TECHNICAL UNIVERSITY OF MOMBASA
SCHOOL OF BUSINESS
DEPARTMENT OF ACCOUNTING AND FINANCE
UNIVERSITY EXAMINATION FOR:
BTCE, BTME,BSEE, BSMA & BSME

BFI 4204: ECONOMICS AND ACCOUNTING FOR ENGINEERS
END OF SEMESTER EXAMINATION

MAIN EXAM APRIL 2025
TIME: 2 HOURS

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS.

QUESTION ONE (COMPULSORY)

(a) Maweni Co.Ltd has decided to experiment by applying the principles of activity based costing (ABC) to the four products currently made and sold by the company .Details of the four products and relevant information are given below for one period;

Product	**A**	**B**	**C**	**D**
Output in units	120	100	80	120
Costs per units	**Sh.**	**Sh.**	**Sh.**	**Sh.**
Direct material	40	50	30	60
Direct labor	28	21	14	21
Machine hours per unit	4hrs	3hrs	2hrs	3hrs

The 4 products are similar and they are usually produced in a production run of 20 units and sold in batches of 10 units.

The production overhead is currently absorbed by using machine hour rate, and the total of production overhead for the period has been analysed as follows:

	Sh.
Machine department costs (rent, business rates , depreciation and supervision	1,043,000
Set-up costs	525,000
Stores receiving	360,000
Inspection for quality control	210,000
Material handling dispatch	462,000

The cost drivers to be used are as listed below for the overhead costs shown**:**

Cost	Cost drivers
Set-up costs	Number of production runs
Stores receiving	Requisitions raised
Inspection for quality control	Number of production runs
Materials handling and dispatch	Orders executed

The number of requisitions raised on the stores was 20 for each product and the number of orders executed was 42, each order being for a batch of 10 of a product.

Required:

i. Calculate the total cost for each product if all overhead cost are absorbed on a machine hour basis **(4 marks)**

ii. Calculate the total costs for each product, using activity based costing**. (7 marks)**

iii. Calculate and list the unit product costs from your figures in (i) and (ii) above to show the differences and to comment briefly and any conclusions which may be drawn which could have pricing and profit implications; **(4marks)**

(b) Given that, $Q_x = 9 - 0.5p^2$

$Q_y = 8p + 0.5p^2$

Required :

i. Identify which of the two functions is a demand and a supply function **(3 marks)**

ii. Compute the point of elasticity of demand and the point of elasticity of supply of the equilibrium position **(4 marks)**

(c) Discuss the following fundamental economic concepts:

i. Scarcity and choice **(4 marks)**

ii. Opportunity cost **(4 marks)**

(Total marks 30)

QUESTION TWO

(a) Clearly explain the distinction between supply , demand and equilibrium price

(8 marks)

(b) State and explain four factors that may cause a fall in the supply of a good in the market. **(4 marks)**

(c) The table below shows the demand and supply schedules for a product

Price (sh. Per kg)	Demand (kg)	Supply (kg)
10	100	20
20	85	36
30	70	53
40	55	70
50	40	87
60	25	103
70	10	120

Required:

Plot the demand and supply curves and determine the equilibrium price and quantity.

(8 marks)

(Total marks 20 marks)

QUESTION THREE

Ali is a manufacturer. His trial balance at 31st December 2024 is as follows:

	Dr	Cr
	Sh000	Sh000
Delivery van expenses	1,760	
Lighting and heating -Factory -office	 7,220 1,490	
Manufacturing wages	72,100	
General expenses -Factory -office	 8,100 1,940	
Salesmen commission	11,688	
Purchase of raw materials	57, 210	
Rent: factory Office	6,100 2,700	
Machine (cost sh. 40 million)	28,600	
Office equipment (cost sh. 9 million)	8,200	
Office salaries	17,740	
Accounts receivable	34,200	
Accounts payable		9,400
Bank	16,142	
Sales		194,800
Motor van (cost sh. 6.8 million)	6,200	
Inventory at 31st December 2023: -Raw materials -Finished goods	 13,260 41,300	
Drawings	24,200	
Capital		155,950
Total	**360,150**	**360,150**

Additional information:

i. Inventory at 31st December 2024:

Raw materials sh. 14,510,000

Finished goods sh.44,490,000

There is no work in progress.

ii. Depreciation: Machinery sh. 3,000,000

Office equipment sh. 600,000

Motor van sh. 1,200,000

iii. Manufacturing Wages due to unpaid at 31st December 2024 sh. 550,000

iv. Office rent prepaid sh. 140,000

Required:

Prepare the following:

a) Manufacturing account **(4 marks)**

b) Income statement for Ali enterprises for the year ending 31st December, 2024 and; **(10marks)**

c) A Statement of financial position as at that date **(6 mark)**

(**Total 20marks)**

QUISTION FOUR

A company reapportions the overhead cost incurred by two service cost centers materials handling (stores) and maintenance, to the three production cost centers of machining ,finishing and assembling

The following are the overhead costs which have been allocated and apportioned to the five cost centers :

	Sh.000
Machining	400,000
Finishing	200,000
Assembly	100,000
Materials handling (stores)	100,000
Maintenance	50,000

Estimate of the benefits received by each cost centre are as follows;

	Machining	Finishing	Assembly	Material	maintenance

				handling	
	%	%	%	%	%
Material Handling(stores)	30	25	35	-	10
Maintenance	20	30	45	5	-

Required:

a) Calculate the charges for overhead costs to each of the three production cost centers (departments), including the amounts reapportioned from the two service centres using:

i. The continuous allotment (or repeated distribution) method **(10 marks)**

ii. Algebraic (simultaneous equation) method **(10 marks)**

(**Total marks 20)**

QUESTION FIVE

Magomeni Co. Ltd. produces and sells a single product, wallets. Selected cost and operating data relating to the product for two years are given below:

Selling price per unit	Sh.50
Manufacturing Costs:	
Variable cost per unit produced:	
Direct Materials	Sh.11
Direct Labour	Sh.6
Variable overheads	Sh.3
Fixed Cost per year	Sh.120,000
Selling and administrative costs:	
Variable Cost per unit sold	Sh.5
Fixed per year	Sh.70,000

	Year 1	**Year 2**
Units in beginning Inventory	0	2,000
Units produced during the year	10,000	6,000
Units sold during the year	8,000	8,000
Units in ending inventory	2,000	0

Required:

1. Assume that the company uses absorption costing.
   (a) Compute the unit product cost in each year. **(4 marks**)
   (b) Prepare an income statement for each year. **(4 marks)**
2. Assume that the company uses marginal costing.
   (a) Compute the unit product cost in each year. **(4 marks)**
   (b) Prepare an income statement for each year. **(4 marks)**
3. Reconcile the marginal costing and absorption costing net profits. (**4 marks)**

(Total 20 marks)