



**MASTER OF MANAGEMENT IN AGRIBUSINESS
SPECIAL EXAM**

MMA 8303: FINANCIAL AND MANAGERIAL ACCOUNTING IN AGRIBUSINESS

Date: Friday 28th March 2025

Time: 3 Hours

Instructions:

- 1. Question One is Compulsory and must be answered**
- 2. Answer Two other questions choosing from Question Two to Four**

QUESTION ONE (50 Marks)

Use the case provided to answer parts (a), (b) and (d) of this question.

- (a) Briefly summarize the main business of the organization **(2 Marks)**

Solution

The principal activities of the company are the cultivation, manufacture and sale of tea.

- (b) Highlight Key incomes, expenses, assets, liabilities and capital of the company for 2022 and 2023. (Provide a maximum of three items based on material amounts). Suggest possible reasons for the changes in the figures from one period to the next. **(22 Marks)**

Use a table with the following headings:

Item	2022 (sh.m)	2023 (Sh.m)	Change +-Sh.m	Possible reason(s) for change
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Solution

Incomes	2022	2023	Change	Possible Reason for change
	sh.m	sh.m	sh.m	
Revenue	1,415	1,774	359	Increased Demand and Prices
Gains in fair Value	51	61	10	Gain in Market values
Interest income	31	35	4	Increased bank deposit
Finance Income	3	50	47	Increased lending

Expenses	2022	2023	Change	Possible Reason for change
	sh.m	sh.m	sh.m	
Cost of Sales	1,129	1,373	244	Increase in line with revenue
Distribution costs	67	78	11	Increase in operational costs
Admin Expenses	20	21	1	Marginal increase in benefits

Assets	2022	2023	Change	Possible Reason for change
	sh.m	sh.m	sh.m	
Property, Plant & Equipment	948	1,119	171	New acquisitions and revaluations
Biological Assets	258	311	53	Increase market values
Inventories	201	159	(42)	Disposals
Trade and other receivables	122	215	93	More credit sales
Cash and Bank	582	595	13	More receipts than payments

Liabilities	2022	2023	Change	Possible Reason for change
	sh.m	sh.m	sh.m	
Deferred Tax	279	365	86	More tax liabilities from revaluations
Pension Obligation	95	86	(9)	Payment of obligations
Trade & Other Payables	117	154	37	More credit purchases

Capital	2022	2023	Change	Possible Reason for change
	sh.m	sh.m	sh.m	
Share Capital	39	39	0	No new issues
Other Reserves	404	385	(19)	revaluation losses
Retained Profits	1,180	1,440	260	More profits

(c)(i) For each of the two years, compute the following ratios:

- Total Assets Turnover (2 Marks)
- Return on Equity (2 Marks)
- Cash Return on Revenue (2 Marks)
- Current Ratio (2 Marks)

Solution

Total Assets Turnover	2022	2023
<u>Revenue</u>	<u>1,415.00</u>	<u>1,774.00</u>
Total Assets	2,149.00	2,475.00
	<u>0.66</u>	<u>0.72</u>

Return on Equity	2022	2023
<u>Profit After Tax</u>	<u>214.00</u>	<u>315.00</u>
Total Equity	1,624.00	1,866.00
	<u>13.18%</u>	<u>16.88%</u>

Cash Return on Revenue	2022	2023
<u>Cash Flow from Operations</u>	<u>281.00</u>	<u>325.00</u>
Revenue	1,415.00	1,774.00
	<u>0.20</u>	<u>0.18</u>

Current Ratio	2022	2023
<u>Current Assets</u>	<u>908.00</u>	<u>1,011.00</u>
Current Liabilities	151.00	159.00
	<u>6.01</u>	<u>6.36</u>

(ii) Using the financial statements and the ratios computed above, comment on the following aspects of the business over the two years

- Efficiency (1 Mark)
- Profitability (1 Mark)
- Cash Flow (1 Mark)
- Liquidity (1 Mark)

Solution

-Efficiency (1 Mark)

Has improved with more revenue and an increase in total assets turnover

-Profitability (1 Mark)

Has improved with a better return on equity

-Cash Flow (1 Mark)

Has declined marginally with a decrease in CFO and CFO to revenue

-Liquidity (1 Mark)

Has improved with an increase in current assets and current ratio.

(d) Use the Balanced Scorecard to evaluate the performance for year 2023.

Provide the Five Perspectives, mentioning one goal and one measure you are using to evaluate the performance (10 Marks).

Use a table with the following headings

Perspective	Goal	Evaluation supported with a measure
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Solution

Perspective	Goal	Evaluation supported with a measure
Customer	Increase Customer Satisfaction	Customers were satisfied as indicated by revenue growth
Financial	Increase Profitability	Increased profitability from 214 million in 2022 to 315 million in 2023
Internal Process	Improve production processes	No indication of any improvements. Tea plucking continues to be manual
Innovation & Learning	Introduce new products	No new products introduced
Sustainability	Enhance Customer and employee Safety and environmental protection	Engaged in various community initiatives during the period.

QUESTION TWO (25 Marks)

The following balances were extracted from the books of Wakulima Ltd, a medium sized company in Agribusiness, as at 31 March 2024:

	Sh.'000'
Loan from Agricultural Finance Corporation (AFC)	180,000.00
Retained profits as at 1 April 2023	30,000.00
Ordinary Share Capital	816,000.00
Farm workers` wages	15,000.00
Manager`s salary	18,000.00
Cash in hand	78,000.00
Receivables	90,000.00
Farm tools	7,500.00
Repairs to farm machinery	1,500.00
Staff welfare	3,000.00
Farmhouse expenses	3,600.00
Purchase of: Seeds	12,000.00
Livestock	30,000.00
Fertilizer	7,500.00
Livestock feeds	2,100.00
Wages: Livestock feeds	48,000.00

Expenses: Crops	30,000.00
Livestock	36,900.00
Administration Expenses	12,000.00
Interest on Loan from AFC	13,500.00
Inventories as at 1 April 2023:	
Growing crops, seeds and fertilizers	60,000.00
Livestock	75,000.00
Livestock feeds	18,000.00
General insurance premium	14,400.00
Payables	45,000.00
Bank balance(overdraft)	9,000.00
Sale of: Crops	105,000.00
Cattle	180,000.00
Carcasses	45,000.00
Farm machinery	234,000.00
Land and building	600,000.00

Additional information:

1. Inventories as of 31 March 2024 were valued as follows:

	Sh.'000'
Growing crops, seeds and fertilizers	30,000.00
Livestock	120,000.00
Livestock feeds	3,000.00

2. Manager's salary is charged to livestock and crop revenue accounts in the ratio of 1:3 respectively.

3. Valuation of farm tools as at 31 March 2024 was Sh.6,000,000. Depreciation on farm machinery is to be provided at 20% per annum on book value. Depreciation and repairs on farm machinery are to be charged to the general income statement.

4. Insurance prepaid amounted to Sh.1,200,000 and is to be the general income statement.

5. Manure worth Sh.900,000 was used in the farm while farm crops used to feed the livestock were valued at Sh.390,000.

6. Receivables of Sh.1,500,000 are credit losses and an allowance for credit loss of 4% on the remaining amount is estimated.

7. Crops consumed by the farm workers were valued at Sh.3,000,000. This amount was recovered from their wages.

8. The shareholders provided farm labour valued at Sh.6,000,000 while crops valued at 9,600,000 were donated to charity during the year.

9. Income tax expense of Sh.9,000,000 is to be provided.

Required:

(a) Operating Statements of profit or loss for Crop and Livestock (side by side in columnar form), for the year ended 31 March 2024 (**12 Marks**).

(b) The overall statement of profit or loss for the year ended 31 March 2024 (**8 marks**).

Solution

Wakulima Limited

Crop and livestock revenue accounts for the year ended 31 March 2024.

	Crop	Livestock		Crop	Livestock
	Sh. '000'	Sh. '000'		Sh. '000'	Sh. '000'
Bal b/f					
Crops, seeds, fertilizer	60,000		Sales: crops	105,000	
Livestock		75,000	Cattle		180000
Livestock feeds		18,000	Carcasses		45000
Purchases-seeds	12,000		Manure-crop		900
-Livestock		30,000	Livestock	1,950	
-Fertilizers	7,500		Wages in kind	3,000	
-livestock feeds		2,100	Bal c/f		
Wages		48,000	Crops, seeds, fertilizer	30,000	
Expenses	30,000	36,900	Livestock		120000
Manager salary	13,500	4,500	Livestock feeds		3000
Manure-livestock	900				
Crops		1,950			
Wages in kind	3,000				
Free Labour	6,000				
General income statement.	<u>7,050</u>	<u>132,450</u>			
	<u>29,910</u>	<u>348,900</u>		<u>34,950</u>	<u>348,900</u>

(b) Wakulima Limited

Statement of Profit or Loss for the year ended 31 March 2024

	Sh. '000'	Sh. '000'
Profit from: Crop revenue account		7,050.00
: Livestock revenue account		<u>132,450.00</u>
		139,500.00
Less: Depreciation farm tools (7,500 – 6,000)	1,500.00	
Depreciation farm machinery (20% x 234,000)	46,800.00	
Repairs of farm machinery	1,500.00	
General insurance premium (14,400 - 1,200)	13,200.00	
Credit Loss	1,500.00	
Allowance for Credit Losses (40% x 88,500)	3,540.00	
Interest on mortgage	13,500.00	
Farmhouse expenses	3,600.00	
Staff welfare	3,000.00	
Farm workers' wages	15,000.00	
Administrative expenses	<u>12,000.00</u>	<u>(115,140.00)</u>
Profit before tax		24,360.00
Less income tax expenses		<u>(9,000.00)</u>
Profit for the year		15,360.00
Retained profit bal b/f		<u>30,000.00</u>
Retained profit bal c/f		<u>45,360.00</u>

(c) Highlight FIVE ways in which Wakulima Limited and other in Agribusiness can use software in Financial Reporting and Management Accounting (5 Marks)

Solution

1. Automates processes such as invoicing and billing
2. Provide layers of security and hence controls and data protection
3. Generate financial and management reports
4. Keep and audit trail for all transactions and activities
5. Analyse using key metrics and other reports such as variance reports.

QUESTION THREE (25 Marks)

(a) Agritracks limited, provides tractors and personnel to assist famers in ploughing, planting, weeding and harvesting in various counties in Kenya. Tractor and personnel are hired daily. The Chief Accountant is analyzing data for 10 tractors and personnel operating in Kitale, Tranzoia County for the purpose of estimating the daily rate to charge farmers, for every tractor hired.

The following information relates to the tractors:

	Shs
Initial cost of all tractors	30,000,000
Scrap value of all tractors	2,500,000
Insurance premium per annum per tractor	2,100,000
Labor cost- of replacing tyres per tractor	5,000
Labor cost- service per tractor	3,000
Replacement of spare parts per service per tractor	10,000
Price of fuel per litre	170

Additional information:

1. The tractors have an economic life of 2.5 years and depreciation is straight-line.
2. One tractor has 2 large tyres costing Sh.80, 000 each and 2 small tyres costing sh.20,000 each. These are replaced after every 25,000 kilometers.
3. Service is carried out on the tractors after every 5,000 kilometers.
4. On average, a tractor covers 10 kilometers per liter of fuel consumed.
5. It is estimated that a tractor operates 320 days in a year, with an average of 80 kilometers per day.
6. One tractor has a driver and two other personnel for each assignment. A driver is on a monthly salary of sh.45, 000 and the other personnel are paid sh.35, 000 per month. Other overheads allocated to this county amount to sh. 20, 000,000 per annum.

Required:

Compute the daily cost of providing farming services per tractor and the rate that farmers should be billed assuming that Agritracks limited wishes to make a profit of 20% on cost (14 Marks).

Solution

	Sh.
Depreciation	11,000,000.00
Insurance Premium	2,100,000.00
Service - Parts	512,000.00
Labor	256,000.00
Tyer Replacement - Tyres	2,048,000.00
Labor	51,200.00
Fuel Costs	4,352,000.00
Salaries - Drivers	5,400,000.00
Assistants	700,000.00
Other Overheads allocated to this county	<u>20,000,000.00</u>
Total annual costs of operating 10 Tractors	46,419,200.00
Number of days tractor is operating in a year	320
Daily cost of operating 10 tractors	145,060.00
Number of Tractors	10
Daily cost of a tractor	14,506.00
Gross Profit @ 20%	<u>2,901.20</u>
Fee charged per day per tractor	<u><u>17,407.20</u></u>

(b) Agrivet Medical center in Kajiado focuses on treating metabolic diseases in cows. The two main diseases, together with an estimate of the variable costs to treat a cow, an estimate of possible number of cows that will be treated in the next financial period is provided as follows:

	Acetonemia	Fatty Liver
Variable cost to treat a cow	Sh.4,500	Sh.10,000
Estimated number of Cows	2,000	1,000

Variable costs consist of medicine and other consumables incurred in treating or managing cow diseases. The clinic is estimating that operational fixed costs will be sh.8,000,000. These include the salaries paid to the vets, rent, and other operational salaries.

Required

- (i) The fee to be charged per cow to breakeven. Assume that the fee to treat Fatty Liver is nearly twice the fee of Acetonemia (**4 Marks**)
- (ii) The fee to be charged per cow to make a surplus of sh. 2,000,000. Assume that the fees are related like in (i) (**4 Marks**)
- (iii) Highlight THREE assumptions of breakeven analysis (**3 Marks**)

Solution

(i)

$$0 = (\text{SP1} \times 2,000) + (\text{SP2} \times 1,000) - 8,000,000$$

$$0 = (\text{SP1} \times 2,000) + (2\text{SP1} \times 1,000) - 8,000,000$$

$$0 = 4,000 \text{ SP1} - 8,000,000$$

$$\text{Therefore SP1} = \text{sh.2,000}$$

$$\text{SP2} = \text{sh.4,000}$$

(ii)

$$2,000,000 = 4,000\text{SP1} - 8,000,000$$

$$\text{Therefore SP1} = 2,500$$

$$\text{SP2} = 5,000$$

(iii)

-The selling price and variable cost per unit remain constant

-The Total fixed costs remain constant

-There is no opening nor closing inventory

QUESTION FOUR (25 Marks)

(a) Agrizone Limited carries out horticultural activities. The company is planning production for the second quarter of 2025. The management would like to know the optimal mix of vegetables for production for the next period.

The following summary relates to a similar quarter of 2024:

	Potatoes	Turnips	Parsnips	Carrots
Area occupied (acres)	25	20	30	25
Yield Per Acre (tons)	10	8	9	12
Selling price per ton	Sh.10,000	Sh.12,500	Sh.15,000	Sh.13,500
Variable cost per acre				
Fertilizers	3,000	2,500	4,500	4,000
Seeds	1,500	2,000	3,000	2,500
Pesticides	2,500	1,500	2,000	2,500
Direct Wages	40,000	45,000	50,000	57,000

Fixed overhead for the quarter was sh.5, 400,000.

The land that is being used to produce carrots and parsnips can be used for either crop, but not for potatoes or turnips. The land being used for potatoes and turnips can be used for either crop but not for carrots or parsnips. To provide an adequate market service, the company must produce for that quarter at least 40 tons each of potatoes and turnips and 36 tons each of parsnips and carrots.

Description of the Six Sigma main elements

Main elements	Their description
<i>Process Improvement in agricultural organizations</i>	Consists in finding directed solutions meant to induce the removal of the main causes of the problems that affect the company performance. The majority of the Six Sigma projects are efforts to improve the personnel structure
<i>Designing/re-designing the process in agricultural organizations</i>	The Six Sigma objective is not to fix the process but rather to replace the process with a new one (or to replace a part of the process). The business world is continuously changing nowadays and this thing makes impossible maintaining a company in a top position without re-designing the process.
<i>The Process Management in agricultural organizations</i>	In this case the Six Sigma themes and methods become an integrant part of the business management: <ul style="list-style-type: none"> - The processes are analyzed and managed and the responsibilities are assigned in order to ensure the crossed management of the main processes; - The client's requirements are clearly defined; - Profound evaluations of process results, activities and resources are carried out; - The leaders can evaluate performance in real time; - The process improvement, design and re-design in order to to increase the company levels of performance, competitiveness and profitability.

Kaizen



Hatchery

Reduction in egg damages, Improvement in Hatchability, Maximize equipment's reliability, Improvement in cleaning & hygiene (Bio Security), Optimization of raw material and other inventories, Improvement in on time error free deliveries of Day Old Chicks, Improvement in capabilities and discipline of employee (Performance Management System)



Farm

Effective Bio Security System, Reduction in Mortality, Improved FCR (Feed Consumption Ratio), Effective management of feed and water, Maximize equipment's reliability, Improvement in Houses maintainability, Improvement in Cropping process, Improvement in capabilities and discipline of employee (Performance Management System)



Processing Plant

Improvement in On Time In Full Error Free deliveries, Improvement in End to End Flow (Birds receiving to Dispatch), Maximize equipment's reliability, Inventories (Raw material and Finished Goods) Optimization, Improvement in capabilities and discipline of employee (Performance Management System)



Workshop

Improvement in MTTR (Mean Time To Repair) & MTBF (Mean Time Between Failure), Improvement in logistics system (Farm to Hatchery, Farm to Processing plant, Hatchery to Customers, Processing plant to Customers, Suppliers to Farm, Hatchery and processing plant), Optimize spares and other inventory levels, Setting up various cost monitoring, analysis and action system, World class workshop- 5S & Visual management, Improvement in capabilities and discipline of employee (Performance Management System)