MANAGERIAL ACCOUNTING NOTES

Profit centre where manager is accountable for profit only.

Investment centre – where managers is accountable for investments, revenue and costs.

Management by exceptional principle

This is a principle where management gives more attention to critical areas unusual or exceptional out of line of the planned program.

Normal business activities are considered to be within the plan and so extra attention may not be given.

Role of management accounting in management process

To allocate and accumulate data and provide reliable results for internal and external profit reporting

To provide relevant information to help managers make better decisions

To provide information for planning,

To provide information for control and

To provide information for performance measurement

Review Questions

What is the basic difference between financial and managerial accounting?

What are the key attributes of a good management accounting system?

Discuss the role of management accounting in the management process?

Explain the objectives of management accounting

Suggested References for Further Reading

Horngren et. al., 2009, Introduction to Management Accounting, 14th Ed, Dorling Kindersley, New Delhi Pg 2- 43.

Garisson R. H., and Noreen E. W., 1997 Managerial Accounting, 8th Ed, MacGrraw-Hill, New York, Pg 2-39

For example, Kenya Airways needs to buy ten jumbo jets. The decision is from whom to buy. Kenya Airways has three choices: Airbus, Boeing and McDonnell Douglas. Each of these companies are known for their quality products. Kenya Airways can choose from any of these alternatives.

Decision making under risk

In some situations, a manager is able to estimate the level of probability at which certain variables could occur. The ability to estimate may be due to experience, incomplete but reliable information or, in some cases, an accurate report. When estimates are made, a degree of risk is involved. However some amount of information about the situation is available. The situation requires estimating the probability that one or more known variables might influence the decision being made.

Decision making under uncertainty

A condition of uncertainty exists when a manager is faced with reaching a decision with no historical data concerning the variables and/or unknowns and their probability of occurrence.

Decision under conditions of perfect information

Making decisions under conditions perfect information is straight forward because there exist no unknowns.

2.3 Decision Making Techniques

2.3.1 Decision Trees Analysis

Decision Trees provide a highly effective structure within which one can explore options, and investigate the possible outcomes of choosing those options. They also give a balanced picture of the risks and rewards associated with each possible course of action.

This makes them particularly useful for choosing between different strategies, projects or investment opportunities, particularly when your resources are limited.

In a decision tree, squares represent decisions, circles represent uncertain outcomes and lines represent the options that you could select. A decision or factor is written above the square or circle. If one has a completed the solution at the end of the line, it is left blank. Note that that the joint probability of two events occurring is product of the two events.

Example: A company is considering whether to develop a new product or consolidate existing product. New product development can either be undertaken through thorough development at a cost of Shs.150,000 or through rapid development at a cost of Shs 80,000 while product consolidation can either be achieved through strengthening the products at a cost of shs 30,000 or through reaping the products at no extra cost. The following are the expected outcomes, accompanying probabilities and the projected revenue for of the options.

	Thorough development			Rapid development			Strengthening product			Reaping product	
outcomes	good	mod	poor	good	mod	poor	good	mod	poor	good	poor
probabilities	0.4	0.4	0.2	0.1	0.2	0.7	0.3	0.4	0.3	0.6	0.4
revenues	1000000	50000	2000	1000000	50000	2000	400000	20000	6000	20000	2000

Should the company develop a new product or consolidate existing product?

Figure 1: Example Grid Analysis showing unweighted assessment of how each type of car satisfies each factor

Factors:	Cost	Board	Storage	Comfort	Fun	Look	Total
Weights:							
Sports Car	1	0	0	1	3	3	
SUV/4x4	0	3	2	2	1	1	
Family Car	2	2	1	3	0	0	
Station Wagon	2	3	3	3	0	1	

Next he decides the relative weights for each of the factors. He multiplies these by the scores already entered, and totals them. This is shown in Figure 2:

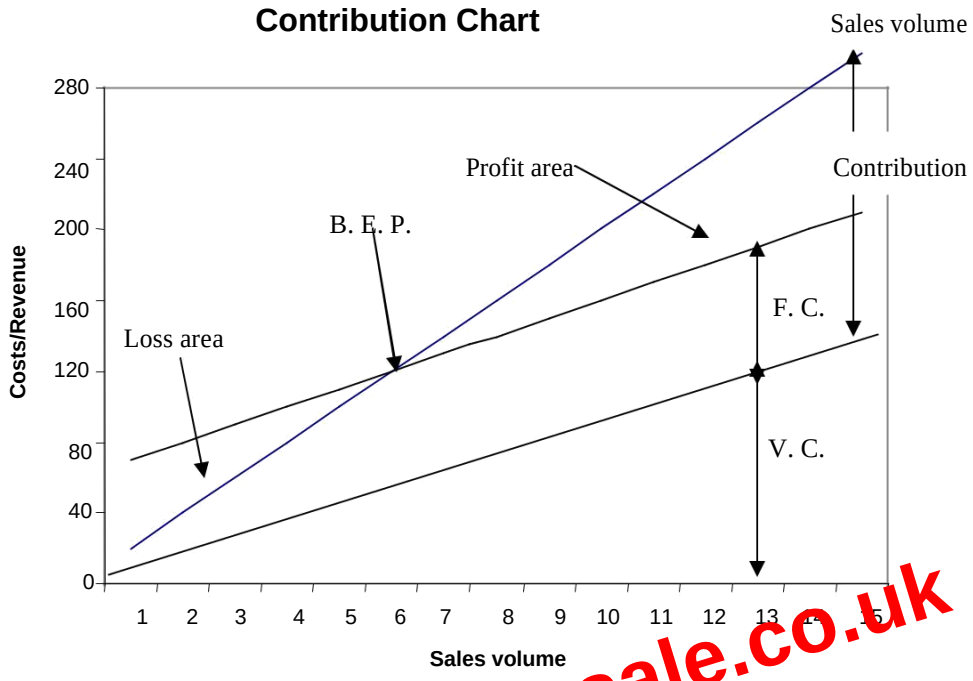
Figure 2: Example Grid Analysis showing weighted assessment of how each type of car satisfies each factor

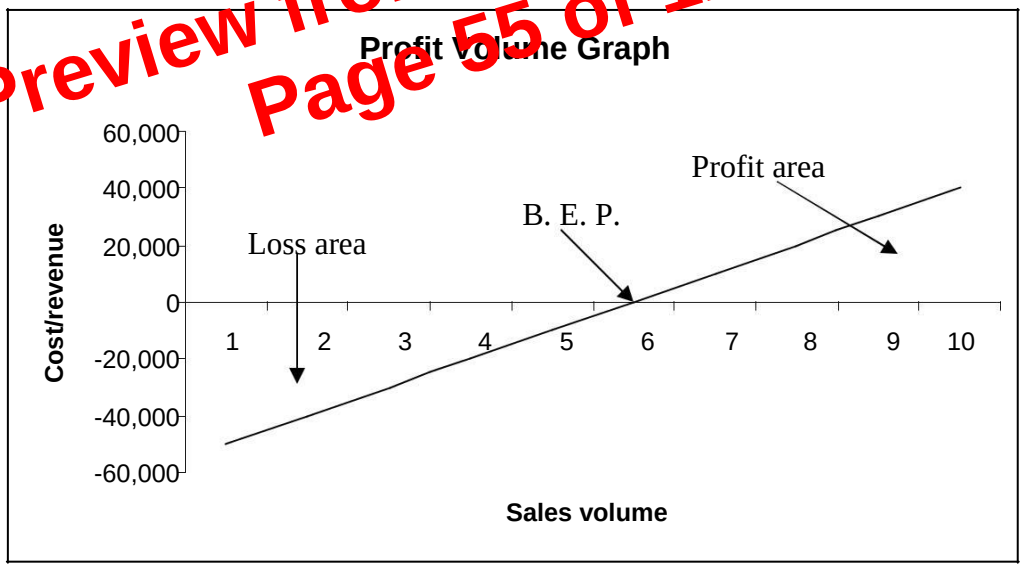
Factors:	Cost	Board	Storage	Comfort	Fun	Look	Total
Weights:	**4**	**5**	**1**	**2**		**4**	
Sports Car	4	0	0	2	9	12	**27**
SUV/4x4	0	15	2	4	3	4	**28**
Family Car	8	10	1	6	0	0	**25**
Station Wagon	8	15	3	6	0	4	**36**

This gives an interesting result: Despite its lack of fun, a station wagon may be the best choice.

Review Questions

A yatch company has developed a new cabin cruiser which they earmarked for the medium to large board market. A market analysis has a 30% probability of annual sales being 5000 boats, and a 40% probability of 4000 annual sales. This company can go into limited production while available costs are sh.10,000 per boat and a fixed cost and sh.800,000 annually. Alternatively they can go into full production where variable cost are sh.9000 per boat and fixed costs are sh.5,000,000 annually, if the new boat is to be sold for shs.11,000 should the





4.5 B E P in Mathematical Formula

B E P can be computed in terms of units or in terms of money value or sales volume or as a percentage of estimated sales.

Units sold will cover variable costs and leave a remainder known as contribution margin

Selling price per unit – variable cost per unit = contribution per unit

Unit contribution × units sold = total contribution

B E P in units is given by:

$$B.E.P.(units) = \frac{Fixed\ Costs}{Selling\ \text{Pr}\ ice\ per\ unit - Variable\ Cost\ per unit} = \frac{Fixed\ Costs}{Contribution}$$

$$B.\ E.\ P.\ (shs) = B.\ E.\ P.\ (shs) \times Selling\ price\ or$$

$$B.E.P.(Shs) = \frac{Fixed\ Costs}{Contribution\ m\ \text{arg}\ in\ ratio}$$, where contribution margin ratio is:

$$C.M.R. = \frac{Selling\ \text{Pr}\ ice - Variable\ \text{costs}}{Selling\ price}$$

Example: Assume that a company intends to sale product in the market, at a selling price of sh.9 per unit. The V.C is sh.5 per unit and the T.F.C is sh.2000

Required:

Compute the B E P in units and in shs.

Assume that the company intends to make a profit before tax of 20% of sales, determine the number of units that must be sold.

Assume that the corporate tax rate is 30% and the company has a target profit of 1640 after tax. Compute the number of units that must be sold to earn this target profit.

If the company expects to sale 600 units, compute the marginal of safety.

Solution

F. C. = Sh.2,000; S. P. = 9.00; V. C. = 5.00

i) $B.E.P.(units) = \frac{2,000}{9-5} = \frac{2,000}{4} =$ ***500 units***

$$E.\ P.\ (shs) = B.\ E.\ P.\ (shs) \times Selling\ price$$

$500 \times 9 =$ ***4,500 or***

6.0 CHAPTER SIX: ABSORPTION COSTING AND MARGINAL COSTING

Learning Objectives

By the end of this chapter the learner should be able to:

Differentiate absorption costing and marginal / variable Costing
Explain overhead cost allocation
Illustrate various methods of overhead cost apportionment
Describe the methods of overhead absorption
Explain the application of overhead to product
compare the impact of variable costing and absorption costing on profit
Describe activity based costing (ABC)

There are two methods of costing namely:-

Absorption costing

Marginal costing

Absorption Costing

Cost accumulation means building up cost of something usually the cost of the end product such as a unit of production, a job or service. The main purpose of cost accumulative system is to provide a way in which cost can be recorded and accumulated. Traditionally absorption costing or full costing has been used to measure the cost of production in a period. The value of any finished or partly finished goods, the cost of finished goods in a period and the profits earned.

Absorption costing is establishing the cost of work done by a downing indirect cost or overheads to the direct cost of material and Labor incurred in producing the work. The process of charging overheads to cost unit or product is known as overhead absorption.

The principle justifying use of absorption costing is the matching or the accrual concept of accounting whereby revenues are to be matched with associated expenses both directly and indirectly. Any item which is costed must have both direct and indirect cost.

Direct cost can easily be traced to the financial product, job or service. Overheads however, cannot be directly traced to the final product and therefore a system must be established to distribute overheads to the unit job or services. This can be done through the process of

	A	*B*
Apportion of stores cost 10,000 =	*30/80 ×10,000 =3,750*	*50/80 × 10,000 = 6,250*
Apportion of maintenance cost 8,000 =	*80/90 × 8,000 = 7111.1*	*10/90 ×8,000 = 888.9*

Apportionment

		Production department		***Service department***	
	Total	***A***	***B***	***Stores***	***Maintenance***
Overhead allocation	37,000	10,030	8,970	10,000	8,000
Apportionment of store cost	10,000	30/80 × 10,000 = 3,750	50/80 × 10,000 = 6,250	(10,000)	
Apportionment of maintenance cost	8,000	80/90 × 8000 = 7,111	10/90 × 8,060 = 889		(8,000)
Total	37,000	20,891	16,109	0	0

The Step (Elimination) Method

The service department providing the highest service to the other service department is identified. The overhead of this department will be apportioned first and once they are apportioned no further reapportionment should done to this department i.e. it is closed down.

The next department providing the highest service is identified and the re-apportionment is done to the remaining department and first department will not share it, as it has already been closed down.

Referring to the above example (previous D.M.) apportion the service cost using the elimination method.

		Production Department		***Service Department***	
	Total	***A***	***B***	***Stores***	***Maintenance***
Overhead	37,000	10,030	8,970	10,000	8,000
Stores	100%	30%	50%		20%
Maintenance	100%	80%	10%	10%	
Overhead	37,000	10,030	8,970	10,000	8,000

for product costing purposes. The following factors must be considered when selecting overhead absorption rate:

Nature of industry i.e. whether production is continuous

Production method i.e. whether manual or mechanical

Principal constituent of overhead i.e. what comprises overhead cost

Stability of the raw material prices

The management policy with regard overhead absorption

There are several methods used for the purpose of overhead absorption. Generally overhead absorption rate is computed as:

O. A. R. = Total budgeted overhead / budgeted units of a base (activity level)

Base on activity level is the method being adopted overhead absorption rate computation. This method includes:

Unit of output

This is used adhere products produced in the department are similar.

If products are different in size or in terms of time taken this method may not be applicable.

A. R. = Total budgeted overhead / Units of output produced.

Direct Labor hours rate:-

Overheads are changed on the basis of Labor hours spent in production. It recognizes the time spent on production and unlike direct Labor cost it is not affected by bonuses and overtime.

A. R. = Total budgeted overhead / Direct labor hours

Machine hour rate

This is used where production is mechanical and overhead is assumed to be caused by hours on machine during production. It recognizes price spent on work.

A. R. = Total budgeted overheads / Machine hours

Direct material cost % rate

Overheads are changed on the basis of direct material cost of each product. This method is used where raw material prices are stable.

A. R. = Total budgeted overheads / direct material cost × 100

Direct labor cost

Less fixed cost		xxx
Net profit		**xxx**

Absorption Costing

	Ksh	Ksh
Sales		xxx
Opening stock	xxx	
Production cost- Direct material	xxx	
- Direct labor	xxx	
- Variable production overhead	xxx	
- Fixed production overhead	xxx	
Less closing stock	xxx	
Cost of sales		xxx
Adjustments for under/(over) recovery of overhead		xxx
Gross profit		xxx
Less non production overheads e.g. marketing		xxx
Net profit		xxx

Example:

The following information is available for XYZ Company

	Period					
	1	***2***	***3***	***4***	***5***	***6***
Units sold (000)	150	120	180	150	140	160
Units produced (000)	150	150	150	150	170	140

Budgeted activity is expected to average 150,000 units per period and there is no opening stock for period 1. Unit selling price is Ksh 10, Unit variable cost is Ksh 6, fixed costs per period is Ksh 300,000 while non manufacturing overheads are 100,000 per period.

Required:

Prepare a profit and loss statement based on variable and absorption costing

Solution:

Variable costing

	Period					
	1	***2***	***3***	***4***	***5***	***6***

Opening stock	-	-	180	-	-	180
Production cost (units produced × 6)	900	900	900	900	1020	840
Closing stock	----	(180)*	----	----	(180)	(60)
Cost of sales	900	720	1,080	900	840	960
Fixed costs	300	300	300	300	300	300
Total costs	1,200	1,020	1,380	1,200	1,140	1,260
Sales	1,500	1,200	1,800	1,500	1,400	1,600
Gross profit	300	180	420	300	260	340
Less non mfg costs	100	100	100	100	100	100
Net profit	200	80	320	200	160	240

Note:* *For period 150,000 units were produced but only 120,000 units were sold, the difference 30,000 i.e. (150,000 - 120,000) needs to be subtracted from the production cost to get the cost of sales and consequently becomes the opening stock for the next period. The closing stock figure for period 4-6 are calculated in the same way*

Absorption costing

Since under absorption costing fixed costs are assigned to products, an overhead absorption rate needs to be determined in our case; fixed costs may be divided by budgeted activity to get the fixed costs absorption rate i.e. 300,000/ 150,000 = 2. This is the unit fixed cost that should be added to the unit variable cost to get the unit production cost

	Period					
	1	***2***	***3***	***4***	***5***	***6***
Opening stock	-	-	*240*	-	-	*240*
Production cost [units produced × (6 + 2)]	*1,200*	*1,200*	*1,200*	*1,200*	*1,360*	*1,120*
Closing stock	----	*(240)**	----	----	*(240)*	*(80)*
Cost of sales	*1,200*	*960*	*1,440*	*1,200*	*1,120*	*1,280*
Adjustment for u/(o) recovery of overhead	---	---	---	---	*(40)*	*20*
Total costs	*1,200*	*960*	*1,440*	*1,200*	*1,080*	*1,300*
Sales	*1,500*	*1,200*	*1,800*	*1,500*	*1,400*	*1,600*
Gross profit	*300*	*240*	*360*	*300*	*320*	*300*
Less non mfg costs	*100*	*100*	*100*	*100*	*100*	*100*
Net profit	*200*	*140*	*260*	*200*	*220*	*200*

A comparison of the impact of variable costing and absorption costing on profit

Recall that OPBT = Sales – TC, Thus;

$$Sales - VC - FC$$

$$Q_s \text{ (unit selling price – unit variable cost)} - FC$$

$$Q_s \text{ (UCM)} - FC,$$

Where: UCM = Unit Contribution Margin

Q_s *= Quantity sold*

Therefore: $OPBT_{VC} = Q_s \text{ (UCM)} - FC$

From our analysis in the preceding question the difference in profit between variable costing and absorption costing is attributable to the differences between production and sales multiplied by the unit fixed cost or fixed overhead absorption rate. For instance in period 1, the difference between profits is 60,000 i.e. [(150,000 – 120,000) × 2]. Symbolically this difference can be expressed as: $(Q_p - Q_s) \times UFC$.

Where: UFC = Unit Fixed Cost

Q_p*= quantity produced*

Therefore $OPBT_{AC}$ *is given as* $OPBT_{VC}$ *plus the difference in profits between variable and absorption costing i.e.*

$$OPBT_{AC} = OPBT_{VC} + (Q_p - Q_s) \times UFC$$

$$= Q_s \text{ (UCM)} - FC + [UFC\ (Q_p - Q_s)]$$

It can therefore be concluded that:

Under variable costing profit is driven by unit level of sales

Under absorption costing profit is driven by (a) unit level of sales (b) unit level of production and(c) the chosen fixed overhead absorption rate

Consider period 2 in the above example for instance:

$OPBT_{VC}$ *=120(10 - 6) – 300 = 180*

$OPBT_{AC}$ *=120(10 - 6) – 300 + [2(150 - 120)] = 240*

Arguments in support of variable costing

Variable costing provides more information for decision making

Required;

Prepare a profit statement using:

Absorption costing

Marginal costing

Prepare a reconciliation statement to reconcile the two reported profit figures under absorption and marginal costing

Solution

Use units budgeted to absorb fixed overhead to product units

O A R = Fixed overheads / No of units

10,000 / 5000 units

Ksh. 2 per unit

	Marginal costing	*Absorption costing*
Direct material	*3*	*3*
Direct labor	*2*	*2*
Variable overhead	*1*	*1*
Fixed overhead	*0*	*2*
Cost per unit (E)	*6*	*8*

Absorption overhead (5,000 × 2) = 12,000

Actual overhead = 10,000

Over absorption = 2,000

Profit and loss statement

i) Absorption costing

	Ksh	***Ksh***
Sales (4,800×10)		48,000
Cost of sales		
Opening stock	0	
Production cost (8 × 6,000)	48,000	
Less closing stock (6,000 - 4,800) × 8	9,600	
Cost of sales		38,400

Unadjusted gross profit	9,600	
Add: under recovery	2,000	
Adjusted profit	11,600	

Note: If it is over recovery we subtract.

ii) Marginal costing

	Ksh	***Ksh***
Sales (4,800 × 10)		48,000
Marginal cost		
Opening stock	0	
Add production cost (6 × 6,000)	36,000	
Less closing stock (6000 - 4,800) × 6	7,200	
Cost of sales		28,800
Gross profit	19,200	
Less fixed overheads	10,000	
Net profit	9,200	

Reconciliation statement under marginal and absorption costing

Profit under absorption costing = *11,600*

Difference in opening stock (0 - 0) *0*

Less: difference in closing stock (9,600-7,200) = *(2,400)*

Profit under marginal costing = *9, 200*

Alternative method

Profit Statement				
	Marginal cost		***Absorption costing***	
	Ksh	***Ksh***	***Ksh***	***Ksh***
Sales (4 800× 10)		*48,000*		*48,000*
Less: Variable cost of sales				
Direct material (6 000× 3)	*18,000*		*18,000*	
Direct labor (6 000× 2)	*12,000*		*12,000*	
Variable overhead (6000×1)	*6,000*		*6,000*	
Fixed production (6000× 2)	*Nil*		*12,000*	
Total cost	*36,000*		*48,000*	
Less closing stock	*7,200*		*9,600*	

Communication of the details of a budget policy and guidelines to those people responsible for the preparation of budgets

It is essential that all managers be made aware of the policy of top management for implementing the long term plan in the current year's budget so that common guidelines can be established. The process also indicates to managers responsible for preparing the budgets how they should respond to expected environmental changes

Determining the factors that restricts output

In every organization there is a factor that restricts performance for a given period. In many organizations the factor is sales demand, but it is also possible for production capacity to restrict performance if sales demand is in excess of production capacity. It s this factor that determines the point at which that annual budgeting process should begin

Preparation of the sales budget

When sales is the factor restricting performance the preparation of the sales budget becomes the starting point of the budgeting process. It is therefore the most important budget since other budgets are based on it and most difficult to prepare because it is based on the action of customers, the state of the economy and competitors

Initial preparation of various budgets

Managers responsible for meeting the budgeted performance should prepare the budgets for those areas fro which they are responsible. A bottom- up process is usually preferable

Negotiation of budgets with superiors

To implement a participative approach to budgeting, the budget should be originated at the lower levels of management. The managers at this level should submit their budgets to their superiors for approval who in turn submit the budgets to their superiors for approval and so on

Coordination and review of budgets

As the individual budgets move up in the organizational hierarchy in the negotiation process, they must be examined in relation to each other. This examination may indicate that some budgets are out of balance with each other and need modifying so that they will be compatible with other conditions, constraints and plans that are beyond a manger's knowledge or control

Final acceptance of budgets

Direct labor	Ksh 12.00 per hour

ii) Overhead is recovered on a direct labor hour basis

iii) The standard material and labor usage for each product are as follows:

	alpha	beta
Material X	10 units	8 units
Material Y	5 units	9 units
Direct labor	10 hrs	15 hrs

iv) Finished products:

	alpha	beta
Forecast sales (units)	8,500	1,600
Selling price per unit (Ksh)	400	560
Required ending inventory(units)	1,870	90
Beginning inventory(units)	1,700	85

v) Direct material:

	Material X	Material Y
Beginning inventory	8,500	8,000
Required ending inventory	10,200	1,700

vi) Budgeted variable overhead rates per direct labor hour:

	Dept 1(Ksh)	Dept 2(Ksh)
Indirect materials	1.20	0.80
Indirect labor	1.20	1.20
Power (variable portion)	0.60	0.40
Maintenance(variable portion)	0.20	0.40

vii) Budgeted fixed overheads:

	Dept 1(Ksh)	Dept 2(Ksh)
Depreciation	100,000	80,000
Supervision	100,000	40,000
Power (variable portion)	40,000	2,000
Maintenance(variable portion)	45,600	3,196

Estimated non-manufacturing overheads:

X	7.20	10	72.00	8	57.60
Y	16.00	15	80.00	9	144.00
Direct labor	12	10	120.00	15	180.00
Factory overheads:					
Dept 1	6	10	60.00	-	-
Dept 2	8	-	-	15	120.00
			332.00		501.60

viii) Prepare the cost of goods sold budget

	Ksh
Opening inventories:	
Finished products (170 × 332.00) + (85× 501.60)	99,076
Direct materials (8,500×7.20) + (8,000×16.00)	189,200
Direct material purchases *	1,785,408
Direct labor*	1,512,900
Factory overheads*	804,606
Less closing inventories*	(766,624)
Cost of goods sold	3,524,566

See respective budgets

Prepare non-manufacturing/selling and administration budget

	Ksh	***Ksh***
Selling: Salaries	74,000	
Commissions	60,000	
Car expenses	22,000	
Advertising	80,000	236,000
Administration: Stationary	4,000	
Salaries	28,000	
Miscellaneous	8,000	40,000
		276,000

Prepare the cash budget

The objective of the cash budget is to ensure that sufficient cash is available at all times to meet the level of operations outlined in the various budgets. Cash budgets can help

Labor (hours and Ksh)

State and discuss the usefulness of budgets

Human aspects of budgeting

Reaction of mangers to budget levels

If the objective is to achieve success rather than avoid failure, then budgets which are set difficult or too easy at as demotivators whereas those of moderate difficulty provide the highest levels of motivation

If the objective id to avoid failure rather than achieve success, then even moderate difficulty targets will not be attempted only those of easy level of difficulty will be attempted.

Need for employees to be committed

However comprehensive the budgetary control may be, it has to be operated by human beings and to ensure its success it is essential that each employee is committed to the project. Commitment may be enhanced by demonstrating to each employee the benefit that they can derive from the process, using the process for future promotions, recognizing and appreciating the efforts of implementers, identifiers of reasons for variances and suggestions of corrective actions etc

Problem of separate budget centers in relation to staff motivation

In big organizations it is very difficult to relate one budget center to the budget of the remaining centers and although each center will know its results, it may not appreciate how its results have contributed to the total business performance. Good communication can ensure that employees do not feel that their contribution does not affect the end results

Need for staff participation

There is a very strong link between participation and motivation, when staffs have been involved in the preparation f budgets they would want to see the projects succeed participation is influenced by: culture of the organization, attitudes of the individual, experience and social

Engine type	Power saw engines	Lawnmower engines	Motor bike engines
Selling price	Ksh 80,000	Ksh 100,000	Ksh 125,000
Variable cost per unit	Ksh 56,000	Ksh 62,500	Ksh 75,000
Contribution per unit	Ksh 24,000	Ksh 37,500	Ksh 50,000
Contribution margin percentage (Ksh 24/80; 50/125 & 37.5/100) in (000)	30%	37.5%	40%
Estimated daily demand in units	60	60	60

Assume that only 600 machine hours are available daily for assembling engines, additional capacity can not be obtained in the short run. The limiting factor is machine hours. It takes 2, 5 and 5 machine hours produce one power saw, one lawnmower and one motor bike engine respectively.

Required:

Advise on the product mix that Kawasaki should produce during the period 20mks

Book Value	15,000	Not acquired yet
Disposal value(in cash) now	7,000	Not acquired yet
Disposal value in 3 years	0	0
Annual cash operating costs for power, maintenance, toner etc	14,000	8,000

Copy cat is trying to decide whether to replace the old equipment. Because of the rapid changes in technology, copy cat expect the replacement equipment to have a 3year useful life only. Ignore the effects of taxes 20mks