

**BACHELOR OF SCIENCE IN SUPPLY CHAIN MANAGEMENT AND OPERATIONS
END OF SEMESTER EXAMINATION
SCM 1206: SUPPLY CHAIN COSTING & BUDGETING**

DATE: Friday, 23rd April 2021

Time: 2 hours

Instructions

1. This examination consists of FIVE questions.
2. Answer Question ONE (COMPULSORY) and any other TWO questions.

QUESTION ONE

- a) Costs may be classified in a number of different ways depending upon their nature and their use. Using example, discuss cost classification with specific reference to:
- i. Fixed and variable costs **2 marks**
 - ii. Direct and indirect costs. **2 marks**
 - iii. Product and period costs. **2 marks**
- b) You are a student who has been deployed in the stores department to review efficiency and stock controls of LYNNTECH Ltd. You have ascertained the following information about the organisation's main raw material:-

Minimum usage	100 units per day
Maximum usage	800 units per day
Average usage	400 units per day
Total projected usage	20,000 units per quarter
Lead time	4 - 8 days
Cost per order	Kes20
Unit Cost	Kes25
Carrying cost	6% of total materials cost per annum.

Required:

To assist with an efficiency review, calculate the following stock control ratios:

- i. Stock re-order level **2 marks**
- ii. Minimum stockholding level **2 marks**
- iii. Economic order quantity **2 marks**
- iv. Maximum stockholding level **2 marks**

- c) The company has determined that maintenance cost is primarily a function of machine hours worked in the various production departments. The maintenance cost incurred and the actual machine hours worked during the months of January, February, March and April 2018 were as follows:

Month	Machine Hours Production department	Maintenance Department's cost
January	800	350
February	1,200	350
March	400	150
April	1,600	550

Required:-

- i. Develop the cost estimating function using high low method **5 marks**
- d) Mr. Q is starting a business to produce a single product which it sells at Kes 100. He estimates that the marginal cost of production is Kes 60, while his fixed costs will be Kes 4,000 per month. He has asked for your assistance with some calculations to inform his business plan.

Required:-

- i. Calculate the projected profit/loss for the month for sales of: 500 units **1 marks**
- ii. Calculate the sales revenue required to earn a projected profit of Kes 5,000. **2 marks**
- iii. Calculate the projected profits at sales of Kes 30,000 **2 marks**
- iv. Calculate the margin of safety in value terms and units for sales of 400 units **3 marks**
- v. Calculate a projected breakeven point if the sales price is reduced by 10%. **1 marks**
- vi. Highlight **TWO** assumptions of break-even analysis. **2 marks**

(Total 30 Marks)

QUESTION TWO

- a) Discuss **FOUR** objectives of costing in supply chain and operations management **6 marks**
- b) Kisuko Ltd is a manufacturing company who are currently reviewing the costing arrangements for product K20. During the first quarter of the year they sold 50,000 units of K20 at Kes30 per unit. They produced 45,000 units of K20 during the quarter and the following production cost information has been provided for the quarter:-

K20	Per unit	Total cost
	Kes	Kes
Direct materials	7.00	315,000
Direct labour	16.00	720,000
Production overhead	5.00	225,000

At the beginning of January, there is a stock of 10,000 units valued as follows:-

	Per unit	Total cost
	Kes	Kes
Direct materials	6.50	65,000
Direct labour	16.25	162,500
Production overhead	5.00	50,000

Sales and administration overheads for the quarter are as follows:

	Kes
Variable	55,000
Fixed	50,000

It is estimated that 40% of production overheads are variable, while the remainder are fixed.

Required:

Prepare an income statement for the quarter using:

- i. Absorption costing 7 marks
- ii. Marginal costing 7 marks

(Total 20 Marks)

QUESTION THREE

- a) Highlight THREE differences between process and job costing methods 3 marks
- b) 'The budgeting process is an important feature of effective management performance'.

Required:

- i. Outline and briefly explain FIVE benefits of budgeting. 5 marks

- c) The Elbow Ltd. manufactures and sells two products: Apha and Beta. In July 20X0, Scarborough's budget department gathered the following data to prepare budgets for 20X1:

20X1 Projected Sales:

Product	Units	Price (Shs)
Apha	60,000	165
Beta	40,000	250

20X1 Inventories in Units:

Expected Target		
Product	Opening Stock	Closing Stock
Apha	20,000	25,000
Beta	8,000	9,000

The following direct materials are used in the two products:

Amount Used per Unit			
Direct Material	Unit	Apha	Beta
A	Kgs	4	5
B	Kgs	2	3
C	No of Units	0	1

Projected data for 20X1 with respect to direct materials are as follows:

Direct Material	Anticipated Purchase Price	Expected Direct Material Inventories in 20X1	
	Shs	Opening Stock-Jan 20X1	Closing Stock –Dec 20X1
A	12	32,000 Kgs	36,000 Kgs
B	5	29,000 Kgs	32,000 Kgs
C	3	6,000 Units	7,000 Units

Projected direct manufacturing labor requirements and rates for 20X1 are as follows:

Product	Hours per Unit	Rate per Hour-Shs
Apha	2	12
Beta	3	16

Manufacturing overhead is allocated at the rate of Shs.20 per direct manufacturing labor-hour.

Required:

Based on the preceding projections and budget requirements for Apha and Beta, prepare the following budgets for 20X1:

- i. Sales budget 2 marks
 - ii. Production budget 3 marks
 - iii. Direct material purchase budget 4 marks
 - iv. Direct manufacturing labour budget 3 marks
- (Total 20 Marks)**

QUESTION FOUR

- a. If all costs are to be classified as either a fixed cost or a variable cost, then a mixed cost has to be so separated into its variable and fixed costs components.

Required:

- i. Describe **FOUR** methods used in cost estimation 6 marks

b. You have been provided with the following standard cost and production information for analysis:

Standard cost information	
Direct materials	6kg @ Kes10.00
Direct Labour	2 hours @ Kes12.50
Total projected overheads	Kes840,000
Fixed	50%
Variable	50%

Projected level of activity is 60,000 units, which will be spread evenly throughout the year. The actual data for the month of March 20X1 is as follows:

Production	4,800 units	
Materials	28,000kg	Kes 273,000
Labour	10,000hrs	Kes 126,000
Overhead	Variable	Kes34,500
	Fixed	Kes36,000

Required:

Calculate the following variances:

- i. Materials price **2 marks**
 - ii. Materials usage **2 marks**
 - iii. Labour rate **2 marks**
 - iv. Labour efficiency **2 marks**
- c) State and explain six causes of material cost variances **6 marks**

(Total 20 Marks)

QUESTION FIVE

Lenza Ltd presently uses a traditional pre-determined overhead absorption rate for allocating production overhead to its products based on direct labor hours. Total production overhead cost is Kes1, 225,000 and it has been determined that four major activities contribute towards this cost as follows:

	Kes
Set Up	428,750
Stores	367,500
Production control	245,000
Quality control	183,750
Total	1,225,000

The company is investigating the use of activity based costing and has ascertained the following production information in relation to its range of products:

	Product A	Product B	Product C	Total
No. of units produced	2,000	50,000	10,000	62,000
Direct labor hours used	10,000	140,000	25,000	175,000
No. of set Ups	40	5	80	125
Inspections	40	-	35	75
Production orders	50	25	50	125
Stock requisitions	400	30	320	750

Required:-

- a) Calculate the cost of each of the product using:
- (i) The existing overhead allocation method **5 marks**
 - (ii) Activity based costing (ABC). **10 marks**
 - (iii) Comment on your answers in i & ii respectively **2 marks**
- b) State and explain three advantages of activity based costing **3 marks**
- [Total: 20 Marks]**