



CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

TUESDAY: 26 November 2019.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Examine three benefits that might accrue to a business organisation as a result of good ethical behaviour by management accountants. (6 marks)
- (b) Justify why in the short term some costs and revenues are not relevant for decision making. (3 marks)
- (c) Fairdeal Ltd. uses a third party delivery service to deliver goods to customers. The current average cost per delivery is Sh.125. Fairdeal Ltd. is considering establishing an in-house delivery service. A number of factors could affect the average total cost per delivery for the in-house delivery mode.

The table below shows the possible average total cost and the probability of each one occurring for the in-house delivery mode:

Average total cost (Sh.)	Probability
105	0.05
107	0.10
110	0.08
121	0.12
125	0.14
126	0.16
142	0.12
156	0.18
158	0.05

Required:

- (i) Expected value of the average total cost based on the above probability distribution. (2 marks)
- (ii) Evaluate the decision that the company's manager is likely to make based on the average total cost in (c) (i) above and the current average delivery cost of Sh.125 per delivery, assuming the manager is:
- Risk neutral.
  - Risk averse.
  - Risk seeker.

(9 marks)  
(Total: 20 marks)

QUESTION TWO

- (a) QHY Ltd. manufactures a product branded "Tamu". To manufacture a unit of Tamu, three ingredients are required namely; A, B and C. Currently, QHY Ltd. is operating at its full capacity of 28,000 machine hours. The product is manufactured in batches of 20 litres. The current production data is provided as follows:

Ingredient	Machine hours per batch	Cost per batch		
		Variable Sh.	Fixed Sh.	Total Sh.
A	6	200	60	260
B	10	220	70	290
C	12	240	180	420
Cost of assembly		320	130	450

	Sh.	Sh.	Sh.
Total cost per batch			1,420
Profit mark-up			<u>280</u>
Selling price			<u>1,700</u>

**Additional information:**

- During discussion on the budget for the year ending 31 December 2020, the sales manager estimated that sales volume might grow either by 50% or 75% provided the required machine capacity is available.
- While assembly capacity could be increased and meet the projected growth in demand, the machine capacity of 28,000 hours cannot be increased. Therefore, in order to take advantage of the buoyant market, the management is considering the purchase of one of the three ingredients.
- The following quotation has been received from an external supplier:

Ingredient	Price per batch (20 litres)
	Sh.
A	290
B	320
C	390

- The management of QHY Ltd. has decided to buy only one ingredient in any one financial period.

**Required:**

Evaluate which ingredient and the quantity of the ingredient to be outsourced if production is increased by:

- 50%. (5 marks)
- 75%. (5 marks)

- (b) Kiawara Ltd. maintains a perpetual inventory system. The Economic Order Quantity (EOQ) model has established an economic order quantity of 3,000 units with an average daily usage of 100 units and a lead-time of 20 days for its single input product branded "Zed".

The following information relates to the usage of product Zed during the re-order period:

Usage during the re-order period (units)	Number of times the quantity is used
1,800	34
1,900	40
2,000	90
2,100	20
2,200	10
2,300	6

**Additional information:**

- Stock-out cost amount to Sh.400 per unit.
- The optimum number of orders based on the EOQ model is 5 times per annum.
- The annual carrying cost is Sh.80 per unit.

**Required:**

- Advise the management of Kiawara Ltd. on the amount of safety stock to be maintained. (8 marks)
- Determine the probability of a stock-out. (2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

- (a) The assembly department of Lenku Race Course Club has designed a new concept in racing bicycles with the intention of selling them to professional racing teams.

The estimated cost and selling price of the first racing bicycle to be manufactured and assembled is as follows:

	Sh.
Materials	6,000
Assembly labour (12 hours at Sh.300 per hour)	3,600

	<b>Sh.</b>
Manufacturing overheads (150% of labour cost)	5,400
Profit mark-up	<u>6,000</u>
Selling price	<u>21,000</u>

**Additional information:**

- It is expected that material cost per bicycle is to remain constant irrespective of the number of bicycles manufactured.
- The management expects the assembly time to gradually improve with experience and has therefore estimated an 80% learning curve.
- A racing team has approached the club's assembly department and made enquiries on the following quotations:
  - The price of the second bicycle if the team purchases the first bicycle assembled and immediately places an order for the second bicycle.
  - The average price of the third and fourth bicycles if the team waits until the first two bicycles are sold to another team.
  - The price per bicycle if the team places an order for the first eight bicycles to be assembled.

**Required:**

Evaluate the price quotations for each of the three enquiries outlined above. (9 marks)

- (b) Dawa Chemical Ltd. manufactures a single product branded "XP". The following information for the financial year 2018 relates to the product:

1. Standard cost per unit of product XP:

Material	Kgs	Price per Kg Sh.	Total Sh.
F	15	4	60
G	12	3	36
H	8	6	<u>48</u>
			144
Labour	Hours	Rate per hour Sh.	
Department P	4	10	40
Department Q	2	6	<u>12</u>
			196

- Budgeted sales for the period amount to 4,500 units at Sh.260 per unit.
- There were no budgeted opening and closing inventories of product XP.
- The actual materials and labour used were as follows:

Materials	Kgs	Price per Kg Sh.	Total Sh.
F	59,800	4.25	254,150
G	53,500	2.80	149,800
H	33,300	6.40	213,120

Labour Department	Hours	Rate per hour Sh.	Sh.
P	20,500	10.60	217,300
Q	9,225	5.60	51,660

- During the period, 4,100 units of product XP were produced and sold for Sh.1,158,000.

**Required:**

Compute the following variances:

- Material price variance. (3 marks)
- Material mix variance. (3 marks)

- (iii) Material yield variance. (3 marks)
- (iv) Labour rate variance. (2 marks)
- (Total: 20 marks)**

#### QUESTION FOUR

- (a) Describe three categories of environmental costs. (6 marks)

- (b) Bedaline Ltd. is a manufacturing division of a large industrial company. Aslop Wafula, the divisional manager is about to purchase a new plant to manufacture a new product. Aslop could either purchase an automatic plant or a manual plant each of which has the same capacity and expected useful life of four years. The two machines however differ in their expected capital cost and cash flows as shown below:

	Automatic plant Sh.	Manual plant Sh.
Initial capital investment	9,600,000	7,800,000
Net cash flows before tax:		
Year: 1	3,600,000	3,900,000
2	3,600,000	3,300,000
3	3,600,000	2,250,000
4	3,600,000	1,500,000
Net present value at 16%	473,451	284,422

#### Additional information:

- In the above calculation, it is assumed that the plant will be installed and paid for at the beginning of year 1 and that the net cash flows occur at the end of each year.
- Neither of the plant is expected to have a residual value.
- Like all other divisional managers in the company, Aslop Wafula is expected to generate before tax return on his divisional investment in excess of 16% per annum which he is currently just managing to achieve. Anything less than 16% returns would make him ineligible for a performance bonus and might reduce his pension benefit when he retires early in Year 3.
- In calculating divisional returns, divisional assets are valued at net book value at the beginning of the year. Depreciation is charged on a straight line basis.

#### Required:

- Using appropriate computations, justify why neither return on investments (ROI) nor residual income (RI) would motivate Aslop Wafula to invest in the machine with the higher net present value. (12 marks)
- Advise on what should be done to assist in reconciling the difference between using accounting based performance measures and using discounted cash flow methods. (2 marks)

**(Total: 20 marks)**

#### QUESTION FIVE

- (a) Valleyside Fitness Ltd. specialises in the manufacture of a small range of hi-tech products for the fitness market.

They are currently considering the development of a new type of fitness monitor, which would be the first of its kind in the market. It would take one year to develop, with sales then commencing at the beginning of the second year. The product is expected to have a life cycle of two years, before it is replaced with a technologically superior product.

The following cost estimates have been made:

	Year 1	Year 2	Year 3
Units manufactured and sold	-	100,000	200,000
	Sh.	Sh.	Sh.
Research and development costs	160,000,000	-	-
Products design costs	800,000,000	-	-
Marketing costs	1,200,000,000	1,000,000,000	1,750,000,000
Manufacturing costs:			
• Variable cost per unit	-	40,000	42,000
• Total fixed production costs	-	650,000,000	1,290,000,000
Distribution costs:			
• Variable cost per unit	-	4,000	4,500
• Total fixed distribution costs	-	120,000,000	120,000,000

	Sh.	Sh.	Sh.
Selling costs:			
• Variable cost per unit	-	3,000	3,200
• Total fixed selling costs	-	180,000,000	180,000,000
• Administrative costs	200,000,000	900,000,000	1,500,000,000

**Note: Ignore the time value of money.**

**Required:**

The lifecycle cost per unit.

(8 marks)

- (b) Nilo Ltd. is one of the largest and most diversified textile firms in the country. The company manufactures and sells its products through 25 individual divisions that operate more or less like autonomous companies.

Each division of the company has its own manufacturing plants for making the division's products, a sales team and administrative staff to provide financial assistance and control. Broad policy and financial guidance as well as technical assistance is provided from the head office of the company. Nilo Ltd. uses several measures to determine divisional performance.

However, the most widely used measure is the return on investment (ROI) of each division.

The following information relates to determination of the ROI of all the divisions:

- The returns of each investment of a division is determined using the following formula:  

$$\text{Return} = \text{Divisional revenues (sales to outsiders and insiders)} - \text{direct divisional costs} - \text{allocated central corporate costs}$$
- The investment of a division is determined as follows:  

$$\text{Investment} = \text{Book value of assets}$$
- Book value of assets is the aggregate of the accounts receivable net of accounts payable, inventories including raw materials, work in-progress and finished goods and long term assets net of accumulated depreciation.
- The actual ROI is calculated monthly for each division and the formula is uniform across all divisions as it is centrally determined.
- In undertaking performance evaluation, emphasis is laid on trends rather than absolute goals and standards.
- The management also lays emphasis on divisions whose performance is improving or deteriorating and has set a minimum expected ROI below which the manager is required to face disciplinary action. This minimum ROI is however loosely set hence easily achievable.
- The minimum ROI is determined by applying different weights to the three investment components as follows; 20% of depreciable assets, 12% for inventories and 6% for account receivables.
- Transfer prices between divisions are negotiated between themselves.

**Required:**

Discuss three strengths and three weaknesses of the return on investment measure as used by Nilo Ltd. (12 marks)

**(Total: 20 marks)**

.....