CERTIFIED PUBLIC ACCOUNTANT

FOUNDATION LEVEL 2 EXAMINATIONS

F2.1 MANAGEMENT ACCOUNTING

DATE: WEDNESDAY 27, NOVEMBER 2024

MARKING GUIDE & MODEL ANSWERS

QUESTION ONE

Marking guide

(a) List of eight steps followed during budget preparation process

Question	Criteria	Marks
Q1 (a)	Award **1 Mark** for each step provided by the student	8
Q1 (b)	(i) Award **2 Marks** for clear definition of flexible budget	2
	(ii)	
	✓ Award **0.5 Mark** for Flexed Sales and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Raw Material and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Labour and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Variable costs and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Total Direct Costs	0.5
	✓ Award **0.5 Mark** for Flexed Fixed Operating costs and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Variable Operating costs and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Fixed Selling&Distribution costs and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Flexed Variable Selling&Distribution costs and **0.5 Mark** for Variance and interpretation	1
	✓ Award **0.5 Mark** for Total Direct Costs	0.5
	✓ Award **0.5 Mark** for correct Net Operating Profit	1
	(b) (ii) Total Marks	**10**
Total		**20**

Model answers

a) Eight steps followed in the budget making process for a company

1. Determine the long-term objectives of the organization
2. Formation of a budget committee
3. Preparation of a budget manual
4. Identification of the principal budget factor (Limiting factor)
5. Preparation of an initial budget that factors in slack
6. Review of Initial Budget
7. Preparation of a master budget
8. Continuous review of the budget making process

(b) (i) Flexible budget:

Flexible budget is defined as A budget in which recognizing the difference in behavior between fixed and variable costs in relation to fluctuations in output, turnover, or other variable factors such as number of employees, is designed to change appropriately with such fluctuations.

Flexible budget is a budget which recognize different costs behavior patterns and is designed to changes as volume of activity changes

Flexible budgets take out the effect of volume changes between actual and budget, and focus instead on the variances resulting from changes in the efficiency with which resources are used, and from the price of the resources

(b) (ii) Revised operating statement using a flexible budget approach

Details	**Working**	**Flexed budget**	**Actual results**	**Variance**	**Variance interpretation**
Production		6,100,000	6,100,000		
Sales	10,955,000*(6,100,000/5,200,000)	12,851,058	11,420,000	(1,431,058)	Adverse
Direct costs:					
Raw materials	3,170,700*(6,100,000/5,200,000)	3,719,475	3,455,000	(264,475)	Favorable
Labour	1,430,500*(6,100,000/5,200,000)	1,678,087	1,685,000	6,913	Adverse
Variable costs	976,300*(6,100,000/5,200,000)	1,145,275	737,400	(407,875)	Favorable
		6,542,837	**5,877,400**	**(665,437)**	
Operating costs					
Fixed	1,200,000*(6,100,000/5,200,000)	1,407,692	1,510,100	102,408	Adverse
Variable	565,000*(6,100,000/5,200,000)	662,788	382,400	(280,388)	Favorable
Selling and distribution costs					
Fixed	1,218,600*(6,100,000/5,200,000)	1,429,512	1,430,000	488	Adverse
Variable	1,072,000*(6,100,000/5,200,000)	1,257,538	539,200	(718,338)	Favorable
Total costs		**4,757,531**	**3,861,700**	**(895,831)**	
Net operating profit		**1,550,690**	**1,680,900**	**130,210**	

QUESTION TWO

Marking guide

Question	Criteria	Marks
Q2 (a)	✓ Award **2 Mark** for four well explained element of cost, if student **only listed** element of cost, award **1 Mark** for each listed element.	8
Q2 (b)	✓ Award **1 Mark** for correct abnormal loss and **1 Mark for** abnormal gain ✓ Award **1 Mark** for Process1 cost per unit and **1 Mark** for process2 cost per unit ✓ Award **1 Mark** for calculate total cost of output and losses process **1 Mark** for calculate total cost of output and losses for process2 ✓ Award **2.5 Marks** for process1 account ✓ Award **2.5 Marks** for process2 account Award **1 Mark** for abnormal loss and gain account	2 2 2 2.5 2.5 1
Total		**20**

Model answers

(a) Main element of costs in management accounting according to their behaviours are:

1. **Variable costs:** these are costs which vary in proportion to the changes in level of activity of output or production.
2. **Fixed costs:** These are costs which remain fixed irrespective of the level of activity or production of output in short term. i.e. Rent, insurance, salary of permanent staff.
3. **Mixed costs:** also known as "**Semi-Variable Costs**" these are costs which has both elements of fixed and element of variable costs where fixes element remains constant in a certain range of activity while variable element varies with the changes in activity level. For example, electricity consumption in office can remain the same over the period of time while varies (increase/decrease) depending on the direct part of the production (Electricity consumed by machine involved in production).
4. **Stepped costs-**Remain fixed for sometime then change to variablencomponent.

(b) Preparation of the process account and abnormal loss or gain for each assignment.

Step1: Determining output and losses

Assignment1	Working	Units
Actual output		13,500
Normal loss	(8%*Frw 15,000)	1,200
Abnormal loss (Balancing figure)		300
Input		15,000

Assignment2	Working	Units
Actual output		12,720
Normal loss	(8%*Frw 13,500)	1,080
Abnormal gain (Balancing figure)		(300)
Input		13,500

Step2: Calculate cost per unit of output and losses

For each assignment, the cost per unit is based on expected output

Process1	**Working**	**Units**
Expected output	(15,000 - (15,000*8%)	13,800

Cost per unit Process1 = $\frac{Cost\ of\ input}{Expected\ units\ of\ output} = \frac{Frw\ 20{,}500{,}000}{13{,}800}$ = Frw 1,486

Process2	**Working**	**Units**
Expected output	(13,500 - (13,500*8%)	12,420

Cost per unit Process2 = $\frac{Cost\ of\ input}{Expected\ units\ of\ output} = \frac{Frw\ 20{,}500{,}000}{12{,}420}$ = Frw 1,651

Step3: Calculate total cost of output and losses

Process 1	**Working**	**Total (Frw)**
Cost of output	(13,500*Frw 1,486)	20,054,348
Normal loss		-
Abnormal loss	(300*Frw 1,4860)	445,652
Total costs		20,500,000

Process 2	**Working**	**Total (Frw)**
Cost of output	(12,720*Frw 1,651)	20,995,169
Normal loss		-
Abnormal loss	(1,080*Frw 1,651)	(495,169)
Total costs		20,500,000

Step 4: Complete process accounts

Process account1						
Process1	**Units**	**Total (Frw)**		**Process1**	**Units**	**Total (Frw)**
Cost of input	15,000	20,500,000		Normal loss	1,200	-
				Finished goods Account (13,500*Frw 1,486)	13,500	20,054,348
				Abnormal loss Account (300*Frw 1,486)	300	445,652
Total	**15,000**	**20,500,000**			**15,000**	**20,500,000**

Process account						
Process2	**Units**	**Total (Frw)**		**Process2**	**Units**	**Total (Frw)**
Cost of input	15,000	20,500,000		Normal loss	1,080	-
Abnormal gain (700*Frw 1,486)	300	445,652		Finished goods Account (12,720*Frw 1,651)	12,720	20,995,169
Total	**15,700**	**20,995,169**			**15,700**	**21,995,169**

Abnormal loss or Gain Account						
Process2	**Units**	**Total (Frw)**		**Process1**	**Units**	**Total (Frw)**
Abnormal gain	300	445,652		Abnormal loss	300	445,652
Total	**300**	**445,652**			**300**	**445,652**

QUESTION THREE

Marking guide

Question	**Criteria**	**Marks**
Q3 (a)	Award **2 Mark** for clear definition of JIT	2
Q3 (b)	✓ Award **1 Mark** for formula of labour efficiency ratio ✓ Award **1 Mark** for formula of labour capacity ratio ✓ Award **1 Mark** for formula of labour production volume ratio ✓ Award **1 Mark** for formula of standard labour hours **Maximum marks** ✓ Award **2 Mark** for correct computation and interpretation of labour efficiency ratio ✓ Award **2 Mark** for correct computation and interpretation of labour capacity ratio ✓ Award **2 Mark** for correct computation and interpretation of labour production volume ratio **Maximum marks**	1 1 1 1 **4** 2 2 2 **6**
Q3 (c)	Award **2 Marks** for each well listed and explained labour remuneration method. (if only listed, Award **1 Mark,** if Listed and Explained, Award **2 Marks)**	8
Total		**20**

Model answers

(a) **Just In Time (JIT):** also known as "Stockless Production" Refers to the inventory management system where no stock is held no raw material stock and no finished goods stock, but there will usually be a small amount of work-in-progress.

It is a method where rather than producing goods and supply them from stock, it focuses on producing exactly the amount of goods needed by the customers within exact time bound.

(b) Computation of labour efficiency ratio, the labour capacity ratio and the production volume ratio and interpretation of the results

(1) Labour efficiency ratio = $\frac{\textbf{standard labour hours for actual output x 100}}{\textbf{actual labour hours worked}}$

Standard labour hours for actual output = $\frac{12{,}000*100}{10{,}000} = 4{,}800\ hours$

Detail	**Unit**	**Value**
Budgeted labour hours	Hour	4,000
Actual labour hours	Hour	4,200

Then,

Labour efficiency ratio = $\frac{4{,}800*100}{4{,}200} = 114\%$ **"F"**

Note that;

- A ratio that is higher than 100 % is **"Favourable (F)".**
- If it is 100%, then standard labour hours for actual output are equal to actual labour hours.
- A ratio less than 100% is **"Adverse (A)".**
- The higher, the ratio, the better

(2) Labour capacity ratio= $\frac{\textbf{Actual hours worked x 100}}{\textbf{Budgeted hours}} = \frac{4{,}200 \text{ x } 100}{4{,}000} = 105\%$**"F"**

(3) Labour production volume ratio= $\frac{\text{standard labour hours for actual outpuy x 100}}{\text{budgeted labour hours}}$

Labour production volume ratio= $\frac{4{,}800 \text{ x } 100}{4{,}000} = 120\%$ **"F"**

(c) **Explanation of at least 4 types of labour remuneration method**

1. **FIXING WAGE RATES:** Wage rates may be fixed by individual agreement between employer and employee, or more commonly by collective bargaining between trade unions and employers' associations. An employer may pay wages on an hourly basis, per piece, or may adopt one of the various bonus methods of payment, but the general principle of a wages policy is to obtain the maximum production per RWF of wages paid while maintaining an acceptable quality of production, within the limits
2. **TIME RATES:** This is a system of paying workers for the time worked rather than for work produced. It may be in the form of an hourly rate, or shift or weekly rate for an agreed number of hours.
3. **INCENTIVE SCHEMES:** This is a system where employees are rewarded with additional earning depending on a given factors, mostly performance.
4. **PIECE-RATES:** is a system where each worker is paid on his merits, and thus individual effort.
5. **DIFFERENTIAL PIECE-RATE SYSTEMS:** The principle behind differential piece-rate systems is to introduce an additional incentive, at the point when most workers feel it is not worthwhile putting any more extra effort into their work - in other words, to encourage them to put in that extra effort.
6. **PREMIUM BONUS SCHEMES:** The main systems using the premium bonus principle are Halsey or Halsey-Weir and Rowan systems. These are important and most examination questions on incentive schemes will he based on them. In premium bonus systems a time allowance and not a piece rate is made for a job. The bonus arising from greater production is shared between employer and employee.
7. **GROUP BONUS SCHEMES:** Incentive bonus schemes can be applied to the group as well as to individuals. The bonus is calculated for the group and shared among them on an agreed basis.

QUESTION FOUR

Marking guide

Question	Criteria	Marks
Q4	**Process I Account:**	1
	✓ Award **0.5 Mark** for opening WIP and **0.5 Mark** process I stock	
	✓ Award **0.5 Mark** for material cost and **0.5 Mark** for WIP c/f	1
	✓ Award **1 Mark** for formula of labour costs	1
	✓ Award **1 Mark** for formula of overhead cost	1
	✓ Award **1 Mark** for balancing total	1
	Maximum marks for process I	**5**
	PROCESS I STOCK ACCOUNT	
	✓ Award **0.5 Mark** for b/d and **0.5 Mark** for process II balance	
	✓ Award **0.5 Mark** for Process II completed	1
	✓ Award **0.5 Mark** for stock b/f balance	0.5
	✓ Award **1 Mark** for balancing total	0.5
	Maximum for Process I stock account	1

		3
	Process II Account: ✓ Award **0.5 Mark** for opening WIP and **0.5 Mark** process I stock ✓ Award **0.5 Mark** for material cost and **0.5 Mark** for WIP c/f ✓ Award **1 Mark** for formula of labour costs ✓ Award **1 Mark** for formula of overhead cost ✓ Award **1 Mark** for balancing total **Maximum marks for process II**	1 1 1 1 **5**
	FINISHED STOCK ACCOUNT ✓ Award **0.5 Mark** for b/d and **0.5 Mark** profit/loss account ✓ Award **0.5 Mark** for completed process II and **0.5 Mark** sales account b/f ✓ Award **1 Mark** for balancing total **Maximum for Process I stock account**	1 1 1 **3**
	✓ Award 2 Marks for correct calculation of Over/Under absorption of overhead costs ✓ Award 2 Marks for correct profit computation	2 2
Total		**20**

Model answers

PROCESS I ACCOUNT								
Details	**Units**	**Cost/Unit**	**Total**		**Details**	**Units**	**Cost/Unit**	**Total**
		Frw	**Frw**				**Frw**	**Frw**
Opening WIP	1,400	250	350,000		Process I stock	9,600	500	4,800,000
Material	8,800		2,000,000		WIP c/d	600	250	150,000
Labour			2,000,000					
Overhead (1,200*Frw 500		500	600,000					
Total	**10,200**		**4,950,000**			**10,200**		**4,950,000**
WIP bld	600	250	150,000					

PROCESS I STOCK ACCOUNT								
Details	**Units**	**Cost/Unit**	**Total**		**Details**	**Units**	**Cost/Unit**	**Total**
		Frw	**Frw**				**Frw**	**Frw**
Balance b/b	1,000	500	500,000		Process II	9,000	500	4,500,000
Completed Process1	9,600	500	4,800,000					
					Balance c/f	**1,600**	500	800,000
Total	**10,600**		**5,300,000**			**10,600**		**5,300,000**
Balance b/f	1,600	500.00	800,000					

PROCESS II ACCOUNT								
	Units	**Cost/Unit**	**Total**		**Details**	**Units**	**Cost/Unit**	**Total**
		Frw	**Frw**				**Frw**	**Frw**
Opening WIP	644	154.658	99,600		Finished stock	9,444	900	8,499,600
Process I stock	9,000	500	4,500,000		WIP c/d	200	500	100,000
Material			1,400,000					
Labour			2,100,000					
Overhead (2,000*Frw 250		250	500,000					
Total	**9,644**		**8,599,600**			**9,644**		**8,599,600**
WIP bld	200	250	50,000					

FINISHED STOCK ACCOUNT								
	Units	**Cost/Unit**	**Total**		**Details**	**Units**	**Cost/Unit**	**Total**
		Frw	**Frw**				**Frw**	**Frw**
Balance b/d	1,111	900	999,900		Profit & loss a/c	10,000	900	9,000,000
Completed process II	9,444	900	8,499,600		sales Balance c/f	**555**	900	499,500
Total	**10,555**		**9,499,500**			**10,555**		**9,499,500**
Balance b/f	555	900	499,500					

PRODUCTION OVERHEAD ACCOUNT			
	Amount	**Details**	**Amount**
Actual expenditure	1,150,000	Process I	600,000
		Process II	500,000
			1,100,000
		Under/Over absorption of overhead*	**50,000**
	1,150,000		1,150,000

PROFIT AND LOSS ACCOUNT			
Details	**Working**	Amount (Frw)	Amount (Frw)
Sales	(10,000*Frw 1,100)		11,000,000
Less:			
Cost of sales	(9,000*Frw 900)	(8,100,000)	
Under absorption of overhead		(50,000)	(8,150,000)
Profit			2,850,000

QUESTION FIVE

Marking guide

Question	Criteria	Marks
Q5 (i)	Award **2 Mark** for clear definition of margin of safety	2
Q5 (ii)	✓ Award **0.5 Mark** for formula of BEP in units ✓ Award **0.5 Mark** for formula of BEP in value ✓ Award **2.5 Mark** for correct calculated BEP in units ✓ Award **2.5 Mark** for correct calculated BEP in value **Maximum marks**	0.5 0.5 2.5 2.5 **6**
Q5 (iii)	✓ Award **2 Mark** for correct computation targeted profit units ✓ Award **2 Mark** for correct computation targeted profit value **Maximum marks**	2 2 **4**
Q5 (iii)	✓ Award **2 Mark** for correct computation Margin of safety before increase ✓ Award **2 Mark** for correct computation Margin of safety after increase **Maximum marks**	2 2 **4**
Q5 (iv)	Award **1 Marks** for four well listed and explained limitations of CVP analysis	4
Total		**20**

Model answers

(a) Margin of safety: This refers to the difference between a firm's actual or expected sales, and the sales which would be needed to break even. It may be expressed as a percentage of the actual sales.

(b) Computation of Break-even-point in units and value

Data given	Details	Amount (Frw)
1	Fixed costs	12,000,000
2	Variable costs per unit	67,500
3	Targeted profit in year 1	12,685,000
4	Selling price per unit	135,500
5	Expected sales after year 1	

- **Break-even-point in unit =** $\frac{\textbf{Fixed costs}}{\textbf{(Selling price per unit - Variable cost per unit)}}$

Break-even-point in unit = $\frac{12,000,000}{(135,500 - 67,500)}$ **= 176 units**

- **Break-even-point in value = Break-even point (in units) * Selling price per unit**

Break-even point in value = 176 units * Frw 135,500 = Frw 23,911,765

(c) **Targeted profit calculation in units =** $\frac{\textbf{(Fixed costs + Targeted profit)}}{\textbf{(Selling price per unit − Variable cost per unit)}}$

Targeted profit in units=$\frac{(12{,}000{,}000 + 12{,}685{,}000)}{(135{,}500 - 67{,}500)} = \frac{(12{,}000{,}000 + 12{,}685{,}000)}{(135{,}500 - 67{,}500)} = 363\ Units$

Targeted profit in value= Targeted profit point (in units) ∗ Selling price per unit

or

Targeted sale Revenue in value = Activity level (Unit) for Targeted profit ∗ Selling price per unit

Targeted profit in value = 363 units * Frw 135,500 = Frw 49,188,493

(d) Margin of Safety calculation:

Margin of Safety = $\frac{\textbf{(Current sales − Break−even sales)}}{\textbf{Current sales}} \times \mathbf{100\%}$

Or

Margin of Safety = $\frac{\textbf{Budgeted sales Volume − Breakeven sales valume)}}{\textbf{budget sales volume}} \times \mathbf{100\%}$

Before increase of 10%

Margin of Safety = $\frac{(49{,}188{,}493 - 23{,}911{,}765)}{49.188{,}493} * 100 = 51\%$

After increase of 10%

Units to be sold at targeted profit **363 units**

10% increase, units become (363 units + 363 units * 10% = **399 units**

Targeted profit calculation in values = Targeted profit point (in units) × Selling price per unit

Targeted profit calculation in values = $399 units * Frw\ 135,500 = Frw\ 54,107,342$

Margin of Safety = = $\frac{(54{,}107{,}342 - 23{,}911{,}765)}{54{,}107{,}342} * 100 = 56\%$

Margin of safety Unit= Budgeted sales volume – Breakeven sale volume

Margin of safety Unit= 399 Unit – 176 Unit = 223 Unit

Margin of safety Revenue = (Budgeted sales unit – Breakeven sales unit) * Sales price per unit

Margin of safety Revenue = 223 Unit * FRW 135,500 = FRW 23,848,000

(e) Limitation of CVP analysis

- ✓ The CVP analysis is time consuming
- ✓ The analysis is only applicable to a single product
- ✓ Where there is difficult in classifying costs between variable and fixed, it is difficult to apply it
- ✓ At all levels of output, it assumes that sales price remains constant
- ✓ At all levels of output, it assumes that unit variable cost is constant
- ✓ At all levels of output, it assumes that fixed cost is constant which is not practicable in the long run
- ✓ Inventory is not taken into consideration
- ✓ It is not useful for production planning

QUESTION SIX
Marking guide

Question	Criteria	Marks
Q6 (a)	Award **2 Mark** for clear definition of limiting factor	2
Q6 (b)	✓ Award **1.5 Marks** for computation of NTWC required supply ✓ Award **1.5 Marks** for computation of BTWC required supply Award 2 **Marks** for contribution per unit of the limiting factor ✓ Award **1 Mark** for correct ranking ✓ Award **1 Mark** for correct computation East African supply ✓ Award **1 Mark** for correct computation Dubai supply ✓ Award **2 Marks** for correct computation Euro Market supply **Maximum marks**	1.5 1.5 2 1 1 1 2 **10**
Q6 (c)	✓ Award **1 Mark** for correct computation East African supply ✓ Award **1 Mark** for correct computation Dubai supply ✓ Award **1 Mark** for correct computation Euro Market supply **Maximum marks**	1 1 2 **4**
Q6 (d)	✓ Award **1.5 Mark** for correct computation contribution ✓ Award **1.5 Mark** for correct computation net contribution ✓ Award **1 Mark** for advice **Maximum marks**	1.5 1.5 1 **4**
Total		**20**

Model answers

(a) **Limiting factor:** This refers to any factor that is in scarce supply and that prevents an organization from expanding its activities further, for instance, it limits the organization's activities such as production capacity or evens supply capacity. Usually the objective is to maximize total profits which depend on getting the highest contribution margin per unit of the limiting factor.

(b) The first step is to check whether the supply of each material is adequate or whether either or both of them represent a limiting factor.

Details	East African Market (EAM)	Euro Market (EM)	Dubai Market (DM)	Total
Maximum sales demand (units)	170	160	155	
NTWC (kgs)	10	40	20	
Total NTWC required (Kg)	**1,700**	**6,400**	**3,100**	**11,200**
BTWC (Kgs)	30	55	44	
Total BTWC required (Kg)	**5,100**	**8,800**	**6,820**	**20,720**

** It is clear that for this, there will be sufficient* NTWC *to satisfy the maximum demand for the market but* BTWC *will be a limiting factor. Thus, we employ the decision rule of maximizing the contribution per unit of the limiting factor. Rank material* BTWC *in this order and then allocate according to this ranking.*

Details	East African Market (EAM)	Euro Market (EM)	Dubai Market (DM)
Contribution per unit sold (FRW)	175	140	208
BTWC (Kgs)	30	55	44
Contribution per BTWC required (Kg)	**5.83**	**2.55**	**4.73**
Ranking	**1st**	**3rd**	**2nd**

**Therefore, NOT Ltd Should Supply as much to East African Market (EAM). Then, when maximum demand for Dubai Market (DM) has been met, any BTWC, should be supplied to Euro Market (EM).*

The optimal supply plan for the next period will be:

Market	Recommended supply	BTWC supplied	Total contribution
East African Market (EAM)	170	5,100	29,750
Dubai Market (DM)	155	6,820	32,240
		11,920	**61,990**
Euro Market (EM)	61*	3,380 (Balance)	8,604
		15,300	**70,594**

(c) The recommended supply plan in part (b) does not include sufficient Euro Market (EM) to satisfy the requirements of 90 units. Some of the supply allocated to Dubai Market (DB) (second in the ranking) must be allocated to supply of Euro Market (EM). The recommended supply plan will now be as follows:

Market	Recommended supply	BTWC supplied	Total contribution
East African Market (EAM)	170	5,100	29,750

Market	Recommended supply	BTWC supplied	Total contribution
Dubai Market (DM)	119**	5,250**	24,818
		10,350	**54,568**
Euro Market (EM)	90*	4,950*	12,600
		15,300	**67,168**

*If 61 units required supply of 3,380 of BTWC; 90 units will require: (90*3,380)/61 = 4,950
Outstanding BTWC after East African Market of 5,100 and Euro Market of 4,950, remaining available BTWC is (15,300 – 5,100 – 4,950) = 5,250. Then, if 6,820 required 155, then, 5,250 will require: (5,250*155)/6,820 = **119 units

(d) Advice to the shareholders of GMS Ltd based on the performance results the portfolio to be closed out.

Details	Supermarket at Nyamata	Garage at Gikondo	Liquor store at Nyarutarama	Total
Sales revenue (A)	100,000,000	180,000,000	210,000,000	490,000,000
Variable costs (B)	80,000,000	126,000,000	136,000,000	342,000,000
Contribution C=(A-B)	**20,000,000**	**54,000,000**	**74,000,000**	**148,000,000**
Less:				
Fixed costs (D)	31,000,000	21,000,000	40,000,000	92,000,000
Net contribution E=(C-D)	**(11,000,000)**	**33,000,000**	**34,000,000**	**56,000,000**

*Supermarket at Nyamata should be closed out from GMS Ltd portfolio as it is a loss making to the shareholders of GMS Ltd.

QUESTION SEVEN
Marking guide

Question	Criteria	Marks
Q7 (a)	✓ Award **2 Mark** for clear explanation of controllable cost ✓ Award **1 Mark** for each example of controllable cost ✓ Award **2 Mark** for clear explanation of non-controllable cost ✓ Award **1 Mark** for each example of non-controllable cost **Maximum marks**	2 2 2 2 **8**
Q7 (b)	✓ Award **1 Marks** for correct computation of XY ✓ Award **1 Marks** for correct computation of X^2 ✓ Award **1 Marks** for correct computation of Y^2 ✓ Award **1 Mark** for correct formula of regression analysis ✓ Award **2 Mark** for correct computation b ✓ Award **2 Mark** for correct computation a ✓ Award **2 Marks** for correct alignment of regression equation ✓ Award **2 Marks** for correct next year total production forecast **Maximum marks**	1 1 1 1 2 2 2 2 **12**
Total		**20**

Model answers

(a) Difference between controllable and non-controllable costs

Controllable cost: Refers to the cost which can be influenced by the actions of a person in whom authority for such control is vested.

Example:

1. **Labour** cost can be influenced by the method of remuneration and the degree at management control which is exercised by a certain manager,
2. Advertisement costs in charge of the marketing department can control how much to be spent in advertisement and promotion
3. Training costs can be controlled

Non-controllable cost: Refers to the costs which cannot be influenced by a person in whom authority for such control is vested.

Example:

1. If the trade union demands an increase in wages the increment is non controllable cost. Similarly,
2. Utility costs (Electricity, water and gaz) those costs can not be controlled as they are fixed by the government depending on the market rate.
3. Depreciation of a building is a non-controllable cost to a manager as he does not have authority over depreciation.

(b) Assume linear relationship between two activity level and total production costs

Activity level (unit)	X
Cost	Y

Formula to be used for Regression Analysis Y = a + bX where **a**: is Fixed cost and **b**: is Variable cost.

Quarter	**X**	**Y**	**XY**	**X^2**
1	15,000	300,000	4500000000	225000000
2	45,000	615,000	27675000000	2025000000
3	25,000	470,000	11750000000	625000000
4	55,000	680,000	37400000000	3025000000
5	30,000	520,000	15600000000	900000000
6	20,000	350,000	7000000000	400000000
7	35,000	590,000	20650000000	1225000000
8	60,000	740,000	44400000000	3600000000
Sum	285,000	4,265,000	168,975,000,000	12,025,000,000

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

Equation of regression line in form of Y = a + bX become:

b=208,931.55

a=9.1

R=96%

Y=208,931.55+9.1X

Where X the period (quarter)

Quarter 1 of 2023, X=9

When X=9, Y=209,013.45

End of Marking Guide and Answer Model