVE** requirements for suitable packing material for meat. (5)
- 4.5.2 Evaluate the suitability of the following packing materials for fresh meat. Explain your reasoning by referring to the requirements listed in Question 4.5.1.
- (a) Cardboard (2)
- (b) Polystyrene (2)
- (c) Wood (2)
- 4.6 Identify the method of preservation used in the production of the following products:
- 4.6.1 Jam (1)
- 4.6.2 Biltong (1)
- 4.6.3 Raisins (1)

[50]

150 marks
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Total: 200 marks