CERTIFIED ACCOUNTING TECHNICIAN

STAGE 3 EXAMINATIONS

S3.2: MANAGEMENT ACCOUNTING

MARKING GUIDE AND MODEL ANSWERS

SECTION A

Marking Guide

QN	Answer	Marks
1	C	2
2	C	2
3	A	2
4	C	2
5	A	2
6	D	2
7	C	2
8	D	2
9	B	2
10	A	2

Model Answers

QUESTION ONE
The correct answer is C
Transport of raw materials from the supplier to factory is a production cost. All the rest are non-production costs.

QUESTION TWO
The correct answer is C
Option A is total overheads of service department Y
Option B is total overhead of production department A
Option D is total overhead of production department B

Overhead Analysis Sheet

Name of Overhead	Basis of Apportionment	Amount	Production Dept		Service Dept	
			A	B	X	Y
Rent	Area	500,000	150,000	100,000	62,500	187,500
Depreciation of Plant	Plant Book Value	1,200,000	300,000	360,000	180,000	360,000
Electricity	Kilo Watts	800,000	160,000	240,000	200,000	200,000
Canteen Costs	Number of Employees	100,000	40,000	26,667	20,000	13,333
Allocated & Apportioned Overheads		2,600,000	650,000	726,667	**462,500**	760,833

Basis of Apportionment

	A	B	X	Y	Total
Plant Book Value (FRW)	500,000	600,000	300,000	600,000	2,000,000
Area (M2)	120	80	50	150	400
Number of Employees	36	24	18	12	90
Kilo watts	200	300	250	250	1,000

QUESTION THREE
The correct answer is A
The objective is to motivate employees to improve their performance and not to maintain the current levels of performance.
The remaining options B, C and D are objectives of budgeting

QUESTION FOUR
The correct answer is B
Option A, B and D are objectives of an effective accounting system

QUESTION FIVE
The correct answer is A
Option B is wrong because it is adverse
Option C is calculating budgeted sales
Option D is calculating actual sales

SPV = (Budgeted Price/unit - Actual Price/unit) * Actual Quantity

Budgeted price/unit =	12,100
Actual price/unit =	12,200
Actual quantity =	1,200
SPV = (12,100 - 12,200)*1,200 =	120,000 Favourable

QUESTION SIX

The correct answer is D

MUV = (Budgeted Quantity for Actual Production – Actual Quantity) * Budgeted Price/kg

BQAP =	(8kgs*1,200)=	9,600
Actual Quantity =	10kgs*1,200) =	12,000
Budgeted Price/kg =	8,200,000/8000=	1,025
MUV =	(9,600 - 12,000)*1,025 =	2,460,000 Adverse

QUESTION SEVEN

The correct answer is C

MPV = (Budgeted Price/kg – Actual Price/kg) * Actual Quantity

Budgeted Price/kg =	8,200,000/8000=	1,025
Actual Price/kg=	8,600,000/12,000=	716.67
Actual Quantity	10kgs* 1,200 =	12,000
MPV =	(1,025-716.67)*12,000 =	3,700,000 Favorable

QUESTION EIGHT

The correct answer is D

Option A explains revenue centre
Option B explains cost centre
Option C explains profit centre

QUESTION NINE

The correct answer is B

VC/unit = $\frac{\text{Cost @ Higest Activity - Cost @ Lowest Activity}}{\text{Highest Activity - Lowest Activity}}$

VC/unit = $\frac{(75{,}000{,}000 - 68{,}750{,}000)}{(1{,}300 - 1{,}175)}$

VC/unit= FRW 50,000

QUESTION 10

The correct answer is A

FC = Total Cost - Variable Cost
FC = 75,000,000 -(50,000*1,300)
FC = FRW10,000,000

SECTION B

QUESTION 11

Marking Guide

QN	Description	Marks
11	Development	
	Award 1 mark for listing the stage	1
	Award 1 mark for explanation of the stage	1
	Introduction	
	Award 1 mark for listing the stage	1
	Award 1 mark for explanation of the stage	1
	Growth	
	Award 1 mark for listing the stage	1
	Award 1 mark for explanation of the stage	1
	Maturity	
	Award 1 mark for listing the stage	1
	Award 1 mark for explanation of the stage	1
	Decline	
	Award 1 mark for listing the stage	1
	Award 1 mark for explanation of the stage	1
	Total marks awarded for Question 11	**10**

Model Answers

The product life cycle is generally thought to split naturally into five separate stages: Development, Introduction / Launch, Growth, Maturity & Decline

Stage1: Development

During this period of the product's life there are large outgoings in terms of development expenditure, purchase of non-current assets necessary for production, the building up of inventory levels and advertising and promotion expenses.

Stage 2: Introduction / Launch

This is the stage when the business starts selling the product to the market. It is likely that even after the launch, sales will be quite low and the product will be making a loss at this stage.

Stage 3: Growth

If the launch of the product is successful, then during the growth stage there will be fairly rapid increases in sales and a move to profitability as the costs of the earlier stages are covered. These sales increases however, are not likely to continue indefinitely.

Stage 4: Maturity

In the maturity stage of the product life cycle, the growth in demand for the product will probably start to slow down and sales volumes will become more constant. In many cases this is the stage where the product is modified or improved, in order to sustain demand, and this may then result in a small surge in sales.

Stage 5: Decline

At some point in a product's life, unless it is a consumable item such as chocolate bars, the product will reach the end of its sale life. The market will have bought enough of the product and sales will decline. This is the point where the business should consider no longer producing the product.

QUESTION 12
Marking Guide

QN	Description	Marks
12, a	Identification of limiting factor	
	Award 1 mark for calculation of hours needed	1
	Award 1 mark for conclusion of labour being a limiting factor	1
12, b	Optimal production plan	
	Award 0.5 marks for each correct contribution per units (0.5*2)	1
	Award 0.5 marks for each correct contribution per unit of limiting factor	1
	Award 1 mark for correct ranking	1
	Award 1 mark for distribution of hours used	1
	Award 1 mark for distribution of hours remaining	1
	Award 0.5 mark for correct optimal plan for each product	1
12, c	Total contribution	
	Award 1 mark for total contribution of Beta	1
	Award 1 mark for total contribution of Able	1
	Total marks awarded for question 12	**10**

Model Answers

a) Determine whether labour is a limiting factor or not

Limiting factor arises when the resources needed are more than the resources available

		Labour Hrs/unit	Units	Total Hours
Able	21,000/7,000 =	3	2,000	6,000
Beta	14,000/7,000 =	2	3,000	6,000
		Total labour hours needed		12,000

Labour is a limiting factor because we need 12,000 hours but we only have 10,000 hours and therefore a shortfall of 2,000 hours

b) Determine the Optimal Production Plan for the company

Calculate contribution per unit

		Able		Beta
Selling price/unit		50,000		40,000
Less: Material cost	17,000		16,000	
Less: Labour cost	21,000	38,000	14,000	30,000
Contribution per unit		12,000		10,000

Contribution per unit of limiting factor

	Able	Beta
Contribution per unit /	12,000	10,000
Hours per unit	3	2
Contribution/unit of limiting factor	4,000	5,000

Rank the products

Product		Able	Beta
Ranking		2nd	1st

Allocate the scarce resources

Rank	Product	Optimal Plan	Hours Used	Hours Remaining
1st	Beta	3,000 units	(2hrs*3,000) 6,000	(10,000 - 6,000) 4,000
2nd	Able	(4000/3hrs) 1,333 units	4,000	-

Optimal plan is to produce 3,000 units of Beta and 1,333 units of Able

c) Calculate the total contribution of the company based on the Optimal Production plan calculated in part b

Product	Optimal Plan	Cont per unit	Total contribution
Beta	3,000	10,000	30,000,000
Able	1,333	12,000	15,996,000
Total Contribution			45,996,000

Note: If the able is not rounded up (4,000 / 3hrs) the result will be 1,333.333 * 12,000 = 16,000,000 which gives total contribution of 46,000,000 (30,000,000 + 16,000,000)

SECTION C

QUESTION 13

Marking Guide

QN	Description	Marks
13, a	Factors to consider before measuring performance	
	Award 1 mark for each clear explanation (1*6)	6
13, b	Working capital ratios calculation	
	Award 0.5 marks for each clear working of each ratio (0.5*2 *7)	7
	Award 0.5 marks for each correct answer for each year (0.5*2*7)	7
	Total marks for question 13	**20**

Model Answers

a) Explain six factors to be considered before the business measures performance of an organization

The following factors should be considered before performance is measured:

1) Performance measurement needs resources. Measuring performance has a cost attached to it and the business should allocate resources towards this important activity every year.
2) A variety of measures should be used. The business should consider both financial and non financial performance measurement in assessing performance.
3) Feedback should be provided. The employees at the end of a given period should be informed on how they performed to enable them improve in future.
4) The measure should be fair. The assessment tools used should not be biased. Nobody or department should be favoured when measuring performance.
5) The measure should be relevant. The measurement results should be related to the effort of each employee.
6) Short term and long term performance should be measured. The business should not only focus on short term performance measurement at the expense of long term growth.
7) Performance should be measured in relation to something. A benchmark should be provided or a plan to which actual performance is measured.

b) Working capital ratios for each of the two years 2024 and 2025

	Ratio	Formula	2024		2025	
i	Current Ratio =	Current Assets	52,800		44,880	
		Current Liabilities	37,500	1.41	48,750	0.92
				1.41:1		0.92:1
ii	Quick Ratio =	Current Assets - Inventories	52,800-10,800		44,880-9,180	
		Current Liabilities	37,500	1.12	48,750	0.73
				1.12:1		0.73:1
iii	Inventory Period =	Inventory * 365	10,800 * 365		9,180 * 365	
		Cost of Sales	105,000	38	140,000	24
				38 Days		24 Days

iv	Receivables Period =	Receivables * 365 Sales	36,000 * 365 152,200	86 86 Days	30,600 * 365 202,600	55 55 days
v	Payables Period =	Payables * 365 Cost of sales	22,500 *365 105,000	78 78 Days	29,250 *365 140,000	76 76 Days
vi	Working Capital =	Current Assets - Current Liabilities	52,800-37,500	15,300 FRW15,300	44,880 - 48,750	-3,870 FRW-3870
vii	Working Capital Cycle period =	Inventory + Receivable - Peyables Period	38+86-78 =	46 46 Days	24+55-76 =	3 3 Days

QUESTION 14

Marking Guide

QN	Description	Marks
14, a	Quality related costs	
	Award 1 mark for each correct quality listed (1*4)	4
	Award 1 mark for each clear explanation of the qualities (1*4)	4
14, b i)	Cost per unit	
	Award 0.5 marks for each correct direct labour cost per unit (0.5*3)	1.5
	Award 0.5 marks for each correct direct (prime) cost per unit (0.5*3)	1.5
	Award 0.5 marks for each correct overhead for each product (0.5*3*3)	4.5
	Award 0.5 marks for each correct cost per unit (0.5*3)	1.5
ii)	Selling price	
	Award 1 mark for each correct selling price computation (1*3)	3
	Total marks awarded for question 14	**20**

Model Answers

a) Four types of Quality Costs

The four types of quality costs are: prevention costs, appraisal costs, internal failure costs and external failure costs.

1) Prevention Costs

Prevention costs are the costs incurred prior to, or during, production in order to prevent or reduce defects in products or mistakes in services. In other words, they are the costs of preventing quality failures. Prevention costs can include any of the following: improvements in product design or specification to reduce the proportion of defective products, improvements in systems and procedures that are designed to reduce mistakes in the provision of services, design, development and maintenance of quality control equipment, administration of quality control, provision of training for quality control: training staff so that they make fewer mistakes etc.

2) Appraisal Costs

Appraisal costs are the costs incurred in initially monitoring how the product or service conforms to quality requirements. They are the costs associated with assessing the level of quality achieved. Typically, appraisal costs are associated with costs of inspection and testing.
These costs include: Design, development and maintenance of inspection equipment, inspection of goods and raw materials received from suppliers, inspection of production processes and work in progress, inspection or performance testing of finished goods, appraisal of the quality of services provided, sample testing of finished production, perhaps to the point of destruction etc.

3) Internal Failure Costs

Internal failure costs are the costs arising from inadequate quality before the goods or services are sold to the customer. Therefore, they are costs arising within the organisation due to the failure to achieve the required level of quality. A large part of internal failure costs are associated with the cost of correcting faults that are found in products and correcting procedural errors in service provision – but before the goods or service are delivered to the customer. They are the cost of correcting faults that customers do not learn about.
Internal failure costs include: Cost of investigation and analysis of failed units, re-work costs for items that fail inspection tests, re-inspection costs, cost of defective units scrapped or lost contribution from selling defective items at a lower price than normal, losses due to faults in raw materials purchased, costs of reviewing product design or specification after finding defective units, costs of production delays etc.

4) External Failure Costs

External failure costs are costs arising from inadequate quality discovered after the goods or services have been sold to the customer.
These costs include: cost of running a customer service department, cost of dealing with customer complaints, product liability costs, cost of replacing goods returned from customers etc.

b) Activity Based Costing

i) Cost per unit: Activity Based Costing

		A		**B**		**C**
D. Material Cost/unit		8,200		6,400		7,600
D. Labour Cost/unit	(3*1,500)	4,500	(2*1500)	3,000	(4*1,500)	6,000
Prime Cost/unit		12,700		9,400		13,600
Add: Overhead Cost/unit	(W1)	3,008		2,067		1,118
Cost per Unit		15,708		11,467		14,718

Workings

W1) Overhead cost per unit: Activity Based Costing

Cost Pool	**Cost Driver**		**Amount**		**A**		**B**		**C**
Rent	Area	60%*20M=	12,000,000	120/400*12M=	3,600,000	200/400*12M=	6,000,000	80/400*12M=	2,400,000
Set up costs	No of set ups	30%*20M=	6,000,000	64/120*6M=	3,200,000	36/120*6M=	1,800,000	20/120*6M=	1,000,000
Procurement costs	No of purchase orders	10%*20M=	2,000,000	18/50*2M=	720,000	22/50*2M=	880,000	10/50*2M=	400,000
Total overheads			20,000,000		7,520,000		8,680,000		3,800,000
Production units					2,500		4,200		3,400

Overhead cost per unit					3,008		2,067		1,118

ii) Selling price of each product

		A		B		C
Cost per unit		15,708		11,467		14,718
Add: Profit Mark up	(25%*15,708) =	3,927	(25%*11467) =	2,867	(25%*14,718) =	3,679
Selling Price/unit		19,635		14,333		18,397

QUESTION 15
Marking Guide

QN	Description	Marks
15, a	Functional Budgets	
i)	Sales Budget	
	Award 1mark for correct answer for each product (1*3)	3
ii)	Production Budget	
	Award 1mark for correct answer for each product (1*3)	3
iii)	Materials Usage Budget	
	Award 1.5 marks for each correct raw materials budget (1.5*3)	4.5
iv)	Materials Purchase Budget	
	Materials Purchase Budget in Kgs	
	Award 1 mark for each correct raw materials purchase in Kgs (1*3)	3
	Materials Purchase Budget in FRW	
	Award 0.5 marks for each correct material purchase in FRW (0.5*3)	1.5
15, b	Purposes or objectives of preparing a budget	
	Award 1 mark for each objective explained (1*5)	5
	Total marks awarded for question 15	**20**

Model Answers

a) Functional Budgets

i) Sales Budget

	A	B	C	Total
Sales units	22,000	36,000	40,000	98,000
Selling price/unit	8,000	7,500	6,800	-
Sales value	176,000,000	270,000,000	272,000,000	718,000,000

ii) Production Budget

	A	B	C
Sales units	22,000	36,000	40,000
Less: Opening stock units	6,000	10,000	7,500
Add: Closing stock units	5,500	9,000	10,000
Production units	21,500	35,000	42,500

iii) Materials Usage Budget

		X		Y		Z
Product A	(3.5*21,500)	75,250	(4*21,500)	86,000	(2.5*21,500)	53,750
Product B	(5*35,000)	175,000	(7*35,000)	245,000	(6.2*35,000)	217,000
Product C	(2.8*42,500)	119,000	(4.5*42,500)	191,250	(5.5*42,500)	233,750
Materials usage budget		369,250		522,250		504,500

iv) Materials Purchase Budget in Kgs and FRW

	X	Y	Z
Materials usage budget	369,250	522,250	504,500
Less: Opening stock (kgs)	12,000	8,200	9,400
Add: Closing stock (kgs)	4,500	6,800	7,200
Materials purchase budget (kgs)	361,750	520,850	502,300
* Purchase price/kg	6,200	5,600	4,800
Materials purchase budget (FRW)	2,242,850,000	2,916,760,000	2,411,040,000

b) **Explain five purposes or objectives of preparing a budget for an organization**

1) Ensure the achievement of organizations objectives

Objectives are set for the organisation as a whole, and for individual departments and operations within the organisation. Quantified expressions of these objectives are then drawn up as targets to be achieved within the timescale of the budget plan.

2) Compel planning

This is probably the most important feature of a budgetary planning and control system. Planning forces management to look ahead, to set out detailed plans for achieving the targets for each department, operation and (ideally) each manager and to anticipate problems. It thus prevents management from relying on ad hoc or un co-ordinated planning which may be detrimental to the performance of the organisation. It also helps managers to foresee potential threats or opportunities, so that they may take action now to avoid or minimise the effect of the threats and to take full advantage of the opportunities.

3) Communicate ideas

A formal system is necessary to ensure that each person affected by the plans is aware of what they are supposed to be doing. Communication might be one-way, with managers giving orders to subordinates, or there might be a two-way dialogue and exchange of ideas.

4) Coordinate activities

The activities of different departments or sub-units of the organisation need to be co-ordinated to ensure maximum integration of effort towards common goals. This concept of co-ordination implies, for example, that the purchasing department should base its budget on production requirements and that the production budget should in turn be based on sales expectations. Although straightforward in concept, co-ordination is remarkably difficult to achieve, and there is often 'sub-optimality' and conflict between departmental plans in the budget so that the efforts of each department are not fully integrated into a combined plan to achieve the company's best targets.

5) Provide a framework for responsibility accounting

Budgetary planning and control systems require that managers of budget centres are made responsible for the achievement of budget targets for the operations under their personal control

6) Establish a system of control

A budget is a yardstick against which actual performance is monitored and assessed. Control over actual performance is provided by the comparisons of actual results against the budget plan. Departures from

budget can then be investigated and the reasons for the departures can be divided into controllable and uncontrollable factors.

7) Motivate employees to improve performance

The interest and commitment of employees can be retained via a system of feedback of actual results, which lets them know how well or badly they are performing. The identification of controllable reasons for departures from budget with managers responsible provides an incentive for improving future performance.

8) Provide a framework for authorization

Once the budget has been agreed by the directors and senior managers it acts as an authorisation for each budget holder to incur the costs included in the budget centre's budget. As long as the expenditure is included in the formalised budget the budget holder can carry out day to day operations without needing to seek separate authorisation for each item of expenditure.

9) Provide a basis for performance evaluation

As well as providing a yardstick for control by comparison, the monitoring of actual results compared with the budget can provide a basis for evaluating the performance of the budget holder. As a result of this evaluation the manager might be rewarded, perhaps with a financial bonus or promotion. Alternatively, the evaluation process might highlight the need for more investment in staff development and training.

END OF MARKING GUIDE AND MODEL ANSWERS