CERTIFIED PUBLIC ACCOUNTANT
ADVANCED LEVEL 2 EXAMINATIONS
A2.2: STRATEGIC PERFORMANCE MANAGEMENT
DATE: THURSDAY,28 JULY 2022
MARKING GUIDE AND MODEL ANSWER

SECTION A

Marking Guide

QUESTION ONE:	**Marks**
(a)	
i) Recalculation the budgeted performance measures for each division,	
Revised sales (1 Mark per each division)	2
Revised Variable costs (1Mark per each division)	2
Finance charges (1 Mark per each division)	2
Revised ROCE (1Mark per each division)	2
Revised Operating profit margin (1 Mark per each division)	2
Revised asset turnover (1 Mark per each division)	2
Presentation of revised income statement	1
Maximum Marks	**13**
ii) Discussion the changes to the performance measures of the divisions	
Residual income	1
ROCE	1
Operating profit margin	1
Asset turnover	1
Maximum Marks	**4**
iii) Discuss the problems that could arise for each of the Divisional Managers and how can be resolved	
Explaining how there will be goal incongruence and loss for the group	2
Dual prices and its relevance	1.5
Two tariff prices and its relevance	1.5
Maximum Marks	**5**
Total marks	**22**
(b)	
i) Award 0.5mark for each point well explained, the maximum is 2.5 Marks	2.5
ii) Customer profitability analysis Award 1.5 marks for each customer's profit	4.5
Customer ranking and conclusion	1
Maximum Marks	**8**
Total marks	**8**
(c)	
i) ROI	
Award 1 mark for ROI of each division	2
Award 1 mark for a well explained ROI relative performance, maximum 5	5
Maximum Marks	**7**
ii) Residual Income(RI)	
Award 1.5 marks for each division's RI	3
Award 0.5 mark for each well expalained implication, maximum 1 marks	1
Maximum Marks	**4**

iii) Other methods to evaluate division's performance	
Award 1 mark for each explained method, maximum 3 marks	3
Maximum Marks	**3**
Total marks	**14**
(d)	
Transfer pricing and arm's length principle methods	
Award 0.5 mark for each well explained method, maximum 1.5 marks	1.5
Award 0.5 marks for each advantage and disadvanatge, maximum 4 marks	4
Presentation	0.5
Maximum Marks	**6**
Total marks	**50**

Model Answers

(a)

i) Revised Income Statement

	Division A	**Division B**
	FRW	**FRW**
Sales-W1	400,000	540,000
Cost of Sales		
Variable costs-W2	(200,000)	(348,000)
Contribution	**200,000**	**192,000**
Fixed costs	(50,000)	(150,000)
Profit (	**150,000**	**42,000**
Less: Finance cost-W3	(35,000)	(60,000)
Residual income	**115,000**	**(18,000)**
ROCE-W4	42.86%	7%
Operating profit margin-W5	37.5%	7.78%
Asset turnover-W6	1.14	0.90

Working 1(W1): Sales

If divisions are granted the autonomy, the division A would sell all its outputs (Item X at the external market price of FRW 40 per unit instead of selling to the division B at the market price of FRW20 per unit Currently 6,000 units are being transferred to division B and 4,000 units sold externally.

Therefore, the current sales of (6,000 units x FRW 20) + (4,000 x FRW 40) = FRW 280,000

When the division manager of A sets the unit selling price at FRW 40, the revised sales would be:

Revised sales 10,000 units are sold at FRW 40 = FRW 400,000

All produced output would be sold at FRW 40 rather than transferring some output at FRW 20 per unit to division B.

Division B sales would remain unchanged as they don't transfer internally

Working 2 (W2): Variable Costs

Division A: They will remain the same at FRW 200,000 (FRW 20 per unit marginal cost)

Division B: 6,000 units transferred from Division A would now cost FRW 40 per unit

Current variable costs	FRW 228,000
Less 6,000 x FRW 20	(FRW 120,000)
Add 6,000 x FRW 40	FRW 240,000
Revised variable costs	**FRW 348,000**

Working 3 (W3): Finance charge

Capital employed x cost of capital charge

Division A: FRW 350,000 x 10% = FRW 35,000
Division B: FRW 600,000 x 10% = FRW 60,000

Working 4 (W4): Return on Capital Employed (ROCE)

ROCE = Profit (Earnings before interest and tax / Capital employed x 100%
Division A: FRW 150,000 / FRW 350,000 x 100% = 42.86 %
Division B: FRW 42,000 / FRW 600,000 x 100% = 7%

Working 5 (W5): Operating profit margin

Operating profit margin: Profit / turnover (revenue) x 100%
Division A: FRW 150,000 / FRW 400,000 x 100% = 37.5%
Division B: (FRW 42,000) / FRW 540,000 x 100% = 7.78 %

Working 6: (W6): Asset turnover

Asset turnover: Sales / capital employed or Total Assets
Division A: FRW 400,000 / FRW 350,000 = 1.14
Division B: FRW 540,000 / FRW 600,000 = 0.9

(ii)

New and existing performance measures

	Division A		Division B	
Performance measures	**Before**	**After**	**Before**	**After**
	FRW	**FRW**	**FRW**	**FRW**
Profit	30,000	150,000	162,000	42,000
Finance Charge	35,000	35,000	60,000	60,000
Residual income	(5,000)	115,000	102,000	(18,000)
ROCE	8.57%	42.86%	27%	7%
Operating profit margin	10.71%	37.5%	30%	7.78%
Asset turnover	0.8	1.14	0.9	0.90

The proposed change in policy will benefit Division A greatly but at the expense of Division B

Division A's revenue and therefore profit increases by FRW 120,000. This is because they are now selling 6,000 units at current price of FRW 40 rather than at transfer price of FRW 20. This therefore increases their residual income to a positive FRW 115,000. Their return on capital has increased hugely from 8.57% to 42.86%. The operating profit margin has also increased to 37.5% from 10.71% and their asset turnover is much improved from 0.8 to 1.14.

However, the reverse situation has occurred to division B's performance. With the increased cost of item X their variable costs have increased to FRW 348,000 from FRW 228,000. This is 52.63% increase which has been passed on from Division A.

The result of these increased costs has resulted in lower residual income FRW (18,000), the ROCE has dramatically reduced to 7% from the initial of 27%. The profit margin has reduced from a healthy 30% to a depressing 7.78%. Their asset turnover remains the same. The result of altering the transfer price to FRW 40 per unit of item X will be great for Division A as their performance measures will be greatly improved. Therefore, the managers of Division A will really want to push for this new proposal of granting divisional managers the division autonomy.

However, for Division B, their performance measures will be dramatically reduced, resulting in lower moral. Therefore, Division B may choose to source their item X from elsewhere at cheaper rates. This will lead to goal congruence which is in the best interest of the group

(iii)

With the new proposal, the managers of Division A will want to set the transfer price at the same rate as the external market price which is FRW 40 per unit. This will improve their financial performance immensely.

Division B will lose out if the transfer price is set at FRW 40 as their performance measures deteriorate drastically. Therefore, division B managers will want to negotiate a lower transfer price. If Division A does not agree to a lower price, Division B may purchase item X externally.

The marginal cost to the group of producing item X is FRW 20 and if Division B purchases externally at a price higher than FRW 20, the group as a whole is losing out. If Division B does source item X externally, Division A will have spare capacity.

Currently there are only 6,000 units of external demand, which means that there will be 4,000 units of spare capacity. If the fixed costs cannot be avoided, this again means that RUSIZI group as a whole is losing out and it will impact the profit.

A good transfer price is one where both divisions are happy with and it doesn't impact the group as a whole in a negative way. This usually means that divisions buy and sell internally and do not source goods from outside the group if they can buy them internally.

With the current situation it is unlikely that both divisions can agree on a suitable transfer price. This may cause hostility between both divisions leading to goal incongruence and low morale. The group may have to intervene to ensure that profitability of the group as a whole is not negatively impacted.

A good way of pleasing both divisions where there is a problem of a suitable transfer price could be methods such as a **dual pricing or two-part tariff system**. These methods of transfer pricing ensures both divisions are happy and that they buy and sell to each other.

A dual transfer price is achieved when RUSIZI GROUP sets one transfer price for Division A and another transfer price for Division B. The transfer price for Division A to sell will be set at the external market rate and the transfer price for Division B will be set at the marginal cost of producing item X. The difference between the two transfer prices would need to be reconciled by head office (RUSIZI Group), which is one of the major drawbacks of this method as it is very time consuming.

A two-part tariff system is where a fixed charge per period is given to the seller which is Division A irrespective of the amount of units transferred by the seller plus a fixed rate (at marginal or variable cost) charged for each unit transferred. Such a system would include an element of profit to give Division A the necessary motivation. Such a system aims to ensure the seller covers the fixed cost of production, and receives a selling price for each unit supplied to cover the variable or marginal cost of production.

Both of these transfer pricing policies would give autonomy to Division A and B. However, agreeing a transfer price can be very time consuming especially if the divisional managers are not experienced in this area. Some involvement of RUSIZI GROUP management may be necessary to ensure that negotiations go ahead and that both divisions do agree.

B) (i)

Customer Profitability Analysis (CPA) can enhance RUSIZI Group's performance and its competitive advantage on the fact that it mainly focuses on the way in which costs are allocated to customers instead of basing on products and services sold. Below are the benefits of using CPA as a performance measure in RUSIZI Group:

a. CPA will show the management of RUSIZI Group whether the customer buying in order sizes is profitable or unprofitable to supply, hence take the appropriate decision,
b. Whenever CPA is adopted in RUSIZI Group, it will be very easier for management to evaluate the ratio of the customer's net contribution to the investment made on behalf of the customer,
c. As RUSIZI Group is running several divisions, if it is adopted, CPA will help to know the return on Investment on any division that has been used specifically for any customer,
d. CPA, will help RUSIZI Group to identify whether the company has enough stock held particularly to any customer and what period of credit do they require,
e. CPA will help RUSIZI Group to identify in advance if there are some other specific costs to be involved in supplying this particular customer, such as technical and test facilities, dedicated sales and administrative staff,
f. CPA will help RUSIZI Group management easily illustrate and quantify the loss company may suffer if company loses any particular client,
g. CPA will help RUSIZI Group to evaluate and assess the profit and contribution the company is making in respect of any particular customer.

(ii)

Customer Profitability analysis

	MUHANGA LTD	**RUHANGO LTD**	**KAMONYI LTD**
	FRW	**FRW**	**FRW**
Gross Margin	1,194,000	2,140,000	2,112,000
Less: Customer costs			
Sales Visits-W1	(134,400)	(84,000)	(168,000)
Order Processing-W1	(228,000)	(243,200)	(364,800)
Dispatch Costs-W1	(420,000)	(448,000)	(672,000)
Billing and Collections-W1	(120,280)	(151,320)	(407,400)
Customer's Profit	**291,320**	**1,213,480**	**499,800**
Ranking	**3**	**1**	**2**

After performing the CPA and ranking the three customers according to their profits, it is very clear that the customer" RUHANGO **Ltd"** is the most profitable customer.

Working 1 (W1)

Activity cost Pool	**MUHANGA LTD**	**RUHANGO LTD**	**KAMONYI LTD**
	FRW	**FRW**	**FRW**
Sales Visits	160*840=134,400	100*840=84,000	200*840=168,000

Order Processing	600*380=228,000	640*380=243,200	960*380=364,800
Dispatch Costs	600*700=420,000	640*700=448,000	960*700=672,000
Billing and Collections	620*194=120,280	780*194=151,320	2100*194=407,400

C (i)

The annualized Return on Investment (ROI) or Return on Capital Employed for divisions D and N

Division	**Formula**	**ROI**	**ROI**
D	(Operating profit before interest and tax)/Capital employed (Net assets)	(61*12)/4880	15%
N	(Operating profit before interest and tax)/Capital employed (Net assets)	(10.5*12)/630	20%

Note: net assets' is also equal to shareholders equity + long-term liabilities. It is imperative to read the question; the operating statements are for a single month (February) therefore profits before tax must be annualized in order for return on investment to be calculated.

Discussion of relative performance

- Division N has the highest return on investment (20%) in comparison to division D (15%).
- Both divisions exceed the target of 10% per annum set by RUSIZI GROUP. However, division D will be at greater risk if the target return on investment is increased as its ROI is approaching the group's target
- Both are profitable and generate a positive contribution for the group.
- In absolute terms division D is the largest division in terms of net assets and generates a greater absolute profit than division N (FRW 61,000 compared to FRW 10,500 per month). This is almost six times the level of absolute profit in comparison to division N.
- Both divisions operate in similar markets however division N has almost the same absolute level of variable cost as division D, even though its sales revenue is almost half the amount. Division D has variable cost to sales of 38.3% (FRW 172.5 ÷ FRW 450) and division N 56.2% (FRW 156 ÷ FRW 277.5). This indicates that division D looks more operationally efficient. Division N has a much lower net assets value than division D which could indicate that its assets are older and therefore more inefficient.
- Division D has a greater level of apportioned central cost (FRW 169,000 per month), which is almost twice the amount that division N is charged.
- If the uncontrollability principle is applied and central apportioned cost were to be removed then the ROI of the two divisions would be as follows

  Division D (FRW 230 x 12) ÷ 4880= 56.6%
  Division N (FRW 100.5x 12) ÷ 630 = 191.1%

C (ii)

The annualized Residual Income (RI) for divisions D and N

Residual income (RI) is calculated by taking the profit a manager earns for a division less a 'notional interest charge' for the investment within the division e.g. the profit generated from the division D or N less a finance charge from the holding company (RUSIZI GROUP) using a cost of capital. Accounting profit is calculated the same way as for return on investment (ROI).

Residual Income (RI) calculation

	FRW
Profit before interest and tax	X
Capital employed x cost of capital	(X)
Residual income	**X**

Division D

	Calculations	**FRW (000)**
Profit before interest and tax	FRW 61*12 months	732
Capital employed x cost of capital	FRW 4880*10%	(488)
Residual income		**244**

Division N

	Calculations	**FRW (FRW)**
Profit before interest and tax	FRW 10.5*12 months	126
Capital employed x cost of capital	FRW 630*10%	(63)
Residual income		**63**

- Even though division D has a lower return on investment (15%) compared to division N (20%), it does create greater wealth for the group in terms of the absolute size of residual income it earns.
- This is something that return on investment considered in isolation will not demonstrate because it is a relative not absolute measure of return.
- The implications of this information are that it demonstrates that division D contributes greater wealth to the profits of RUSIZI GROUP and therefore its shareholders. It is a superior measure when contrasted to return on investment. However, one single measure by itself will never allow a complete understanding of financial performance.

C (iii)

- ✓ **Economic value added** is an absolute cash-based measure of the economic financial wealth generated by a division over time. It deducts a finance charge using a cost of capital, applied to the replacement cost of assets used by a division. This method concentrates on the maximisation of cash or contribution which is more likely to maximise shareholder value. EVA cannot be manipulated by a manager's choice over the accounting policies they might use.
- ✓ **Controllability principle** applied when calculating ROI or RI e.g. ignoring central costs apportioned
- ✓ **Variance analysis** and budgetary control through exception reporting.
- ✓ **Ratio analysis** e.g. profitability, liquidity and investor ratios.
- ✓ **Other non-financial ratios** e.g. sales per square metre, number of complaints, staff turnover, market share, sales growth, new customers or repeat business.

D

MEMO

From: Management Accountant

To: Board of Directors, RUSIZI GROUP

Date: Kigali, the 27 January 2022

Subject: Approaches/Methods to determine the Arm's length price

Rapid advances in business and technology have given rise to a large number of multinational enterprises (MNEs) which have the flexibility to place their enterprises and activities almost anywhere in the world. Transfer pricing is an economic term, which refers to the valuation process for transactions between related entities/persons. Improper transfer pricing methods lead to unjustified profit transfers. For example, artificially deflated or inflated prices on transactions would reduce or increase the taxable profits of associated companies.

Arm's length principle as the internationally accepted guiding principle in establishing an acceptable transfer price This is for tax purposes whereby, the conditions of dealings between RUSIZI GROUP and its associated enterprises (controlled transactions) shall not differ from those that would have been established by independent enterprises (uncontrolled transactions). These aim to standardize national approaches to transfer pricing and provide guidance on the application of the 'arm's length' price. This can be determined in three main ways:

Comparable uncontrolled price (CUP) method

The method compares the price charged for property or services transferred in a controlled transaction i.e RUSIZI GROUP and its subsidiaries to the price charged for property or services transferred in a comparable uncontrolled transaction in comparable circumstances (internal / external).

Advantage of CUP method

- CUP is most direct and reliable way to apply the arm's length principle, if possible, to locate comparable uncontrolled transactions.
- CUP is not a one-sided analysis of only one party as it considers both controlled and uncontrolled parties

Disadvantages of CUP method

- One of its weaknesses, is that it will require RUSIZI GROUP a strict comparability standard, particularly with respect to product comparability: a minor difference in the property transferred could materially affect the price, even though the nature of the business functions performed and risks assumed may be sufficiently similar to generate the same overall profit margin.
- Internal comparable often do not exist and external comparable are difficult to find in practice (due to the strict comparability standard).

Resale price method (RPM)

This method begins with the price at which a product that has been purchased from an associated enterprise is resold to an independent enterprise (resale price).

Therefore, the Arm's length price is given by resale price reduced by an appropriate gross margin (resale price margin) representing the amount out of which the reseller would seek to cover its expenses and, in light of the functions performed, assets used and risks assumed, make an appropriate profit.

Transfer price = resale price x (1 – resale margin).

Advantage of RPM

- This method usually bases on the resale price, a market price, and thus represents a demand driven method.
- It a good method to be applied in situations where there is no relation between the costs incurred and the sales price.

Disadvantages of RPM

- The issue of RPM is that it allows one-sided analysis, whereby only appropriate for simple one way situations (no further processing, intangibles); easiest to determine where the reseller does not add substantially to the value of the product.
- The data on gross margins may not be comparable due to accounting inconsistencies (comparing apples and oranges).

Cost Plus Method (C+ or CPM)

This method of computing arm's length price begins with the actual costs incurred by the supplier or producer of the goods, services etc.

Arm's length price will be given by costs plus an appropriate mark up, determined by reference to the mark up earned by suppliers in comparable uncontrolled transactions (internal / external), to make an appropriate profit in light of the functions performed and the market conditions.

TP = cost of goods sold x (1 + gross profit mark-up).

Advantages of CPM

- CPM is based on internal costs, the information of which would be available to the RUSIZI GROUP.
- This method allows some third parties indeed to set prices.

Disadvantages of CPM

- Determination of actual costs difficult (fixed costs moreover: business cycle fluctuations?).
- Important to only apply a comparable mark up to a comparable cost basis (flow through expenses).
- Accounting consistency as a prerequisite (accounting standards and terms may vary in allocating costs into: direct/indirect costs of production and operating expenses of the enterprise as a whole,

  Other Methods to determine the arm's length price are

  - Comparative profits method
  - Profit spit method
  - Negative transfer pricing
  - Market based method

Conclusion:

RUSIZI GROUP will choose what method to adopt basing on how hard to obtain the method related information.

Regards.

Management Accountant
RUSIZI GROUP

SECTION B

QUESTION 2

MARKING GUIDE

QUESTION TWO	**Marks**
(a)	
i) Absorption Costing	
Absorption costing definition	1
Just In Time method definition	1
Calculation of sales	3
Calculations of cost of sales	3
Calculations of Fixed Overhead Variance	3
Maximum Marks	**11**
ii)	
Explanation and relevance of backflush accounting method	2
Sales calculations	DNA
Calculations of Cost of Sales-Raw materials	2.5
Calculations of Cost of sales-Labour costs	2.5
Maximum Marks	**7**
Total marks	**18**
(b)	
i) Information System	
Award 1 mark for a well explained point, maximum 4 marks	4
ii) Information system	
Award 1 mark for a well explained point, maximum 3 marks	3
Maximum Marks	**7**
Total Marks	**25**

Model Answer

A) (i)

Absorption costing method

Under the current system (Absorption costing method), all costs incurred are transferred each month either to the income statement or to the balance Sheet (Closing stock valuation).

A profit center manager (Plant Manager in BM) has an incentive to maximize profits, and therefore has an incentive to keep costs out of the Income Statement and instead capitalize them in closing stock as much as possible.

Main characteristic of absorption costing method is, that increasing production (irrespective whether goods are sold or not) has an effect of reducing the amount of fixed overhead charged to the Income Statement in current period. This is a dysfunctional incentive given that BM has stated a strategic commitment to JIT.

Just In Time method

JIT involves not producing goods which cannot be sold immediately at the time of production i.e: there is no need to store goods not made and they cannot be used in incentive calculations. Therefore, the suggestion that the performance measurement system in place acts as a disincentive is probably true.

Standard cost card: Absorption costing method:

	Quantity	FRW (000)	FRW(000)
Raw materials			55,900
Direct Labor and Variable Overheads			67,600
Fixed Overheads, based on normal output	100,000	1,170,000	11,700
Total			**135,200**

Monthly profit: Absorption Costing Method

	June	July	August
	FRW (000)	**FRW (000)**	**FRW (000)**
Sales	14,664,000	14,664,000	14,820,000
Cost of Sales	(12,708,800)	(12,708,800)	(12,844,000)
Fixed Overhead Volume Variance	(46,800)	-	(117,000)
Profit	**1,908,400**	**1,955,200**	**1,859,000**

Working 1 (W1)			
	June	**July**	**August**
Sales	**FRW (000)**	**FRW (000)**	**FRW**
Unit selling Price	156	156	156
Sales Quantity	94	94	95
Total Sales	**14,664,000**	**14,664,000**	**14,820,000**

Working 2(W2)			
Cost of Sales	**June**	**July**	**August**
	FRW (000)	**FRW (000)**	**FRW (000)**
Unit standard cost	135.2	135.2	135.2
Quantity	94	94	95
Total cost of sales	**12,708,800**	**12,708,800**	**12,844,000**

Working 3(W3)			
Fixed Overhead Volume Variance	**June**	**July**	**August**
Normal output	100,000	100,000	100,000
Production	96,000	100,000	90,000
Fixed Overhead Volume Variance (Units)	**4,000A**	**-**	**10,000A**
Fixed overhead rate per normal output unit	11,700	11,700	11,700
Fixed Overhead Volume Variance (Frw)	**(46,800,000)**	**-**	**(117,000,000)**

A) (ii)

Back flush accounting as an alternative profit-based performance measurement which will also implement the stated JIT production strategy.

A profit-based performance measurement which will motivate a JIT approach by plant managers is one based on backflush accounting. This involves costing units of products on the basis of raw materials content only, with all costs of labor and overheads (whether variable or fixed) being treated as period costs.

Particularly, treating variable labor and overhead costs as period costs means that the marginal effect on reported profits of producing one extra unit is as follows:

- If the extra unit is sold in the current period: Profit increases because of the difference between selling price and direct labor/overhead costs
- If the extra unit is not sold in the current period: Profit decreases by the amount of direct labor/overhead costs

This is entirely consistent with the JIT system. Extra production is encouraged (reflected in higher profit) but only to fulfil the immediate sales opportunity.

Back flush accounting method:

Detail	**June**	**July**	**August**
	FRW (000)	**FRW (000)**	**FRW (000)**
Sales	14,664,000	14,664,000	14,820,000
Cost of Sales			
Raw Material Cost	(5,254,600)	(5,254,600)	(5,310,500)
Labor and other variable overheads	(6,354,400)	(6,354,400)	(6,422,000)
Profit	**3,055,000**	**3,055,000**	**3,087,500**

As a result, the figures from Back flush accounting creates a direct disincentive for the plant managers to keep more stocks.

For example, in August, it is very clear that profit is substantially higher than in either of the previous months. This shows the combined effect of the two actions.

- Achieving higher sales units than in any other month
- Reducing the level of output as compared with the previous months and **this is consistent with JIT, since it resulted in a reduction in the inventory level without any loss of sales.**

B) (i)

The new information will not be without cost to AAH. The costs of hardware and software to set up the system and then ongoing operation of the system in terms of maintenance, consumables and employee time are often considerable. However, these costs can be offset against **the efficiency savings** of lost employee time in searching for tagged items and quality improvements in patient care which will result from that quicker access.

The information now being collected is non-financial in the location and quantities of equipment and drugs. However, these are forms of information which exist in the current systems and so there need not be dramatic change. The significant difference from the old system will be the real-time nature of the information and also its accuracy as it is collected and updated automatically. The tags are attached to batches of high-value drugs and if one of these batches is opened, then the count of inventory will not be entirely accurate if only the RFID information is used. A physical count will still be required for accuracy but the locations of these items from RFIDs will speed this.

Performance reporting will change as weekly inventory check reports will no longer be filed for the high-value drugs and instead there will be real-time, screen-based information. The relevant staff will need to be trained to access and use the information in this new system. It would appear that many medical staff will need access and so terminals will need to be available throughout the hospital – if the speed gains in finding items are to be obtained.

Improved control will result from the knowledge of location of high-value drugs. It will be easier to ensure that they are all in secure locations which will reduce the opportunity for theft. Additionally, knowing the date of delivery it will be easier to identify items which may become obsolete and so they can more easily be used first, thus reducing wastage.

Regarding the items of equipment, identification of location will reduce staff time in searching and allow the items to be placed in the stores where they are most often accessed, thus further reducing searching time. This will improve quality of patient care due to a faster response. It will also be simpler to check and ensure that these items are in secure locations and so reduce the risk of theft. Management will also be able to check if processes of tidying up and locking away are being observed by doing daily checks on this through the system.

B) (ii)

The attitude of the medical staff to the system will be important. As they are high-status individuals, it will be necessary to persuade them to accept the new system rather than imposing the change. There will be the danger that they see the system as spying on them and take this as an insult to their professionalism. They will need to see the benefits both in terms of reduced frustration in their own job and patient care. This will motivate them to change their current (haphazard) way of storing assets.

The new system will be screen-based but the use of information technology should not be shocking in AAH as it has the reputation of being advanced in this area. The reports will need

to be carefully designed with input from the medical staff in order that they find the system easy to learn and use, as this is often a major barrier to the uptake of a new system. The design of the new method of recording drug administration by nurses may have been part of the problem with its implementation.

Promotion of responsibility and accountability will come through the management use of the new information. It may be possible to make specific staff (e.g. nursing staff) responsible for the storage of drugs and specific specialist doctors responsible for the storage of equipment related to their field of expertise. Regular checks on the position of assets will act as a control test of this staff activity. It may be necessary to break the hospital into departments or wards in order to identify the relevant responsible individuals. The managers must think carefully about how often to do their control reporting but daily exception reporting of any items not properly stored would appear appropriate, given the need to use the assets at short notice.

It will be important to select the correct individuals and groups to be responsible as there will be a demotivating effect if a staff member is being criticized for not securing an item when a higher status member of staff (e.g. medical specialist) has over-ridden their decision.

QUESTION THREE

Marking guide	**Marks**
i) Annual capacity of bottleneck activity	3
Maximum Marks	**3**
ii) TPAR for both services	
Return per hour	1
TPAR	1
Activities to improve TPAR	2
Maximum Marks	**4**
iii)	
Effect on bottleneck after hiring additional employee	3
Maximum Marks	**3**
iv) Problems with current branch manager's assessment system	
Award 2.5 mark to a well explained problem, maximum 15 marks	15
Maximum Marks	**15**
Total marks	**25**

Model Answer

3. i

The bottleneck activity is Senior Stylish

Total salon hours = 24 x 7 x 52 = 8,736 hours each year.

There are three senior stylists, therefore total hours available = (8,736 hours *3) =26,208 hours

Based on the time taken for each activity, they can perform 26,208 cuts (26,208 hours/1 hour per cut) or 17,472 treatments (26,208 hours/1·5 hours per treatment).

ii

TPAR for Cutting service

Return per hour = (Selling price – materials)/time taken on the bottleneck = (80 – 2.50)/1 = 77.50

Throughput accounting ratio (TPAR)= Return per hour/cost per hour = 77.50/52·56 = 1.47

Throughput accounting ratio (TPAR) for treatments

Return per hour = (Selling price – materials)/time taken on the bottleneck = (150 – 10.9)/1.5 = 92.73

Throughput accounting ratio (TPAR) = Return per hour/cost per hour = 92.73/52·56 = 1.76 (to two decimal places)

Activities that could be used to improve the Throughput accounting ratio

- SANEZA Co should identify ways to reduce the material costs for the services by tracing low price suppliers and ensure efficiency and effectiveness in the use of available materials
- SANEZA Co should improve the control of the salon's total operating expenses, this will be carried out by monitoring and controlling the total time its employees spent on customers
- SANEZA Co should also apply an increase to the selling price of the services, this is usually, very tricky as the price is very sensitive factor, SANEZA should try this as a last alternative and be done wisely, because it may end up losing customers as an effect of increasing prices.

iii

The existing capacity for each activity is:

Detail	**Cut**		**Treatment**	
Receptionist	(24*7*52)/0.1	87,360	(24*7*52)/0.3	29,120
Senior stylist	(24*7*52)/1	8,736	(24*7*52)/1.5	5,824
Junior stylists	(24*7*52)/0.4	21,840	(24*7*52)/0.6	17,472

If another senior stylist is employed, this will mean that their available hours will be (4 x 8,736) = 34,944

This will give them capacity to now do 34,944 cuts (34,944 hours/1 hour per cut) and 23,296 treatments (34,944 hours/1·5 hours per treatment).

As a result, the senior stylists will still be the bottleneck activity for both treatments and cutting services.

iv)

Accountability:

The branch managers should only be held responsible for those aspects of performance they can control. However, the branch information used does not appear to distinguish between the factors that the branch managers can control and those they can't.

Controllable and non-controllable costs:

A number of non-controllable costs are currently included in the manager's performance assessment. In particular, the branch manager will have very little scope to control property costs because the rental contract and other contracted costs (such as heat and light) are managed by the head office. The branch managers may have some control over the amount of heat and light that are used in their branches, but not over the unit prices paid for these utilities.

Misclassification of controllable and non-controllable costs

The branch managers can't control their own wages. However, it is reasonable to classify the **part-time staff costs as controllable**. The managers manage the staffing for their shops, and so they could save on part-time staff costs by working longer hours themselves. Consequently, a fairer way of assessing the shop managers' performance would be to distinguish costs into two groups: controllable (marketing; part-time staff) and non-controllable (managers' wages; property costs

Budgets:

Another problem with SANEZA Co current performance management process is its budgeting process. If the manager's performance is assessed by comparing actual performance to budget, then it is important that the budgets are realistic and achievable. However, the original sales budgeted (which showed the same figure as the previous year) seems unrealistic given that there has been a 12 % fall in sales across the industry as a whole.

Consequently, it would be useful to break down the overall profit variance (FRW 31,200) into a planning variance (which adjusts for the 12 % drop in industry sales) and an operational variance (showing the variance in the shop's own performance after adjusting for the 12 %).

Planning variance

	Frw
Original sales	592,400
Revenue variance due to the economic condition-12%	71,088 A
Planning variance (Gross margin 44.3%)	**31,492 A**

Operational variance

	FRW
Actual sales	522,000
Revised budgeted sales	521,312
	688F
The operational variance will be given will be 688*44.3%	**304.8A**

The operational variance more accurately reflects the branch manager's work in promoting sales, and here we can see that the manager's efforts have actually reduced the fall in gross profit by FRW 304.8. The overall gross profit variance (of FRW 31,200 adverse) reflects an adverse planning variance of FRW 31,492 partially offset by a favorable operational variance of FRW 304.8

Controllable profit

Following on from this, we could suggest that SANEZA Co should show a controllable profit for each branch, as well as the overall shop profit. The branch manager's performance (and therefore their eligibility for any bonus payments) should then be assessed on the controllable profit performance of their branch only.

If we apply this logic to the manager's branch, then instead of the manager facing an adverse variance of FRW 29,350 they would have achieved a positive variance of FRW 6,492 and would therefore have been entitled to a bonus. This helps explain why the manager is so unhappy about the current way performance is being measured.

	FRW
Original variance	- 29,350
Add back: Gross profit planning variance	31,492
Manager's wages	-
Sales and promotion	1,000
Other staff costs	3,350
	6,492

Discounting

One area where the managers do have a degree of autonomy is in setting prices, because they can vary prices by up to 5% from the standard price list; for example, to reduce prices of a particular product to boost sales of it. Therefore, this is an area of the manager's performance which SANEZA Co could justifiably measure; for example, by looking at the sales price and volume for individual product lines, and then looking at the impact of any promotions on gross profit.

However, in this case, it appears that the manager has not made any significant use of this authority because the actual gross margin percentage achieved for the year (44.3%) has remained constant with the budgeted margin of 44.3 %. If the manager had applied any price discounts this would have led to a reduction in the margin percentage.

QUESTION FOUR

	Marking guide:	**Marks**
a)	JIT	
	What is JIT	0.5
	How JIT works	1
	JIT key features, award 0.5 mark for a well explained feature, maximum 2	2
	What to be considered to implement JIT, 1 Mark for a well explained point, max 3 marks	3
	Presentation	0.5
	Maximum Marks	**7**
b)	Calculation of Material cost per unit	1
	Calculation of Labour cost per unit	1
	Calculation of variable overhead cost per unit	1
	Calculating Price at zero units of demand (P0)	1
	Showing price function	0.5
	Showing Total Revenue function	0.5
	Showing Marginal Revenue function	0.5
	Calculation of Profit maximization Quantity Where MC=MR	1
	Calculation of Profit maximization price Where MC=MR	1
	Sales revenue (450,000 units x FRW 756,000)	**0.5**
	Variables costs (450,000 units x FRW 252,000)	0.5
	Contribution from sales of Bugesera sofa	0.5
	Fixed costs	0.5
	Profit from sale	0.5
	Indicating that Breakeven point occurs where Total Revenue = Total Costs	0.5
	Indicating formula for Total Costs (Fixed cost + Total Variable cost	0.5
	Use quadratic equation to find quantity one and two (Q1,Q2)	1
	Use Q1 and Q2 to find Selling price one and 2 (P1,P2)	1
	Maximum Marks	13
c	Explaining Balance Scorecard approach	1
	Well explaination of 4 perspective of Balance score card (Customer perspective ,Internal business process,Innovation, and learning ,and Financial perspective) 1 Mark each	4
	Maximum Marks	**5**
	Total Marks	**25**

Model Answer
A)
MEMO

From: Management Accountant
To: The Chief Executive Officer (CEO)
Date: Kigali, the 27 January 2022

Subject: Just In Time (JIT) system

The just-in-time (JIT) inventory system is a management strategy that aligns raw-material orders from suppliers directly with production schedules. Companies employ this inventory strategy to increase efficiency and decrease waste by receiving goods only as they need them for the production process, which reduces inventory costs. But again, this method will require company to forecast demand accurately.
The just-in-time (JIT) inventory system minimizes inventory and increases efficiency. JIT production systems cut inventory costs because company will be receiving materials and parts as needed for production and does not have to pay storage costs.

Company will also not be remaining with unwanted inventory if an order is cancelled or not fulfilled.

Key features of operating in a JIT
The following are key features of companies operating in a JIT environment:

- High level of automation
- High levels of overheads and low levels of direct labor costs
- Customized products produced in small batches
- Low stocks
- Emphasis on quality

Key considerations before implementation of the JIT system

- Employee involvement should be actively encouraged. The successful operation of just-in-time requires that workers possess flexibility of both attitude and aptitude.
- The fundamental requirement to ensure that the level of quality satisfies the customer.
- A constant focus on the simplification of products and processes in order to maximize the utilization of available resources.
- The creation of a uniform factory load which will enable the speed of manufacture to mirror the demand of customers.
- The minimization of set-up time as no value is added at this point in the manufacturing process.
- The factory layout to be adopted. The majority of factories operating just-in-time manufacturing operations have adopted a U-shaped layout of machinery. This layout

facilitates the flow of components, thereby minimizing transportation activities while maximizing efficiency.

- The operation of a 'pull' system which produces products for the time when they are required by customers.
- The fundamental need for excellent relationships with suppliers, putting emphasis on flexibility and good communication channels.

Regards

Management Accountant

b)

Total fixed cost = FRW44, 100,000,000

Variable costs of producing Bugesera sofa

	FRW
Materials (20 kilograms at FRW8,400 per kilogram)	168,000
Labour	56,000
Variable overheads	28,000
Variable cost per unit	252,000

Using the formula $P_q = P_0 - b_q$

$700{,}000 = P_0 - \frac{28000}{25{,}000}(500{,}000)$

$P_0 = 1{,}260{,}000$

Therefore, the price function is $P_q = 1{,}260{,}000 - 1.12Q$

Total Revenue = $1{,}260{,}000Q - 1.12Q^2$

Marginal Revenue = $1{,}260{,}000 - 2.24Q$

Profit is maximized at the point where Marginal Revenue (MR) = Marginal Cost (MC), therefore 1,260,000 -2.24Q= 252,000 from which the value of q is 450,000.

To find the selling price per unit (Pq) at which a quantity of 450,000 will be demanded we use the price function as previously calculated.

Pq = 1,260,000 – 1.12Q where q = 450,000

Pq = FRW756,000

The profit can be calculated as follows:

	FRW'000"
Sales revenue (450,000 units x FRW 756,000)	340,200,000
Less:	
Variables costs (450,000 units x FRW 252,000)	113,400,000
Contribution from sales of Bugesera sofa	226,800,000
Less:	
Fixed costs	44, 100,000
Profit from sale of Bugesera sofa	182,700,000

Breakeven point

Breakeven point occurs where Total Revenue = Total Costs

Fixed costs = FRW 44,100,000,000; variable costs are FRW 252,000 per unit.

Total cost =44,100,000,000+252,000Q

From (a) Total Revenue = 1,260,000Q-1.12Q^2

Therefore 1,260,000q – $1.12q^2 - 252{,}000q - 44{,}100{,}000{,}000 = 0$

The formula $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

can be used to solve the quadratic equation once it is rearranged into the form:

$ax^2 + bx + c = 0$

we have -$1.12q^2 + 1{,}008{,}000q - 44{,}100{,}000{,}000 = 0$

Solving the equation x = 853,887.36 or 46,112.639

If $x = 853{,}887.36$ then substitution into the demand function gives a value for P_q = FRW303646.154

If $x = 46.112.639$ then substitution into the demand function gives a value for P_q = FRW1,208,353.846.

C)

The Balance Scorecard approach to measurement emphasises the need to provide management with a set of information which covers all relevant areas of performing in an objective and unbiased fashion.The information provided may be both financial and non-financial and cover areas such as profitability, customer satisfaction, internal efficiency and innovation.The balance scorecard focuses on four different perspectives, as follows.

Customer perspective

The customer perspective considers how new and existing customers view the organisation. This perspective should identify targets that matter to customers such as cost, quality/performance and delivery of electronics and so on. The customer perspective is linked to revenue /profit objectives in the financial perspective. If customer objectives are achieved, it is likely that revenue /profit objectives will also be achieved.

Internal business process perspective.

The internal perspective makes an organisation consider what processes it must excel at in order to achieve financial and customer objectives. The perspective aims to improve internal processes and decision making. In terms of BSK, this should entail approving designs of different electronics, throughput efficiency and quality inspection.

Innovation, and learning perspective.

This innovation and learning perspective require the organisation to consider how it can continue to improve and create value for both the customers and shareholders. Organisations seek to acquire new skills and develop new products in order to maintain a competitive position in their respective market(s) and provide a basis from which the other perspectives of the balanced scorecard can be accomplished. In terms of BSK, this should entail developing new versions of certain types of television and other electronics such as blenders, micro waves etc.

Financial perspective

The financial perspective considers whether the organisation meets the expectations of its shareholders such as Kubwimana and how it creates value. The company must perform well in order to fund future growth. The company must compete favourably in order to maintain its

current market position. This perspective focuses on traditional measures such as growth, profitability and cost reduction.

END OF MARKING GUIDE AND MODEL ANSWER