



AGRICULTURAL MANAGEMENT PRACTICES

Time: 3 hours

200 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 12 pages and an Answer Sheet of 4 pages (i–iv). Detach the Answer Sheet from the centre of the question paper and ensure that it is handed in together with the Answer Book. Please check that your question paper is complete.
 2. This question paper consists of TWO sections – Sections A and B.
 3. Section A must be answered on the attached Answer Sheet.

Section B must be answered in the Answer Book, except for Question 5.2.1 and Question 5.3.1 which must be answered on the Answer Sheet.
 4. Read the questions carefully.
 5. Start EACH question on a NEW page.
 6. Number your answers exactly as the questions are numbered.
 7. Non-programmable calculators may be used.
 8. ALL calculations must be rounded off to TWO decimal places unless stated otherwise.
 9. It is in your own interest to write legibly and to present your work neatly.
-

SECTION A

Answer this section on the ANSWER SHEET.

QUESTION 1

Various options are provided as possible answers to the following questions. Choose the most correct answer and make a cross (X) in the block (A–D) next to the question number (1.1–1.10) on the attached ANSWER SHEET.

- 1.1 A labourer who is hired for the purpose of picking fruit at a particular time each year is referred to as a ...
- A permanent labourer.
 - B casual labourer.
 - C seasonal labourer.
 - D temporary labourer.
- 1.2 To determine the liquidity of a farm one calculates the difference between the ...
- A income and expenditure.
 - B assets and liabilities.
 - C profit and loss.
 - D loan and monthly payments.
- 1.3 The amount of moisture that soil can retain after rainfall or irrigation is the ...
- A water-holding capacity.
 - B drainage.
 - C aeration.
 - D waterlogging.
- 1.4 Animal carcasses are inspected by a health inspector for the following reason:
- A To determine the fat content of the carcass.
 - B To determine the grade of the carcass.
 - C To determine if the carcass is free of pests and diseases.
 - D To determine the age of the animal.
- 1.5 A physical characteristic of soil that cannot be changed through soil improvement measures ...
- A soil drainage.
 - B soil texture.
 - C soil nutrient content.
 - D soil structure.

- 1.6 The farming system in which the farmer only produces enough produce for the household and has no extra produce to sell.
- A Commercial farming
 - B Small-scale farming
 - C Specialised farming
 - D Subsistence farming
- 1.7 The main factor used to determine the veld type is the ...
- A composition of grass species.
 - B annual rainfall.
 - C density of the grass.
 - D amount of bush.
- 1.8 One of the following records is NOT an example of raw data for a beef herd.
- A Number of calves born.
 - B Calving percentage.
 - C Birth mass.
 - D Weaning mass.
- 1.9 A farming system that produces high output on a small piece of land is referred to as ...
- A precision farming.
 - B small-scale farming.
 - C intensive farming.
 - D extensive farming.
- 1.10 Which of the following factors are NOT included in the harvesting costs for a crop?
- A Fertilizer used during growing season.
 - B Fuel for harvester.
 - C Casual labour for hand harvesting.
 - D Transport to storage silo.

[20]

QUESTION 2

Choose a description from COLUMN B that matches a term from COLUMN A. Write only the letter (A–M) next to the question number (2.1–2.10) on the attached ANSWER SHEET, for example 2.11 P. Each description in COLUMN B may only be used ONCE.

COLUMN A		COLUMN B	
2.1	Cash-flow statement	A	Marketing that is done by an agent where buyers bid and the highest bid is accepted.
2.2	Mechanisation	B	The reduction in value of a tractor over a period of time due to wear and tear.
2.3	Sourveld	C	The loss of exposed topsoil due to heavy rain or wind.
2.4	Supply	D	Capital used to purchase fuel for the tractor.
2.5	Calibration	E	A natural pasture with high nutrient value during summer and low nutrient value in winter.
2.6	Moveable capital	F	The partial replacement of labour by capital investment.
2.7	Auction	G	Refers to the sources, amounts and dates of cash inflow and outflow during a specific period.
2.8	Depreciation	H	The breakdown of rocks to form soils.
2.9	Weathering	I	The quantity of an agricultural product which a producer delivers on the market at a specific price.
2.10	Receipt	J	A natural pasture found in low rainfall areas.
		K	A source document that is issued to acknowledge that money has been received by the business.
		L	Measurement, calculation and setting of implements to apply substances used in the production process.
		M	Capital used to purchase animals for a livestock enterprise.

[20]

QUESTION 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 3.11 Marketing.

- 3.1 The process of gathering information about consumers' needs and preferences.
- 3.2 The application of natural or chemical substance to the soil to improve the productivity of the soil.
- 3.3 The number of animals that can be kept per hectare without degrading the environment.
- 3.4 An approach to agriculture that uses information technology to ensure that crops and soil receive exactly what they need for optimum health and productivity.
- 3.5 An agricultural operation that brings visitors to the farm to enjoy or participate in agricultural activities.
- 3.6 A list of the closing balances of all ledger accounts of a business that is usually prepared at the end of an accounting period.
- 3.7 The method of protecting the soil by covering it with dead plant material.
- 3.8 Knowledge, skills and practices gathered by our ancestors in a specific geographical area, which are still usable and valuable.
- 3.9 The classification of harvested products according to quality criteria.
- 3.10 Cash used for small, unexpected payments such as postage or fixing a flat tyre.

[10]

50 marks

SECTION B

This section consists of THREE questions. Start each question on a NEW page.

QUESTION 4 FARM PLANNING

4.1 Refer to the tables below to answer the questions that follow. Table 1 gives the resource data for Bergvlei Farm and Table 2 gives the growing requirements for various field crops.

Table 1: Resource data for Bergvlei Farm

Farm size	900 ha 300 ha arable; 600 ha non-arable
Average temperatures	18–30 °C (summer) 5–20 °C (winter)
Frost	Light to medium frost April–August
Annual rainfall	600 mm
Rainfall distribution	Summer rainfall (Oct.–Feb.)
Soil texture	20% clay, mostly well-drained
Soil acidity	Mostly 5,5–6
Irrigation	None – all dryland production

Table 2: Requirements for optimal growth of crops

	Water requirements mm	Day temperature °C	Frost tolerance	Soil type	Soil pH	Growing season – days
Cotton	700–1 300	20–30	None	Deep Medium–heavy	6,5–8	150–220
Dry beans	300–500	15–20	None	Deep Well-drained	5,5–6	90–120
Maize	500–900	24–30	None	Deep Well-drained	5–7	100–140+
Soyabeans	450–700	20–25	None	Not sandy Well-drained	6–6,5	80–130
Sugarcane	1 300–1 600	22–30 min 15 °C	None	Deep Light–heavy Well-drained	5,5–8	250–540
Wheat	180–250	15–20 min 5 °C	Fair	Medium–heavy	6–8	120–210

[Adapted from: Department of Water Affairs, 2010]

- 4.1.1 Does Bergvlei Farm have a temperate or a tropical climate? Explain your answer. (2)
- 4.1.2 Identify TWO crops from the table that would be suitable for this production area and that could be planted in a crop rotation. Give reasons for your choice. (4)

- 4.1.3 Suggest TWO livestock enterprises that could be kept on this farm. Explain your choice. (4)
- 4.1.4 The farmer can either use manual labour or mechanisation to perform the various tasks required by the cropping enterprise. Compare the use of manual labour and mechanisation in terms of the following:
- (a) Costs
 - (b) Efficiency
 - (c) Product quality
 - (d) Time taken
 - (e) Area that can be completed
 - (f) More suitable option for this farm (own opinion) (6)
- 4.1.5 Give FOUR factors which are used to determine whether soil is arable. (4)
- 4.1.6 Give THREE ways in which a farmer can improve the drainage of a soil. Explain your answer. (3)
- 4.1.7 Explain the effect of soil pH on crop production. (2)
- 4.1.8 Explain how a farmer can change the pH of a soil and how this process works. (3)
- 4.1.9 Give FOUR benefits of using crop rotation in a cropping system. (4)
- 4.1.10 Describe FOUR factors which would influence one's choice of crops for a crop rotation system. (4)
- 4.2 A crop farmer is considering the use of precision farming techniques.
- 4.2.1 Give FOUR examples of how precision farming can be used in a cropping enterprise. (4)
- 4.2.2 Give THREE benefits of using precision farming methods in a cropping enterprise. (3)
- 4.2.3 List THREE types of equipment that would be required for the use of precision farming methods. (3)
- 4.3 A farm has an area of crop land with a slope of 1:8.
- 4.3.1 Describe the slope of the land AND explain its usefulness for crop production. (2)
- 4.3.2 Explain what the farmer could do to improve the usefulness of this land for crop production. (2)


[50]

QUESTION 5 HARVESTING AND MARKETING

5.1 Read the article below and answer the questions that follow.

SA egg shortage sends prices scrambling

Ray Mahlaka and Aarti Bhana, Moneyweb, 15 December 2017



[Picture: Matthew Lloyd/Bloomberg]

- 1 SA is in the throes of an egg shortage and breakfast has become more expensive lately.
- 2 Egg costs are surging and showing no signs of declining as SA's farmers battle with an avian flu outbreak resulting in the culling of millions of egg-laying hens. About 4,7 million egg-laying hens have been culled since the outbreak in June this year, affecting 13 egg farms, mostly in the Western Cape.
- 3 The flu outbreak has led to more than 1 000 direct job losses and reduced SA's egg production by 3,9 million eggs a day, according to the South African Poultry Association.
- 4 The average price of a tray of 18 eggs cost 16,9% more in November 2017 compared with the same time last year, Statistics SA data indicated. In rand terms, SA's average egg prices (carton of 18 eggs) rose from R36,49 to R42,65 over the same period. Inflation for eggs in October was 4,8% year-on-year.
- 5 The Western Cape has emerged as the most expensive province to purchase eggs, with the average price for a carton of 18 eggs being R46,85.
- 6 The Western Cape has been hit the hardest by the avian flu virus as about three million egg-laying hens have been culled. Industry estimates showed the Western Cape has the largest distribution of chickens and eggs in SA with an estimated market share of 21,9%.
- 7 The on-going severe drought in the Western Cape has seen smaller egg farmers exit the industry over the last two years as higher feed costs knocked their profitability.
- 8 SA's average egg production for 2017 is expected to be the lowest in five years at 379 000 cases per week, data from the South African Poultry Association showed.

5.1.1 Explain the effect of the Avian Influenza outbreaks on the supply of eggs in South Africa. (2)

5.1.2 Explain, using a supply and demand curve to support your answer, how the reduced supply of eggs has affected the price of eggs in South Africa. (4)

- 5.1.3 The article mentions the South African Poultry Association. Give THREE functions of industry associations or organisations in the agricultural industry. (3)
- 5.1.4 The article mentions that a number of small producers have gone out of business as a result of the disease outbreak.
 - (a) Give TWO reasons why small producers are more vulnerable in this situation. (2)
 - (b) Suggest what these small producers could do to protect their businesses and make them more sustainable. (3)
- 5.1.5 As a poultry farmer, explain how you would use the five management roles (Control, Planning, Coordination, Motivation and Organisation) to control and prevent the Avian Influenza disease from affecting your farm. (5)

5.2 Farmer Mokoena has a farm on which he produces potatoes. He has the following items on the farm on 28 February 2018.

Farm land	R1 200 000
Land Bank loan	R800 000
Tractor	R80 000
Potato packing shed	R80 000
Account at co-operative	R90 000
Bank overdraft	R40 000
Fuel on hand	R10 000
Fertilizer on hand	R12 000
Harvested potatoes	R60 000

- 5.2.1 Compile a balance sheet for this farm using the table provided on the ANSWER SHEET. (12)
- 5.2.2 Using the balance sheet from Question 5.2.1, evaluate the liquidity of this farm at this time. Provide clear explanations for your response. (3)
- 5.2.3 The table below provides three marketing channels that Farmer Mokoena could use to market his potatoes. Copy the table into your Answer Book and complete it by giving one advantage and one disadvantage of each marketing channel.

Marketing channel	Advantage	Disadvantage
Farm gate		
Contract		
Free market		

(6)

5.3 Lerato is planning to produce a batch of broiler chickens to sell at the local taxi rank at a price of R60 per bird. The local extension officer has advised her to expect a 4% mortality rate during the rearing period and has given her the following list of inputs:

500 day old chicks at R6,50 per chick
50 bags of feed at R180 per bag
40 kg of gas for brooders at R22 per kg
1 load of wood shavings at R200 per load
100 km transport of marketable broilers at R5 per km

5.3.1 Using the table in your ANSWER SHEET, compile a partial budget for a single batch of broilers to determine the gross margin of a single batch. (8)

5.3.2 In reality, the actual gross margin may be different to the expected figures calculated in Question 5.3.1. Give TWO reasons why this might occur. (2)
[50]

QUESTION 6 BUSINESS PLANNING AND MANAGEMENT

6.1 Read the article below to answer the questions that follow.

Agritourism helps ostrich farm fly high

Unfavourable market and production conditions are forcing farmers to look for ways to diversify risks and enhance farm cash flow. Johan Keller, who farms at De Denne outside Oudtshoorn in the Little Karoo, had to seriously re-evaluate farm sustainability following the avian flu outbreak a few years ago. The outbreak led to a ban on ostrich exports – their primary source of income at the time – even though this disease did not affect any birds in the region.

In response to the outbreak, Johan diversified farm production from ostriches, lucerne and lucerne seed to include dairy and Bonsmara cattle. Two years ago he added further value to the business by boldly entering the agritourism market.

Jam-packed tourist destination

Starting an agritourism enterprise is capital-intensive. De Denne had a few old buildings dating back more than hundred years which had to be renovated. At the moment, four buildings that accommodate 16 people are available, either on a bed-and-breakfast or self-catering basis. A camping site near the farm dam for tourists who are interested in an outdoor experience is also being developed. The self-catering units are equipped with modern amenities, such as air conditioning, a bar fridge, TV, hairdryer, tea- and coffee-making facilities, microwave and a hotplate. Each unit has a private entrance and braai facility.

De Denne's tourist activities include bird watching, mountain biking and scenic walks. Daily environmental and farm tours to watch ostrich chicks hatching have also become very popular. Guests enjoy being on a working farm where they see workers going about their tasks – milking cows, feeding the ostriches and harvesting lucerne. Surrounding attractions include ostrich show farms and wine farms, 4x4 trails, the Cango Caves, Cango Wildlife Range and mountain biking up the Swartberg.

New-age marketing

As part of De Denne's marketing strategy, Johan had the website www.dedenne.com designed. This real-time website allows people to check the availability of rooms and make bookings on the website or via e-mail.

The guest house's income is quite significant compared with that generated from primary farming activities. Johan says tourism has increased cash flow during difficult months and it has created new jobs on the farm.

[Adapted from: *Farmers Weekly*, March 19, 2007]

6.1.1 The owner of this farm, Johan Keller, is a successful entrepreneur. Identify FIVE characteristics of Mr Keller that make him an entrepreneur.

(5)

- 6.1.2 In order to obtain capital from the bank for the agritourism business, Mr Keller would have been required to compile a business plan. Describe the FIVE main sections of a business plan AND briefly explain what would be included in each section. (10)
- 6.1.3 The reading mentions that Mr Keller diversified his farming operations to include dairy cattle, beef cattle and agritourism. Evaluate this decision in terms of the physical and financial compatibility of these new enterprises with the existing farm. (4)
- 6.1.4 Explain how the agritourism business will contribute to the overall value of the farm. (3)
- 6.1.5 Could you foresee any negative impact of having large numbers of tourists visiting the farm? Suggest THREE possible problems. (3)
- 6.1.6 This farmer is using a website to market the business. Evaluate the suitability of this advertising method for this business. (3)
- 6.1.7 Suggest TWO other relevant ways in which Mr Keller could market his agritourism business. (2)

6.2

South Africa traces deadly listeria to sausage meat, issues recall

South Africans were told not to consume "ready to eat" processed meat as the government linked a listeria outbreak which has killed 180 people to a sausage meat made by the country's biggest consumer foods group.

[Adapted from: *Reuters*, March 4, 2018]

- 6.2.1 Give THREE reasons for processing meat into various products. (3)
- 6.2.2 The listeria bacteria was introduced by a processed meat additive brought in from South America. Discuss THREE ways in which the contamination of meat products in South Africa could have been prevented. (3)
- 6.2.3 List FOUR pieces of information that should be displayed on the label of processed agricultural products. (4)
- 6.2.4 Design a poster which could be displayed in a meat processing facility which will inform staff of food safety procedures. Include at least FOUR procedures on your poster. Use a clean page in your Answer Book to present your poster. (5)
- 6.2.5 The recent listeriosis outbreaks have significantly reduced consumer confidence in pork products.
 - (a) What impact has this outbreak had on South African pork producers. (3)
 - (b) Suggest TWO ways in which pork producers could regain their status in the meat industry. (2)

[50]

150 marks

Total: 200 marks