



"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

NAEC 401: FARM MANAGEMENT AND PLANNING

END OF FIRST SEMESTER EXAMINATIONS

Nov 2023

LECTURER: Mr Larry Kies

DURATION: 3 HOURS

INSTRUCTIONS

1. Do not write your name on the answer sheet

2. Use Answer Sheets Provided

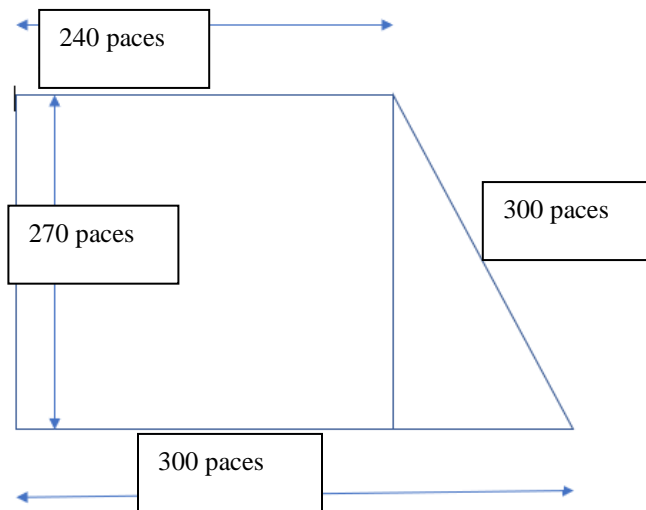
3. Begin your answer for Each Question on a New Page

4. Credit is Given for Neat Presentation

Answer ALL questions in Part I and ONE question from Part II. If calculations are involved, show all work and indicate your answer clearly.

PART I.

1. a. Give three reasons why it is helpful for a farmer to have a map of her farm. (3 marks)
- b. Koudou measured the field below by pacing. He took 62 paces to walk 50m. What is the area of the field, in m^2 and *estimated* in hectares? (3 marks)



- c. Discuss briefly 3 strategies of input procurement that could increase the profitability of his crop enterprise. (3 marks)
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2. Rodrigo is the farm manager of a farm with four enterprises (dairy, fish, layers, broilers). All four enterprises have 3 workers each. There are 3 supervisors: one each for dairy and fish, and one who does both layers and broilers.
 - a. Draw a diagram illustrating an appropriate hierarchy of authority (organizational chart) for this farm. (3 marks)
 - b. Explain the principle of *equamarginal returns* using Rodrigo's farm as an example. (2 marks)

3. Suele has a livestock farm and wishes to estimate the feed costs for her products. Answer the following questions using the following feed prices, feed conversion ratios, and dressing percentages.

PRODUCT	\$/50 kg bag	
Beef Pen Feeding Meal	13.00	
Layers mash	24.00	
Pig Grower/Finisher Meal (PGF)	22.00	
Mixture of concentrate:maize		
1:4 Beef Concentrate (1:4 BC)	20.00	1:4
Pig Grower/Finisher Concentrate (PGFC)	38.00	2:3
Maize	18.00	

Livestock class	Feed conversion ratio	Dressing percentage
Pigs- 10-12 kg	2.1	65
20-50 kg	2.7	70
50-110 kg	3.8	72
Beef feeder cattle	10	50

What is Suele's *feed* cost for producing one kg of meat, for the following? (4 marks)

Feed cost per kg of meat	Class of animal	Type of feed
a.	beef steer	pen feeding meal
b.	30 kg pig	PGFC + maize

- c. Suele can sell her pork to a local butchery for \$2.60 per kg (dressed weight). Will it be profitable for her? Explain. (2 marks)
- d. Suele found a feed supplier giving a big discount for layers mash, and she bought two years supply of feed for her layers. What are the problems with that? (2 marks)

4. The table below lists a number of enterprises in the first column. In the second column are terms in farm management. Give a *specific* example of each term from the enterprise listed in the 1st column.

(6 marks)

pigs	Non-current asset	a.
layers	Current asset	b.
soyabeans	Variable cost	c.
wheat	Fixed cost	d.
maize	Variable cost	e.
dairy	Current asset	f.

- g. There are three main financial summary documents. What does the balance sheet tell you about net worth? (1 mark)
- h. What is the major advantage for a farmer to sell her products to a wholesaler instead of in her own farm stall? (1 mark)

5. Vivian planted maize in her field of 12 hectares.
Before harvesting, she estimated the yield by taking a sample from a plot which was 30 m². She harvested 25.2 kg of maize grain from the plot.
- a. How many empty 50-kg bags does she need to buy to store her maize? (2 marks)
 - b. Vivian borrowed \$5 000 for inputs, at an interest rate of 1.2 % per *month*, compounded monthly. She repaid the loan after 6 months. How much did she pay in *interest* for the loan? (2 marks)
 - c. Vivian bought a small tractor for \$15 000. She plans to sell it after 8 years for 10% of the original cost.
What is the annual opportunity cost *per Ha* of the interest on her investment? (2 marks)
6. a. Fill in the missing steps in the decision-making process. (2 marks)
- i. Define the problem or decision to be made
 - ii. Elicit/find information about the issue
 - iii.
 - iv. Identify the best alternative
 - v.
 - vi. Evaluate the results of the decision
- b. When planning, objectives are supposed to be SMART. State the characteristic which the letter 'A' stands for, and give an example from a commercial dairy farm. (2 marks)
- c. There are four basic factors of production in agriculture. One is labour; another is capital. What are the other two? (2 marks)
7. Write an essay about how to be a successful farm manager, including characteristics of a good farm manager. (9 marks)

PART II. Answer ONE question only from this section.

8. Anotidaishe had a broiler project. Her record keeping showed the following:

Purchased 600 day-old chicks for \$1.10 each.

Feed used: Broiler starter mash- 11 bags @\$33 each

Broiler finisher mash 28 bags @\$32 each

Medicines- \$30

Labour- Mirela- Two months @\$40 per month

Casual employees for slaughtering- \$50 total

Allen (security) Two months @\$20 per month

Wood shavings- no charge but the transport cost \$15

Water and electricity- \$30

Plastic bags \$14

Sales- 582 dressed birds, total of 902 kg of meat @\$3.80 per kg

Offals and heads- \$35 total

- a. Make a table that clearly summarizes the finances of the project. (5 marks)
- b. Calculate the feed conversion of the birds and comment on it. (2 marks)
- c. Calculate the mortality and comment on it. (2 marks)

9. A farmer named Reese has a mixed farm. The maize is used mainly for feeding her livestock on the farm.

At the beginning of the year Reese had \$1 200 in liabilities, and \$6 000 in assets.

Overhead for individual enterprises was calculated based on proportion of total variable costs.

For the year 2018, the total variable costs and returns for the different enterprises were as follows:

	Total Variable Costs, \$	Returns, \$	Overhead	Total costs, \$	<u>Returns</u> TVC	Profit after overhead, \$
Maize	6,000	7,200				
Pigs	1,200	1,300		w	x	y
Fish	1,000	3,000				
Layers	3,500	5,000				z
TOTAL			1,200			

a. Give the values of **w**, **x**, **y**, and **z** in the table above. (4 marks)

b. Comment on the financial viability of the layers enterprise, giving reasons for your answers. (2 marks)

c. Comment on whether the proportion of overhead costs to variable costs is acceptable. (1 mark)

d. What was her net worth at the beginning of the year? (1 mark)

e. Comment on her financial health based on debt:asset ratio at the beginning of the year. (1 mark)

10. Bienvenue owns a broilers project named Bienvenue's Birds. He has asked you to help him organize the following data from his farm into meaningful information.

	1 April 2022, values in \$	31 Mar 2023, values in \$
Total farm liabilities	4,000	1,500
Total farm assets, market value	16,500	28,000
Accounts payable Balances		
FeedMix	200	150
ProFeeds	400	250
Accounts receivable balances		
PickNPay Butchery	320	120
Nando's	120	500
Inventory of broiler concentrate	260	330
Inventory of live chickens	2,300	2,500
Inventory of frozen chickens	300	520
Cash farm receipts		19,860
Cash farm expenses, including interest on debt		6,480
Building and equipment depreciation		250

Assume all other values are 0 or irrelevant, and that there is no inflation.

- Copy the table below and use it to construct a Profit/Loss Statement of Bienvenue's farm for the financial year. (6 marks)
- Assume 10% return on beginning of year equity. What was his return on labour and management? (3 marks)

Cash Receipts		
Change in Inventory (livestock and crops)		
Change in Accounts Receivable		
Total Accrual Receipts (TAR)		
Cash Expenses		
Change in Accounts Payable		
Change in Inventory (cash expense items on hand)		
Depreciation		
Total Accrual Expenses (TAE)		
	TAR- TAE =	
	Net Farm Income =	