UGANDA MARTYRS UNIVERSITY

FACULTY OF BUSINESS ADMINISTRATION & MANAGEMENT

BSc. ACCOUNTING & FINANCE

MANAGEMENT DECISION & CONTROL PAPER 10

DATE: Friday, 26th May 2023

Time allowed: 9.30AM - 12.45 PM

INSTRUCTIONS TO CANDIDATES:

1. Time allowed: **3hrs 15minutes**

The first 15minutes of this examination have been designed for reading time. You may not start to write your answer during this time.

2. Section A has one question carrying 40 marks.

3. Answer **ANY THREE** Questions in Section B.

Each question in section B carries 20 marks.

4. Write your answer to each question on a fresh page in your answer booklet.

5. Please, read further instructions on the answer booklet, before attempting any question.

SECTION A:COMPULSORY

QUESTION 1(a):

NKOZI MEDICAL CENTRE (NMC) is a private hospital carrying out two types of procedures on patients. Each type of procedure incurs the following direct costs:

Procedure	A	B
	Shs	Shs
Surgical time and materials	1,200	2,640
Anaesthesia time and materials	800	1,620

NMC currently calculates the overhead cost per procedure by taking the total overhead cost and simply dividing it by the number of procedures, then rounding the cost to the nearest 2 decimal places. Using this method, the total cost is Shs2,475.85 for Procedure A and Shs4,735.85 for Procedure B.

Recently, another local hospital has implemented activity-based costing (ABC). This has led the finance director at NMC to consider whether this alternative costing technique would bring any benefits to NMC. He has obtained an analysis of NMC's total overheads for the last year and some additional data, all of which is shown below:

Cost	**Cost driver**	**Shs**
Administrative costs	Administrative time per procedure	1,870,160
Nursing costs	Length of patient stay	6,215,616
Catering costs	Number of meals	966,976
General facility costs	Length of patient stay	8,553,600
Total overhead costs		**17,606,352**

Procedure	A	B
No. of procedures	14,600	22,400
Administrative time per procedure (hours)	1	1.5

Length of patient stay per procedure (hours)	24	48
Average no. of meals required per patient	1	4

Required: (a) Calculate the full cost per procedure using activity-based costing. **(20 marks)**

(b) TABLET COmakes two types of tablet computer, the Xeno (X) and the Yong (Y). X currently generates a contribution of Shs30 per unit and Y generates a contribution of Shs40 per unit. There are three main stages of production: the build stage, the program stage and the test stage. Each of these stages requires the use of skilled labour which, due to a huge increase in demand for tablet computers over recent months, is now in short supply. The following information is available for the two products:

	Xeno(X)	Yong(Y)
	Minutes per unit	Minutes per unit
Build (Shs10 per hour)	24	20
Program (Shs16 per hour)	16	14
Test (Shs12 per hour)	10	4

Tablet Co is now preparing its detailed production plans for the next quarter. During this period it expects that the skilled labour available will be 30,000 hours (1,800,000 minutes) for the build stage, 28,000 hours (1,680,000 minutes) for the program stage and 12,000 hours (720,000 minutes) for the test stage. The maximum demand for X and Y over the three-month period is expected to be 85,000 units and 66,000 units respectively. Fixed costs are Shs650,000 per month.

Due to rapid technological change, the company holds no inventory of finished goods.

Required:

(a) Using linear programming graphical approach calculate the optimum number of each product which Tablet Co should make in the next quarter assuming it wishes to maximize contribution and Calculate the total profit for the quarter. **(20 marks)** **(40 marks)**

SECTION B:

QUESTION 2

BUTAMBALA ELECTRONICS (BE) sells electronic equipment and is about to launch a new product onto the market. It needs to prepare its budget for the coming year and is trying to decide whether to launch the product at a price of Shs30,000 or Shs35,000 per unit. The following information has been obtained from market research:

Price per unit Shs30,000		**Price per unit Shs35,000**	
Probability	Sales volume	Probability	Sales volume
0·4	120,000	0·3	108,000
0·5	110,000	0·3	100,000
0·1	140,000	0·4	94,000

Notes:

1. Variable production costs would be Shs12,000 per unit for production volumes up to and including 100,000 units each year. However, if production exceeds 100,000 units each year, the variable production cost per unit would fall to Shs11,000 for all units produced.
2. Advertising costs would be Shs900,000,000 per annum at a selling price of Shs30,000 and Shs970,000,000 per annum at a price of Shs35,000.
3. Fixed production costs would be Shs450,000,000 per annum.

Required:

(a) Calculate each of the six possible profit outcomes which could arise for BE in the coming year. **(12 marks)**

(b) Calculate the expected value of profit for each of the two price options and recommend, on this basis, which option BE would choose. **(4 marks)**

(c) Briefly explain the maximin decision rule and identify which price should be chosen by management if they use this rule to decide which price should be charged. **(4 marks)**

(20 marks)

QUESTION 3

MUKWASI LTD manufactures one product, and the entire product is sold as soon as it is produced. There are no opening or closing inventories and work in progress is negligible. The company operates a standard absorption costing system and analysis of variances is made every month. The standard cost card for the product, BODY JELLY, is as follows.

STANDARD COST CARD – BODY JELLY

	Shs
Direct materials (0.5 kg at Shs4 per kg)	2.00
Direct wages (2 hours at Shs2.00 per hour)	4.00
Variable overheads (2 hours at Shs0.30 per hour)	0.60
Fixed overhead (2 hours at Shs3.70 per hour)	7.40
Standard cost	14.00
Standard profit	6.00
Standing selling price	20.00

Selling and administration expenses are not included in the standard cost, and are deducted from profit as a period charge. Budgeted output for the month of June year 2022 was 5,100 units. Actual results for June year 2022 were as follows.

Production of 4,850 units was sold for Shs95,600.

Materials consumed in production amounted to 2,300 kg at a total cost of Shs9,800.

Labour hours paid for amounted to 8,500 hours at a cost of Shs16,800. Actual operating hours amounted to 8,000 hours.

Variable overheads amounted to Shs2,600.

Fixed overheads amounted to Shs42,300.

Selling and administration expenses amounted to Shs18,000.

Required:

Calculate all variances and prepare an operating statement reconciling the budgeted profit with the actual for the month ended 30 June year 2022.**(20marks)**

QUESTION 4

Lovely cosmetics Limited, a manufacturing plant of cosmetics, is faced with a decision regarding whether or not to expand and build small or large premises at a prime location. Small premises would cost Shs 400 million while large premises would cost Shs 600 million to build. The company segments its market according to low, medium and high demand levels. The chance of experiencing low demand level is 20%, medium 40% and high 40%.

Below is the estimated net income for each demand level in Shs:

Premises	Low demand	Medium demand	High demand
Small	465,000,000	558,000,000	226,000,000
Large	251,000,000	552,000,000	855,000,000

The managing director has suggested that the company should hire the leading market research firm in Uganda to provide the most reliable estimates of demand levels. This firm normally charges Shs 39,000,000 million for such an assignment.

Required:

(a) Advise the company whether it should hire the market research firm. **(18 marks)**

(b) Explain the term expected value **(2 marks)** **(20 marks)**

Question 5

Shifters Haulage (SH) is considering changing some of the vans it uses to transport crates for customers. The new vans come in three sizes; small, medium and large. SH is unsure about which type to buy. The capacity is 100 crates for the small van, 150 for the medium van and 200 for the large van. Demand for

crates varies and can be either 120 or 190 crates per period, with the probability of the higher demand figure being 0.6.

The sale price per crate is Shs10,000 and the variable cost Shs4,000 per crate for all van sizes subject to the fact that if the capacity of the van is greater than the demand for crates in a period then the variable cost will be lower by 10% to allow for the fact that the vans will be partly empty when transporting crates.

SH is concerned that if the demand for crates exceeds the capacity of the vans then customers will have to be turned away.

SH estimates that in this case goodwill of Shs100,000 would be charged against profits per period to allow for lost future sales regardless of the number of customers that are turned away.

Depreciation charged would be Shs200,000 per period for the small, Shs300,000 for the medium and Shs400,000 for the large van.

SH has in the past been very aggressive in its decision-making, pressing ahead with rapid growth strategies. However, its managers have recently grown more cautious as the business has become more competitive.

Required:

(a) Prepare a profits table showing the six possible profit figures per period. (**12 marks**)

(b) Using your profit table from (a) above discuss which type of van SH should buy taking into consideration the possible risk attitudes of the managers. (**08 marks**)

END