## Short-term Decision Making

## Marginal costing and management decisions in short run

Concept of Marginal Costing is very useful in making managerial decisions in the short run.
Determining the appropriate sales mix
a) When there are limiting factors the firm should select the best sales mix by considering those factors.

Factors which limits indefinite expansion of on organization or earning of profit are called limiting factors.
e.g. Finance, Sales, Row material, Skilled labour etc.

Steps:
i. Ascertain the contribution
ii. Ascertain the contribution per limiting factor
iii. List the order of preferences

## Activity 1

A Company is producing 4 products and planning it's production mix for the next period.
Estimated cost, sales and production data are given below.

| Product | W | $\mathbf{X}$ | Y | Z |
| :--- | :--- | :--- | :--- | :--- |
| Selling price per unit | 20 | 30 | 40 | 36 |
| Labour (2/= per hour) | 6 | 4 | 14 | 10 |
| Material (1/= per kg) | 6 | 18 | 10 | 12 |
| Maximum demand (units) | 5,000 | 5,000 | 5,000 | 5,000 |

Based on the above data, what is the most appropriate sales mix if;
I. Labour hours are limited to 50,000 hours in a period
II. Materials are limited to $110,000 \mathrm{Kg}$ in a period.
b) Acceptance of a special order

Special order is an order, under terms different from terms for normal sales. Such an order can be considered only if the organization has not utilized its capacity to the fullest extent. In this decision the fundamental criteria whether to accept or not, is based on the comparison of the variable cost with the price in the special offer. If proposed selling price of the special offer is higher than the variable cost per unit, the order can be accepted.

## Activity 2

X Ltd manufacture\& market a drink which they sell at Rs. 20 per bottle. Current output is 400,000 bottles per month, which represent $80 \%$ of capacity. They have the opportunity to utilize their surplus capacity by selling the drink at Rs. 13 per bottle to a super market, which will sell it as an own labeled product. Total cost for the last month was Rs.5,600,000 out of which $1,600,000$ were fixed cost.

Based on the above data, write a report to the Board of Directors stating whether to accept this special order and the other factors that has to be considered in making the decision.
c) Dropping a loss making product

When a company is producing a range of products, which include a product incurring losses, business will have to decide whether such product to be discontinued. This decision can also be taken by comparing variable cost and the selling price. In other words, by determining whether the product is having a contribution. If the loss making product is having a contribution, it is profitable to continue the product.

## Activity 3

X Company has a range of products of which revenue and cost data are as follows

|  | $\mathbf{X}($ Rs. $)$ | $\mathbf{Y}($ Rs. $)$ | $\mathbf{Z}$ (Rs.) |
| :--- | :---: | :---: | :---: |
| Sales | 32,000 | 50,000 | 45,000 |
| Total cost | 36,000 | 38,000 | 34,000 |

The total cost comprises of $1 / 3$ of the fixed cost. The Marketing manager of the Company argues that product X is making losses and hence it should be discontinued. The Managing Director of the organization seeks your advice on the issue.

## d) Make or Buy Decisions

Frequently the management is faced with the decision whether to make a particular product or component or whether to buy it from outside. A part from over riding the technical reason the decision is usually based on an analysis of the cost indicators. Under these types of decisions the most important factor is that the costs are divided into fixed and variable cost. Any purchase price payable to an outsider may be compared with any cost which can be saved unless the production is made.

## Activity 4

A firm manufactures component "XL 200" and the cost for the production at current level of 50,000 units are as follows

## Cost per unit (Rs.)

Raw material 2.50
Labour 1.25
Variable O/H 1.75
Fixed O/H 3.50

Component "XL 200" could be bought for Rs. 7.75 and if so, the production capacity utilized at present would be unused. Decide whether "XL 200" to be manufactured or purchased. Show the effect on profit based on your calculations.

## Practice Questions

## Acceptance of a Special Order

Alpah Ltd. Manufacturers market a special brand of soap which they sell for Rs.50/= per price.
Current output is 22,500 pieces per month, which represents $75 \%$ of full capacity. The total cost for the last month were Rs. $800,000 /=$ out of which Rs.125,000 were fixed cost.

## Required:

a) If the average selling price remains the same as it has been in the past, at what level of activity will the company break-even?
b) Assume that a new customer offers the Alpha Ltd. Rs.35/= per piece for its product. Provided that there are no effects on sales to old customers and no legal complications. Should the Alpha Ltd. accept an order for 7,000 pieces of soap. State two other factors to be considered in making the above decision.

## Make or Buy Decisions

Sithumina Ltd. produces product X. Current activity level is 5,000 units, and each unit is sold at Rs. 150.

The cost structure of the product is given below.

Rs.
Direct material cost 50
Direct labour cost (variable) 30
Fixed overhead cost $\underline{40}$
Cost per unit $\underline{\underline{120}}$

The company has an opportunity to buy a product of same quality and features at Rs. 100. If the product is purchased from outside, the fixed cost of Rs. 25,000 can be avoided.

## Required:

Decide whether to make the product or buy it from an outside supplier.

## Product Mix Decisions

Toyo Lanka PLC (TLP) is a company contracted by a major automobile company to manufacture four products: $\mathrm{R}, \mathrm{X}, \mathrm{Y}$, and Z as four major components for their new car. All these products are manufactured in a semi-automated system and the maximum machine hours available for production are 19,600 machine hours per week under normal working condition.

The following information is relevant:

| Description | Product |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | :---: |
|  | $\mathbf{R}$ | $\mathbf{X}$ | $\mathbf{Y}$ | $\mathbf{Z}$ |  |
| Selling price per unit (Rs) | 320 | 350 | 500 | 480 |  |
| Direct materials per unit (Rs) | 90 | 110 | 160 | 130 |  |
| Direct labour per unit (Rs) | 30 | 30 | 30 | 50 |  |
| Variable overheads per unit (Rs) | 40 | 40 | 80 | 80 |  |
| Total variable cost per unit (Rs) | $\mathbf{1 6 0}$ | $\mathbf{1 8 0}$ | $\mathbf{2 7 0}$ | $\mathbf{2 6 0}$ |  |
| Machine hours required per unit | 3 | 3 | 3 | 5 |  |
| Max weekly demand (units) | 2000 | 2000 | 2500 | 1250 |  |
| Fixed overheads (Rs) |  |  |  |  |  |

According to the contract TLP should supply the following minimum number of products:

| Product | $\mathbf{R}$ | $\mathbf{X}$ | $\mathbf{Y}$ | $\mathbf{Z}$ |
| :---: | ---: | ---: | ---: | ---: |
| Minimum supply (units) | 800 | 800 | 1000 | 500 |

## Required:

(i) Find out the optimum production combination that maximizes the profit and calculate the total profit.
(ii) The managing director of TLP is considering of supplying the maximum demand. Two mutually exclusive alternatives are available to fulfil the short supply:

Alternative 1: Introducing a night shift to produce only the short supply: As a result, direct labour cost and variable overheads will go up by $50 \%$ for the night shifts.

Alternative 2: Outsource the short supply products at the following prices:

| Product | $\mathbf{R}$ | $\mathbf{X}$ | $\mathbf{Y}$ | $\mathbf{Z}$ |
| :---: | ---: | ---: | ---: | :---: |
| Outsource price per unit | 192 | 216 | 324 | 312 |

In addition to this purchasing price, TLP needs to repack the products at a cost of Rs 10 per unit.

Calculate the incremental profit from Alternative 1 and 2, and find out the best alternative that maximizes the profit.

