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NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2022

AGRICULTURAL MANAGEMENT PRACTICES

EXAMINATION NUMBER													

Time: 3 hours 200 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 24 pages. Please check that your question paper is complete.
2. This question paper consists of TWO sections.
3. Answer ALL the questions.
4. Answer all the questions ON this question paper and hand it in at the end of the examination. Remember to write your examination number in the space provided above.
5. Read all the questions carefully and make sure that you answer only what is being asked.
6. Non-programmable calculators may be used.
7. ALL calculations must be rounded off to TWO decimal places unless stated otherwise.
8. It is in your best interests to write legibly and to present your work neatly.
9. ONE blank page (page 24) is included at the end of the question paper. If you run out of space for a question, use this page. Clearly indicate the question number of your answer should you use this extra space.

Mark allocation

QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4	TOTAL
50	**50**	**50**	**50**	**/200**

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SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write down the letter (A–D) that corresponds to your answer in the space provided at the end of the question on page 3.

1.1.1 During the calculation of the carrying capacity of an area, the utilisation factor should be taken into account. The utilisation factor refers to the …

A amount of fodder that the animal needs per day.
B amount of moisture that is lost through the plant's leaves.
C amount of pasture that is lost as a result of overgrazing.
D amount of nutrition that is lost as a result of excretion by the animal.

(2)

1.1.2 The primary source of fresh water in South Africa is …

A dams.
B rivers.
C rainfall.
D boreholes. (2)

1.1.3 The order in which the four critical growth stages of grass plants take place is …

A resting period, storage of reserves, initial growth and active growth.
B active growth, resting period, initial growth and storage of reserves.
C storage of reserves, active growth, initial growth and resting period.
D initial growth, active growth, storage of reserves and resting period.

(2)

1.1.4 Topography refers to the … of an area.

A temperature and humidity
B various types of pasture
C soil texture and soil structure
D mountains, hills and contours (2)

1.1.5 The following property is NOT characteristic of marginal soils:

A They are difficult to cultivate.
B They produce high yields.
C They require high input costs.
D It is difficult to manage these soils efficiently. (2)

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1.1.6 Soil in a waterlogged condition is usually … in colour.

A red
B grey
C yellow
D black (2)

1.1.7 A single-grain structure is usually found in … soil.

A sandy
B loamy
C clayey
D silty (2)

1.1.8 The collection of climatological information, for example measuring the wind speed using …, plays an important role in the daily decision making of the producer.

A an anemometer
B a rain gauge
C a tensiometer
D a thermometer (2)

1.1.9 Which one of the following is an example of primary processing?

A Making butter from cream.
B Baking bread with wheat meal.
C Extracting oil from the seed of canola.
D Making corn flakes from mealie meal. (2)

1.1.10 The fixed cost to establish 1 hectare of wheat is R5 500,00. The variable cost per hectare amounts to R1 200,00. The income per ton is R3 600,00. Therefore, the break-even point is …

A 1,53 ton of wheat harvested.
B 4,58 ton of wheat harvested.
C 3,0 ton of wheat harvested.
D 2,29 ton of wheat harvested. (2)

1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.1.8	1.1.9	1.1.10

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1.2 Choose a description from COLUMN B that matches a term from COLUMN A. Write down only the letter (A–J) of your choice in the space provided at the bottom of the page.

Each description in COLUMN B may be used only ONCE.

COLUMN A		COLUMN B	
1.2.1	Feed flow programme	A	Issued to a customer to acknowledge that money has been received by the enterprise.
1.2.2	Rotational grazing programme	B	Entails the replacement of labour or animal-driven implements by engine-driven implements.
1.2.3	Crop rotation programme	C	Used to make suspensions clear by removing substances that cause turbidity.
1.2.4	Mechanisation	D	Compiled to ensure that there will be enough food available for all the animals throughout the year.
1.2.5	Calibration	E	Involves the adjustment of spray pumps to administer the correct volume of poison per area.
1.2.6	Filtration	F	Travelling to an agricultural enterprise to see how agricultural products are produced.
1.2.7	Receipt	G	Travelling to a natural area to understand the environment and history of that area.
1.2.8	Credit note	H	Issued to a debtor to confirm that the enterprise has received returned goods and has granted the debtor credit.
1.2.9	Ecotourism	I	Compiled to ensure that each camp is used only once during a season and to prevent certain camps from being over-utilised.
1.2.10	Agritourism	J	Compiled to divide the farm into different crop-production units.
		K	Travelling for leisure purposes only.
		L	Measuring out pesticides and herbicides.

1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	1.2.7	1.2.8	1.2.9	1.2.10

(20)

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1.3 Give the correct agricultural term for each of the following descriptions. Write down only the correct term in the space provided.

1.3.1 Planted pasture that is a summer crop, is dormant in winter, translocates nutrients to its roots in the autumn months, sprouts in spring and then develops quickly.

_____

(1)

1.3.2 The legally binding document between the farmer and the farm worker that must be signed when employment commences.

_____

(1)

1.3.3 The labour law with the purpose of protecting employees from unfair discrimination.

_____

(1)

1.3.4 The percentage hydrogen that is present in the soil and that also gives an indication of the alkalinity or the acidity of the soil.

_____

(1)

1.3.5 Temporary labourer who works less than 24 hours per month and who does not have a contract with the employer.

_____

(1)

1.3.6 The recirculating integration of fish production and the production of food using nutrient-rich solutions and media rather than soil.

_____

(1)

1.3.7 The process used to distinguish between harvested products according to size, shape and colour of the crop.

_____

(1)

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1.3.8 The financial resource that provides a farmer with protection from unforeseen events, such as a fire.

_____

(1)

1.3.9 The marketing method that is characterised by interference by government in the marketing of products. Interference may include subsidies as well as restrictions on imports.

_____

(1)

1.3.10 The management function that is a prerequisite for implementing policy and for reaching aims and objectives in the short and the long run.

_____

(1)

50 marks

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SECTION B

QUESTION 2 RESOURCE UTILISATION, LAND USE AND FARMING SYSTEMS

2.1 List FOUR functions of soil in the production process.

- _____
- _____
- _____
- _____

(4)

2.2 Wind is an important climate factor that can enhance agricultural production, but it can also limit agricultural production.

2.2.1 Explain how light wind could affect the growth of plants.

_____

_____

(2)

2.2.2 Explain TWO ways in which strong winds could limit agricultural production.

- _____

_____

- _____

_____

(4)

2.3 Identify the economic properties of soil that are apparent in each of the descriptions below.

2.3.1 Soil does not naturally run out, does not decay, does not get old and does not get used up (consumed).

_____

(1)

2.3.2 Soil will always have value.

_____

(1)

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2.3.3 More fertiliser administered will improve production up to a certain stage. Thereafter production will stagnate and will even decrease when more fertiliser is administered.

(1)

2.4 For the past six years a grain producer recorded the grain yield as well as the amount of fertiliser administered on his farm of 500 ha. The table below shows the fertiliser administered annually as well as the yield obtained.

YEAR	AMOUNT OF FERTILISER ADMINISTERED (kg/ha)	YIELD OBTAINED (ton/ha)
2016	80	2,0
2017	110	3,5
2018	140	5,0
2019	170	6,0
2020	200	6,5
2021	230	6,0

Thoroughly study the data in the table and answer the following questions:

2.4.1 Draw a line graph of the data in the table to show the relationship between the fertiliser administered and grain yield.

(6)

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2.4.2 Explain the tendency in the table in Question 2.4 on page 8 and state the conclusion that the producer will reach after he has studied the recorded data.

(5)

2.4.3 Fully explain the following statement: 'From the data in the table above it is clear that the producer is contributing to soil pollution.'

(3)

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2.5 Contour farming is frequently combined on steep slopes with other cultivation practices and conservation practices to realise the purpose of conservation farming.

2.5.1 Define *contour farming*.

_____

_____

_____

(2)

2.5.2 Briefly discuss TWO advantages of contour farming.

- _____

_____

- _____

_____

(2)

2.5.3 List THREE cultivation practices other than contour farming that can also be used with great success on steep slopes.

- _____
- _____
- _____

(3)

2.6 Using maps, tillable soils are divided into more or less homogeneous units. List FOUR factors that should be taken into account when dividing tillable soils into homogeneous units.

- _____
- _____
- _____
- _____

(4)

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2.7 Read the article on niche crops below and then answer the questions that follow. The article appeared in the *Landbouweekblad* of 2 September 2021.

SAFFRON FARMERS SMILE AFTER FIRST SEASON

The first South African saffron season exceeded all expectations. Planting took place in all nine provinces and feedback from farmers indicates a success rate of approximately 95%. Planting varied from about 6 000 corms to just more than 150 000 corms. In addition, 173 starter packs were sold to 134 interested parties. Laingsburg produced the best yield by far, with KwaZulu-Natal the poorest. There is substantial buyer's interest in saffron from South African farmers and it is believed that South Africa can become one of the world's top suppliers of saffron. The world demand for saffron is much higher than the annual production. The quality of the saffron in South Africa is mostly above average and sells locally for up to R250/g (R250 000/kg).

The considerable consumer price is the result of labour-intensive harvesting methods. The entire process, from picking the flowers to removing the stigmas, takes place manually and about 150 000 flowers are needed for 1 kg saffron. The yield per hectare in year three, when production reaches a peak, varies from 1 kg to 5 kg.

However, saffron in South Africa has a long way to go. The starter pack is not an economic unit and produces only 1 gram. Its purpose is to see how it performs in your area, as it is a new crop in South Africa.

Saffron is a winter crop. Corms are planted from March to April and sprout about 40 days later. The flowers with their scarlet saffron stigmas must be harvested the day they start blooming. On average, saffron corms propagate underground three times a year in favourable conditions and flower production usually reaches a peak in year three. The season ends in October. Growers can sell the red stigmas as well as new corms.

Many more corms are available for the 2022 season. Starter packs will again be sold. In addition, cultivation contracts will be concluded.

[Visit <www.saffricon.co.za> for more information]

2.7.1 Is saffron farming in South Africa an example of a commercial or a subsistence farming system?

_____

(1)

2.7.2 Give ONE reason from the passage for your answer to Question 2.7.1.

_____

(1)

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2.7.3 Which farming method do saffron farmers use? Intensive or extensive?

(1)

2.7.4 Give ONE reason from the passage for your answer to Question 2.7.3.

(2)

2.7.5 In the heading of the article the author claims that saffron is a niche crop. What do you understand by the term *niche crop*?

(1)

2.7.6 Give FOUR reasons why the saffron farmer would rather follow a niche market strategy than a commodity market strategy.

-
-
-
-

(4)

2.7.7 Briefly explain what is meant by 'the starter pack is not an economic unit'.

(2)
[50]

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QUESTION 3 SUSTAINABILITY, BUSINESS PLAN, ENTREPRENEURSHIP AND MARKETING

3.1 Carefully read the article from *Maroela Media* about Ina Lessing below and then answer the questions that follow.

'Jam aunt' Ina Lessing tells her story: After a drought of eleven years in Limpopo, Danie and Ina's crop and ostrich farming were in 1996 at its lowest point. Ina was teaching and she even drove the school bus, but the family's finances were still not enough. With five children it was a daily struggle to survive. However, Ina was determined to one day send all five children to university. As a trained Home Economics teacher, she had only her cooking skills and the ingredients in the veld at her disposal, and these were also all she needed. That year the veld was full of stem-fruit ('stamvrugte') and soon the pots started simmering with the recipes she worked out in her head. With each pot of jam the character of the five children was formed stronger and stronger. Think ahead; be creative; protect your territory; be self-sufficient.

Nobody could be lazy. The first bottles of jam were sold to the local home industry and displayed at the farmers' market. The giant 400-year-old marula tree on the farm started bearing fruit and the marula jelly was the next project. Sometimes Danie and Ina received fruit from neighbouring farms and processed it. In this way mango chutney was born. Nobody could really predict which products would be on the shelves next, but Ina always had a recipe in mind that would fill the bottles and the purse. Danie was responsible for fetching the bottles, sugar and fruit, and to see to it that the farm production ran smoothly. Everybody had to work.

'You are working from Monday to Saturday. It is hard work, you are dripping with perspiration, but you can feel how the Lord is giving you strength for this work, because out of yourself you cannot do it,' says Ina. However, the 'grace project,' as Ina describes it, was not without disappointments. Initially they had to do intensive direct marketing themselves. Once they took the road to Pretoria, Hartbeespoort, Brits and back again to Modimolle with a minibus loaded with jam bottles. They stopped at every home industry to sell jam, but not one bottle was sold during the entire trip.

But in time Ina Lessing products started building a name for themselves that led the way for the products: reliable, genuine South African products with a twist here and there to keep things interesting. This distinguished the Ina Lessing products from the rest. One after the other the home industries, farm stalls and other shops started buying Ina Lessing products and the two pots of jam on the farm turned into three; then five; then ten … and then sixty.

In 2012 Ina wanted to sell the business when the enterprise was bursting at the seams in every respect. Production, staff management, orders, logistics, routes and distribution turned into an immensely huge task. They survived the drought of 20 years ago and in the process created a life for the whole family. The task had been completed.

The next phase of the business set in and systems to handle large volumes of products had to be implemented almost overnight. New products such as rusks and biscuits were developed, and the foundation was laid for branching out in future.

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Covid had a huge impact on tourism, which also had a huge effect on their operations. Ina believes that the joy of your work is the key to stay on track. The same is true of her staff with a count of about 20 at a time, depending on the season. Lessing says another aspect of her success is that she has a hand in the entire operation, from the kitchen to the sorting area, bottling and packaging. 'The children know the business and have 100% integrity, trust and loyalty,' says Lessing. 'This is what makes it successful and one day we can hand over the business with complete peace of mind.'

3.1.1 Provide the TWO main reasons why Ina Lessing started the enterprise.

- _____
- _____

(2)

3.1.2 List FOUR characteristics of Ina Lessing that distinguish her as a successful entrepreneur.

- _____
- _____
- _____
- _____

(4)

3.1.3 In expanding this enterprise, Ina Lessing faced various risks. Identify the THREE types of risk.

- _____
- _____
- _____

(3)

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3.1.4 Using a SWOT analysis, evaluate Ina Lessing's enterprise by looking at ways to build on the positive aspects and to address negative issues that may be present.

- _____

_____

(2)

- _____

_____

(2)

- _____

_____

(2)

- _____

_____

(2)

3.1.5 List the FIVE pillars of sustainability against which Ina Lessing can measure her enterprise to ensure that development takes place to benefit current and future generations.

- _____
- _____
- _____
- _____
- _____

(5)

3.2 From the passage it is clear that Ina Lessing needed marketing expertise. Answer the following questions with regard to marketing:

3.2.1 Which marketing channel did Ina use initially?

_____

(1)

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3.2.2 For which TWO reasons do you think they were not successful in their efforts?

- _____
- _____

(2)

3.2.3 The formula for successful marketing is based on the optimal combination of the four variables in the marketing mix. List these FOUR variables.

- _____
- _____
- _____
- _____

(4)

3.2.4 Ina used free marketing in her efforts to sell her products. List FOUR advantages of free marketing for the producer.

- _____
- _____
- _____
- _____

(4)

3.2.5 From the passage, identify FOUR marketing functions as well as the specific purpose of the marketing function in this enterprise.

- Function: _____ Purpose: _____

  _____
- Function: _____ Purpose: _____

  _____
- Function: _____ Purpose: _____

  _____
- Function: _____ Purpose: _____

  _____

(8)

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3.3 Agritourism includes any action, product, service or experience that is offered to a visitor to the farm by an agricultural enterprise, whether for payment or not. Although the tourism market is growing, the competition is also increasing rapidly. Therefore, it is important to offer unique activities on farms and to work together in a region.

Answer the following three questions regarding agritourism:

3.3.1 Briefly explain THREE phenomena that contributed to the unprecedented growth in agritourism during the past few years.

- _____
- _____
- _____

(3)

3.3.2 Briefly explain what the purpose of the suppliers of agritourism (the farmers) is with agritourism.

- _____
- _____
- _____

(3)

3.3.3 Briefly explain how agritourism could positively contribute to the objectives of the local residents (a community).

- _____
- _____
- _____

(3)
[50]

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QUESTION 4 FARM MANAGEMENT, FINANCIAL PLANNING AND ADDING VALUE TO HARVESTS

4.1 Study the financial statement of a crop production line below and answer the questions that follow.

EXPECTED EXPENSES			
ITEM	**AMOUNT**	**VALUE**	**TOTAL**
Seed	3 kg	R80/kg	(a)
Fertiliser	1 000 kg	R310/50 kg	R6 200,00
Transport of fertiliser	20 bags	R10/bag	(b)
Pesticides	500 g	R215/500 g	R215,00
Wages per week	4 workers	R480/worker	(c)
Packaging material	1 800 units	R1/unit	R1 800,00
Transport to markets	8 trips	R350/trip	R2 800,00
TOTAL EXPECTED EXPENSES			(d)
EXPECTED INCOME			
ITEM	**AMOUNT**	**VALUE**	**TOTAL**
Crops harvested	2 000 bags	R20/bag	(e)
TOTAL EXPECTED INCOME			(f)
EXPECTED PROFIT/LOSS			(g)

4.1.1 Is the financial record above a cash flow statement or a cash flow budget?

_____

(1)

4.1.2 Give a detailed explanation for your answer to Question 4.1.1.

_____

_____

_____

(3)

4.1.3 Calculate the missing amounts numbered (a) to (e) in the table above.

(a) _____

(b) _____

(c) _____

(d) _____

(e) _____

(5)

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4.1.4 Calculate the expected profit or loss in the financial record above. Show the formula as well as ALL the calculations.

(4)

4.2 Study the table below containing a list of the various types of budgets. Select from the types of budgets the budget that best matches each of the descriptions that follow. Write down only the LETTER of the correct type of budget in the space provided.

TYPE OF BUDGET	
A Whole-farm budget	D Partial budget
B Labour budget	E Maintenance budget
C Capital budget	F Branch budget

4.2.1 The budget for all the operational branches together.

(1)

4.2.2 The budget providing for the maintenance of all infrastructure.

(1)

4.2.3 The type of budget that is used to compare two or more processing practices.

(1)

4.2.4 This budget must provide for the intended spending on fixed assets.

(1)

4.2.5 The budget for the expected staff provisioning.

(1)

4.2.6 This budget is also known as an operational budget and consists of a gross margin analysis.

(1)

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4.3 Discuss planning as a management function under the following headings:

4.3.1 Why is planning referred to as a dynamic process?

_____

_____

(1)

4.3.2 Arrange the following actions in the correct order so that the enterprise can successfully move forwards in its planning and decision making. Fill in only the letters of the actions in the correct order in the space provided.

1. Compile a plan of action for a specific production line.
2. Observe, gather ideas and information, and arrange the information.
3. Review and evaluate the plan so that possible shortcomings can be eliminated.
4. Decide what should be done with regard to a problem or a need.
5. Consider all variables that cannot be controlled.
6. Consider possible methods of conduct and decide on the actions that should follow.

Correct order of actions (steps of planning):

(a) _____	(b) _____	(c) _____	(d) _____	(e) _____	(f) _____

(6)

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4.4 Control is very important in an enterprise to maintain good order. Any disciplinary action should meet certain requirements to be efficient. List FOUR requirements for efficient disciplinary action.

- _____
- _____
- _____
- _____

(4)

4.5 The picture below shows that the processing and packaging of meat adds value to the product.

4.5.1 Give FOUR advantages that are obtained by adding value to products in agricultural businesses.

- _____
- _____
- _____
- _____

(4)

4.5.2 Briefly state TWO disadvantages or problems that are experienced with the processing of agricultural products.

- _____

_____

- _____

_____

(2)

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4.6 Discuss any FOUR factors that determine the demand for meat as in the picture on page 21.

- _____
- _____
- _____
- _____

(8)

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4.7 Study the list of businesses that are found in the agricultural sector.

- abattoirs
- compost and organic fertiliser
- the production of mohair
- trucks and heavy vehicles
- the milling industry
- the cultivation of vegetables

From the list above, identify TWO businesses or sectors that can be sorted under:

4.7.1 the primary agricultural sector:

- _____
- _____

(2)

4.7.2 the secondary agricultural sector:

- _____
- _____

(2)

4.7.3 the tertiary agricultural sector:

- _____
- _____

(2)
[50]

150 marks

Total: 200 marks

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ADDITIONAL SPACE (ALL QUESTIONS)

REMEMBER TO CLEARLY INDICATE AT THE QUESTION THAT YOU USED THE ADDITIONAL SPACE TO ENSURE THAT ALL ANSWERS ARE MARKED.

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