After studying this chapter, you will be able to:

- **Discuss Pricing** Strategies and their consequences.
- **Calculate** the optimum selling price and quantity, equating marginal cost and marginal revenue.
- **Determine** prices and output levels for profit maximization using the demand based approach to pricing.
- **Explain** different price strategies.
- **Calculate** a price from a given strategy using cost-plus and relevant cost.
CHAPTER OVERVIEW

The Pricing Decision

- Theory of Price
  - Profit Maximisation Model
- Pricing under Different Market Structures
- Pricing Policy
  - Principles of Product Pricing
    - Price Sensitivity
    - Price Customization
- Pricing Adjustment Policies
- Pricing Methods
  - Competition Based
  - Cost Based
  - Value Based
  - Price in Periods of Recession
  - Price below Marginal Cost
  - Pricing of Services — Key issues
- Strategic Pricing of New Products
  - Skimming
  - Penetration
- Pricing and Product Life Cycle

PRICING DECISION

“A pricing decision is one of the most crucial & difficult decision that a firm has to make. Such a decision affects the long-term survival of any profit oriented enterprise.”

Accounting information is often an important input to pricing decisions. Most firms need to make decision about setting or accepting selling prices for their products or services. In some firms selling price is derived directly from cost information by estimating future product’s cost & adding a suitable profit margin. In others, an established market price is accepted.

Generally, pricing decisions are influenced by the pricing policy followed by an organisation. Pricing policies are made taking overall objectives of an organisation into account. Thus, before fixing price of a product, objectives of the organisation must be understood first to achieve the organisation’s goal. Objective of an organisation may be either to maximise the profit or maximise the sales or maximise the output or optimal utilisation of resources etc.

In this chapter, we will learn pricing principles, pricing policies and pricing strategies.

THEORY OF PRICE

The basic approach in most of the micro-economic theory (theory of the individual firm and its relation to other firms) defines the term optimum price as that price which yields the maximum profits (excess of total revenues over total costs).
Thus, the basic assumption of the pricing theory is that the firm’s main objective is to maximise its profits. It also assumes that the firm takes into consideration the position of demand and cost functions and that the firm produces one product.

If a firm sells unlimited number of units, the total revenue line will be a straight line arrived at by 
\[ TR = mx. \]
Where,
\[ TR = \text{Total revenue line} \]
\[ m = \text{quantity of units sold} \]
\[ x = \text{price per unit}. \]

In most of the market situations, however, additional units can be sold by reducing the price. This means that although the total sales revenue will increase as more and more units are sold, the increase in total revenue will decline gradually as sales increases. Consider the following example:

**Example**

A firm’s pricing of a product is as under:

- 20 units @ ₹4.00 per unit.
- 21 units @ ₹3.90 per unit.
- 22 units @ ₹3.80 per unit.

The sales figures can be summarised as under:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price (₹)</th>
<th>Total Sales Revenue (₹)</th>
<th>Addition to Total Revenue (₹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>4.00</td>
<td>80.00</td>
<td>—</td>
</tr>
<tr>
<td>21</td>
<td>3.90</td>
<td>81.90</td>
<td>1.90</td>
</tr>
<tr>
<td>22</td>
<td>3.80</td>
<td>83.60</td>
<td>1.70</td>
</tr>
</tbody>
</table>

The reduction in the price of each additional unit reflects a gradual reduction in the steepness of the total revenue curve as shown in the figure. The total cost curve will however, register an increase in the steepness because as the volume increases, the cost also increases because of the difficulty of expanding output with a given productive resources.
At point Q, the gap between the total cost line and total revenue is the maximum, thus Q is the point of optimum volume. Any attempt to increase the volume beyond this point will reduce the profit because the incremental cost will be more than the incremental revenue.

These relations are expressed in terms of marginal revenue and marginal cost. Marginal revenue is the increase in total revenue that results from the sale of one additional unit. In the example given above, the marginal revenue of increasing one unit from 20 units to 21 units is ₹1.90. Marginal cost is the increase in total cost that results from the production of one additional unit.

**PROFIT MAXIMIZATION MODEL**

Pricing model is a mathematical model which uses economic theory of pricing.

(i) As per economic theory of pricing, Profit is Maximum at a *level of output* where Marginal Revenue (MR) is equal to Marginal Cost (MC) i.e.

\[
\text{Marginal Revenue (MR)} = \text{Marginal Cost (MC)}
\]

This model determines the level of production up to which production can be continued.

(ii) The Basic Price equation, which is used to determine the Price where Profit is Maximum. The equation is written as:

\[
P = a - bQ
\]
Where, \[ P = \text{Price} \]
\[ b = \text{Slope of the Demand Curve, Calculated as} \]
\[ b = \frac{\text{Change in Price}}{\text{Change in Quantity}} \]
\[ Q = \text{Quantity Demanded} \]
\[ a = \text{Price at Which Demand is Zero} \]

(iii) The Marginal Revenue equation is written as

\[ \text{Marginal Revenue (MR)} = P = a - 2bQ \]

Example

Aditya Heavy Engineering Ltd. (AHEL) produces its only product A7. To manufacture a unit of A7, variable cost of ₹2,20,000 is incurred. Market research has indicated that at a selling price of ₹5,10,000 no order will be received, but the demand for A7 will be increased by two units with every ₹5,000 reduction in the unit selling price below ₹5,10,000.

To determine the unit selling price for A7 that will maximize the profit of AHEL. We assume that:

- Selling Price per unit of A7 is ‘P’, and Quantity Demanded is ‘Q’
- The Marginal Cost of a unit of A7 is ₹2,20,000

Price Equation for ‘A7’

\[ P = a - bQ \]
\[ P = 5,10,000 - (5,000 / 2) \times Q \]
\[ \text{Revenue (R)} = Q \times [5,10,000 - 2,500 \times Q] \]
\[ = 5,10,000 Q - 2,500 Q^2 \]
\[ \text{Marginal Revenue (MR)} = a - 2bQ \]
\[ = 5,10,000 - 2 \times (5,000 / 2) \times Q \]
\[ = 5,10,000 - 5,000 Q \]
\[ \text{Marginal Cost (MC)} = 2,20,000 \]

Profit is Maximum where Marginal Revenue (MR) equals to Marginal Cost (MC)

\[ 5,10,000 - 5,000 Q = 2,20,000 \]
\[ Q = 58 \text{ units} \]

By Putting the Value of ‘Q’ in Price Equation, Value of ‘P’ is Obtained

\[ P = 5,10,000 - (5,000 / 2) \times Q \]
\[ = 5,10,000 - 2,500 \times 58 \text{ units} \]
\[ = 3,65,000 \]

At Selling Price of ₹3,65,000 AHEL’s Profit will be Maximum.
PRICING UNDER DIFFERENT MARKET STRUCTURES

The determination of optimal price can be considered under the following market structures:

**Perfect Competition**

Under perfect competitive market, there are large numbers of sellers selling a homogeneous product using identical production process and all of them have perfect information about the market and price. Perfect market allows free entry and exit of firms into and out of the industry.

Under this type of market, firm has no pricing policy of its own as the sellers are price takers (i.e. it has to accept the price determined by the market) and sell as much as they are capable of selling at the prevailing market price. Since each firm produces and sells a homogeneous product, it cannot increase its price beyond the market price. If it does so then it has to lose all of its market demand to the competitors.

There is no control over market price which will equate the quantities available with the quantities which the buyers are willing to buy. The firm has to take a decision in favour of the quantity to sell. The firm can continue to produce so long as its marginal cost is less than or equal to its selling price, upto the point at which the marginal cost is equal to price, increase in output will add to revenue and thereafter the increase will add to cost. It can be seen in following example.

**Example**

Aditya LLP produces a product X, the market for the product X is competitive and the prevailing market price for a unit of product X is ₹40. The following table presents the marginal cost and profit for the product X:

<table>
<thead>
<tr>
<th>Units</th>
<th>Total Revenue (₹)</th>
<th>Total Cost (₹)</th>
<th>Marginal Cost (₹)</th>
<th>Profit (₹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>20</td>
<td>-</td>
<td>(20)</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>30</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>80</td>
<td>50</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>120</td>
<td>85</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>160</td>
<td>125</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>200</td>
<td>170</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>240</td>
<td>217</td>
<td>47</td>
<td>23</td>
</tr>
</tbody>
</table>

The marginal cost for producing 4th unit is equal to the price per unit. Thus, Aditya LLP can maximize its profit at 4th unit level.

**Monopoly**

Monopoly is a market condition where there is only one supplier or producer of a homogeneous product for which there is no close substitute but has many buyers. Under the monopoly, a firm is a price setter i.e. it can fix any price but here also the pricing is done taking elasticity of demand for the product into consideration. That means though the seller/ producer can fix any
price but it will go for the price where demand for the product and consequent profit will be maximum.

**Monopolistic Competition**

The monopolistically competitive market is one in which there are large number of firms producing similar but not identical products. Since there is limit to the growth of competitors the excess profits earned by monopolistic situation attracts new competition. This will have a long-run effect on the excess profits which will tend to diminish because of the price competition with close substitutes. The company will, however, have to compare marginal cost and marginal revenue in maximising its profits.

Under monopolistic condition, consumers may buy more at a lower price than at higher price. The profit can be maximised by equating marginal revenue with marginal cost.

**Oligopoly**

A market structure where there are few firms producing or selling homogenous or identical product. In this type of market structure the firms are aware of the mutual interdependence of investment, production process, advertising and sales plan of its rival firm. Hence, any change in any variable by a firm is likely to have an equal reaction on the part of other competing firms. It is therefore, clear that the oligopolistic firm, while determining the price for its product, consider not only the demand for the product but also the reactions of the other firms in the industry to any action or decision it may take.

If a firm does not follow or adapt its pricing policy in consonance with its competitor, the shift in the sales will be sensitive. That means demand will shift towards the lower price. Thus, each firm will study the potential reaction before increasing or decreasing the selling price. The firms in oligopolistic market maintain the price of the product either by close analysis of each other's behavior or by means of cooperation and collusion.

**Pricing Strategies of Oligopolies**

Oligopolies may pursue the following pricing strategies:

- **Predatory Pricing:** Keeping price artificially low, and often below the full cost of production.
- They may also operate a Limit-Pricing Strategy to discourage entrants, which is also called entry forestalling price.
- Oligopolists may collude with rivals and raise price together, but this may attract new entrants.
- Cost-Plus Pricing: A straightforward pricing method, where a firm sets a price by calculating average production costs and then adding a fixed mark-up to achieve a desired profit level. There are different versions of cost-plus pricing, including full cost pricing, where all costs - that is, fixed and variable costs - are calculated, plus a mark-up for profits, and contribution pricing, where only variable costs are calculated with precision and the mark-up is a contribution to both fixed costs and profits.
7.8 STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION

Non-Price Strategies
Non-price competition is the favoured strategy for oligopolists because price competition can lead to destructive price wars – examples include:

- Trying to improve Quality & After Sales Servicing, such as offering extended guarantees.
- Spending on Advertising, Sponsorship, and Product Placement.
- Sales Promotion, such as buy-one-get-one-free, is associated with the large supermarkets, which is a highly oligopolistic market, dominated by three or four large chains.
- Loyalty Schemes, which are common in the supermarket sector, such as Reliance's One Card.

PRICING POLICY

The pricing policy plays an important role in a business because the long run survival of a business depends upon the firm’s ability to increase its sales and derive the maximum profit from the existing and new capital investment. Although cost is an important aspect of pricing, consumer demand and competitive environment are frequently far more significant in pricing decisions. These are also known as determinants of pricing or market powers. Thus, costs alone do not determine price. Cost is only one of the many complex factors which determine prices. There must however, be some margin in prices over total cost if capital is to be unimpaired and production maximised by the utilisation of internal surplus.

The pricing policy and the relative price structure should:

- Provide an incentive for adopting improved technology and maximising production
- Work towards better balance between demand and supply
- Avoid adverse effects on the rest of the economy
- Encourage optimum utilisation of resources
- Promote export

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PRINCIPLES OF PRODUCT PRICING

As already stated, cost should not be considered as an important determinant of price. The tendency should be to lower the price in such a way so as to choose a right combination of price and output to maximise profits. The important determinants of price, therefore, are competitive situations prevailing in the market and elasticities.

Taking the standard products into consideration, the pricing principles are much the same whether the product is a new one or the one already well established in the market. However, the environmental situation and information base are different.

To arrive at a right price, the following important points to be kept in the mind:

Price Customization

Pricing of a product is some time customised keeping taste, preference and perceived value of a consumer into consideration. Price customisation is done in various ways:

- **Based on product line**: Based on the requirement of the consumer products can be customized and accordingly the prices. For example, some may like to have a smartphone with 16 GB over 32 GB. In this case pricing for the product can be based on memory specification.
- **Based on customer’s past behaviour**: A customer with good payment record may be given more discounts then the others.
- **Based on demographics**: Different pricing may be adopted based on age or social status. For example, railway fare concession for senior citizen and concessional price tickets for military personnel.
- **Based on time differential**: Pricing for a product or service is also done on the basis of time differential i.e. different price for different time period. For example, discounted price for data usage provided by a broadband service provider if subscription paid for six months at a time.

Apart from above pricing principles, other macro economic and legal factors should also be given due importance while chalk ing out a pricing strategies.

Price Sensitivity

It measures the customer’s behaviour to the change in price of a product. Nagle\(^1\) has identified nine factors that contribute to price sensitivity. These factors are:
- **Unique Value Effect**: More unique the product, lower is the price sensitivity.
- **Substitute Awareness Effect**: If the buyers are aware of substitutes and these perform the same function, then the buyer’s price sensitivity will be high.
- **Difficult Comparison Effect**: Price sensitivity will be low if the buyer has difficulty comparing two alternatives.
- **Total Expenditure Effect**: If the expenditure on the product represents a low proportion of the consumer income, the price sensitivity will be less visible for such a product.
- **End- Benefit Effect**: Buyers are less price sensitive where the expenditure on the product is low compared to the total cost of the end product.
- **Shared Cost Effect**: If the cost of the product is shared by another party, the buyer will have less prone to price sensitivity.
- **Sunk Investment Effect**: Price sensitivity is low in products which are used along with assets previously bought.
- **Price Quality Effect**: Higher the perceived quality of the product, lower the price sensitivity.
- **Inventory Effect**: If the product cannot be stored, the buyer will be less price sensitive.

(Source: The Strategy and Tactics of Pricing, Thomos Nagle)
One of the methods more commonly used for measuring price sensitivity is controlled experimentation. In this method, customers are offered different brands at different prices and customer’s responses are obtained. Then the company’s brand prices are changed and customer’s response at each price level is recorded. The price at which demand for the product starts declining is the level where price sensitivity begins and based on the response level, sensitivity can be measured. It depends on the nature of the product and buyer characteristics.

PRICING METHODS

Costs, Demand, and Competition define different pricing methods that a firm may adopt. Let us understand these methods:

Cost-Based Pricing Method

In many businesses, the common method of price determining is to estimate the cost of product & fix a margin of profit. The term ‘cost’ here means Full Cost at current output and wages level since these are regarded as most relevant in price determination. If a firm wants to survive and stay in business, it has to maintain its fixed capital intact so that its fixed assets may be replaced at the end of their useful working life out of the funds generated from profits retained in the business. In a period of relatively stable price levels, depreciation based on historical cost of fixed assets would perhaps be adequate for achieving this object. In periods when the price level is continuously changing, the firm may not be left with adequate funds generated out of accumulated depreciation at the end of the life of the plant to replace the plant at a higher price. Hence depreciation should be properly included as a part of cost so as to leave sufficient profits for asset replacement.

Pricing based on total costs is subjected to two limitations. They are:

- The allocation of inter-departmental overheads is based on an arbitrary basis; and
- The allocation overheads will require estimation of normal output which often cannot be done precisely.
In order to avoid these complications, **Variable Costs** which are considered as relevant costs are used for pricing, by *adding a markup* (to include fixed costs allocation also).

Sometimes, instead of arbitrarily adding a percentage on cost for profit, the firm determines an **average mark-up** on cost necessary to produce a *desired Rate of Return on Investment*. The rate of return to be earned by the firm or industry must depend on the *risk involved*.

**Illustration**

*Bosch Ltd.* has developed a special product. Details are as follows: The product will have a life cycle of 5,000 units. It is estimated that market can absorb first 4,500 units at ₹ 64 per unit and then the product will enter the "decline" stage of its life cycle.

The company estimates the following cost structure:

*Direct Labour*……………………………………… ₹ 6 per hour

*Other variable costs*……………………………. ₹ 19 per unit

Fixed costs will be ₹ 40,000 over the life cycle of the product. The ‘labour rate’ and both of these costs will not change throughout the product’s life cycle.

The first batch of 100 units will take 1,000 labour hours to produce. There will be an 80% learning curve that will continue until 2,500 units have been produced. Batches after this level will each take the same amount of time as the 25th batch. The batch size will always be 100 units.

**Required**

CALCULATE average selling price of the final 500 units that will allow the company to earn a total profit of ₹ 80,000 from the product if average time for 24 batches is 359.40 hours.

(Note: Learning coefficient is –0.322 for learning rate of 80%).

The values of Logs have been given for calculation purpose:

\[
\begin{align*}
\log 2 &= 0.30103; \\
\log 3 &= 0.47712; \\
\log 5 &= 0.69897; \\
\text{antilog of } 2.534678 &= 342.51; \\
\text{antilog of } 2.549863 &= 354.70; \\
\text{antilog of } 2.555572 &= 359.40; \\
\text{antilog of } 2.567698 &= 369.57
\end{align*}
\]

**Solution**

**Average ‘Selling Price’ of the final 500 units**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (₹ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Labour [(8,867.50 hrs. + 241.90 hrs. × 25 batches) × ₹ 6]</td>
<td>89,490</td>
</tr>
<tr>
<td>Add: Other Variable Costs (5,000 units × ₹ 19)</td>
<td>95,000</td>
</tr>
<tr>
<td>Add: Fixed Costs</td>
<td>40,000</td>
</tr>
<tr>
<td>Total Life Cycle Cost</td>
<td>2,24,490</td>
</tr>
<tr>
<td>Add: Desired Profit</td>
<td>80,000</td>
</tr>
<tr>
<td>Expected Sales Value (5,000 units × ₹ 19)</td>
<td>3,04,490</td>
</tr>
<tr>
<td>Less: Sales Value (4,500 units × ₹ 64)</td>
<td>2,88,000</td>
</tr>
</tbody>
</table>
### Workings

#### (i) The cumulative average time per batch for the first 25 batches

The usual learning curve model is

\[ y = ax^b \]

*Where*

- \( y \) = Average time per batch (hours) for \( x \) batches
- \( a \) = Time required for first batch (hours)
- \( x \) = Cumulative number of batches produced
- \( b \) = Learning coefficient

The Cumulative Average Time per batch for the first 25 batches

\[ y = 1,000 \times (25)^{-0.322} \]

\[ \log y = \log 1,000 - 0.322 \times \log 25 \]

\[ \log y = \log 1,000 - 0.322 \times \log (5 \times 5) \]

\[ \log y = \log 1,000 - 0.322 \times [2 \times \log 5] \]

\[ \log y = 3 - 0.322 \times [2 \times 0.69897] \]

\[ \log y = 2.549863 \]

\[ y = \text{antilog of } 2.549863 \]

\[ y = 354.70 \text{ hours} \]

#### (ii) The time taken for the 25th batch

- Total Time for first 25 batches = 354.70 hours × 25 batches = 8,867.50 hours
- Total Time for first 24 batches = 359.40 hours × 24 batches = 8,625.60 hours
- Time taken for 25th batch = 8,867.50 hours − 8,625.60 hours = 241.90 hours
Competition-Based Pricing Method

When a company sets its price mainly on the consideration of what its competitors are charging, its pricing policy under such a situation is called competitive pricing or competition-oriented pricing. It is not necessary under competitive pricing to charge the same price as charged by the concern’s competitors. But under such a pricing the concern may keep its prices lower or higher than its competitors by a certain percentage. It’s own costs or demand may change, but the concern maintains its price because its competitors maintain their prices. Conversely, the concern will change its price when its competitors change their price, even if its own costs or demand have not altered. Different types of competitive pricing in vogue are as follows:

Going Rate Pricing

It is a competitive pricing method under which a firm tries to keep its price at the average level charged by the industry. The use of such a practice of pricing is especially useful where it is difficult to measure costs. Adoption of going rate pricing will not only yield fair return but would be least disruptive for industry’s harmony.

Going rate pricing primarily characterises pricing practice in homogeneous product markets. The concern selling a homogeneous product in a highly competitive market has actually very little choice about the setting of its price. There is apt to be a market determined price for the product, which is not established by any single firm or clique of firms but through the collective interaction of buyers and sellers. The concern which is going to charge more than the going rate would attract virtually no customers. The concern should not charge less because it can dispose of its entire output at the going rate.

Thus, under highly competitive conditions in a homogeneous product market (such as food, raw materials and textiles) the concern really has no pricing decision to make. The major challenge before such a concern is good cost control. Since promotion and personnel selling are not in the picture, the major marketing costs arise in physical distribution.

In pure oligopoly, where a few large concerns dominate the industry, the concern also tends to charge the same price as is being charged by its competitors. Since there are only a few concerns, each firm is quite aware of other’s prices, and so are the buyers.

This does not mean that the going price in an oligopoly market will be in practice indefinitely. It cannot, since industry costs and demand change over time.

Sealed Bid-Pricing

Competitive pricing also dominates in those situations where firms compete on the basis of bids, such as original equipment manufacturer and defense contract work. The bid is the firms offer price, and it is a prime example of pricing based on expectations of how competitors will price rather than on a rigid relation based on the concern’s own costs or demand. The objective of the firm in the bidding situation is to get the contract, and this means that it hopes to set its price lower than that set by any of the other bidding firms. But however, the firm does not ordinarily set its price below a certain level. Even when it is anxious to get a contract in order to keep the plant
busy, it cannot quote price below marginal cost. On the other hand, if it raises its price above marginal cost, it increases its potential profit but reduces its chance of getting the contract.

**Value- Based Pricing Method**

There is an increasing trend to price the product on the basis of customer’s perception of its value. This method helps the firm in reducing the threat of price wars. Marketing research is important for this method. It is based on:

**Objective Value or True Economic Value (TEV)**

This is a measure of benefits that a product is intended to deliver to the consumers relative to the other products without giving any regard whether the consumer can recognize these benefits or not.

True economic value for a consumer is calculated taking two differentials into consideration:

\[
\text{TEV} = \text{Cost of the Next Best Alternative} + \text{Value of Performance Differential}
\]

Cost of the next best alternative is the cost of a comparable product offered by some other company. Value of performance differential is the value of additional features provided by the seller of a product.

A firm’s product may be superior to the next best alternative in some dimensions but inferior in others.

**Example**

A customer wants to buy a System for a single year (after which it will be scrapped) with plans to use it for 2,500 hrs.

**Cost Structure (similar products):**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>System-X</th>
<th>System-X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Cost/ hour</td>
<td>₹ 5</td>
<td>₹ 7.50</td>
</tr>
<tr>
<td>Probability of System Crash</td>
<td>10%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Price</td>
<td>₹ 37,500</td>
<td>?</td>
</tr>
</tbody>
</table>

Find the TEV for the System-X² if the cost of a System Crash to the buyer is ₹1,00,000.

**TEV=**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>₹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Cost</td>
<td>- ₹6,250</td>
</tr>
<tr>
<td></td>
<td>2,500 hrs. × (₹5.00 - ₹7.50)</td>
</tr>
<tr>
<td>System Crash Savings</td>
<td>₹9,500</td>
</tr>
<tr>
<td></td>
<td>₹1,00,000 × (10.00% - 0.50%)</td>
</tr>
<tr>
<td>Price of Next Best Alternative</td>
<td>₹37,500</td>
</tr>
<tr>
<td>TEV</td>
<td>₹40,750</td>
</tr>
</tbody>
</table>
Perceived Value

This is the *value that consumer understands the product deliver to it*. It is the price of a product that a consumer is willing to spend to have that product.

At the time of fixing price, it is to be kept in the mind that any price which set below the perceived value but above the cost of goods sold give incentives to both buyers and the seller. This can be understood with the help the diagram given below.

Creating value for the customers is one of the important objectives of a firm. A firm makes all the efforts to create value and to achieve this it formulates its marketing strategy in that direction. Understanding customers’ wants and needs is foundation for building this value. To create value, a firm makes the following **marketing strategies**: 
- First it develops a product that satisfy the wants and needs of the customers,
- After identification and development, it designs a promotion program to convey the value of the products to the customers,
- It chooses the right distribution channel through which its product will reach to the customers
- At last it has to design a pricing strategy that creates incentive to purchaser to buy the product and to seller to sell the product.
PRICING DECISION

PRICING IN PERIODS OF RECESSION

In periods of recession, a firm may sell its articles at a price less than the total cost but above the marginal cost for a limited period.

The advantages of this practice are:

▪ The firm can continue to produce and use the services of skilled employees who are well trained and will be difficult to re-employ later if discharged.
▪ Plant and machinery can be prevented from deterioration through idleness.
▪ The business would be ready to take advantage of improved business conditions later.
▪ This avoids the competition of securing the business of the firm.

One thing to remember here is that a situation like this should not lead to a drastic price cutting and the orders accepted should not cover a long period extending over the production facilities of a period when business conditions improve.

PRICING BELOW MARGINAL COST

Firm may also be justifiable to sell the product at a price below marginal cost for a limited period provided the following conditions prevail:

▪ Where materials are of perishable nature.
▪ Where stocks have been accumulated in large quantities and the market prices have fallen. This will save the carrying cost of stocks.
▪ To popularize a new product.
▪ Where such reduction enables the firm to boost the sales of other products having larger profit margin.

STRATEGIC PRICING OF NEW PRODUCTS

The pricing of new product poses a bigger problem because of the uncertainty involved in the estimation of their demand. In order to overcome this difficulty experimental sales are conducted in different markets using different prices to see which price is suitable. A company may, for example, choose three different markets and by using the same amount of sales promotional activities, ascertain what the right price is. In such circumstances, it may even prove that the highest price yielding the largest unit contributory margin need not necessarily maximise the profits. A lower price may well go to maximise the profits. But at the same time if a product is priced very low to attract more demand, it may be difficult in the future to raise the price as it may not be acceptable to the consumers. So, pricing of a new product is very critical issue which should be decided after a thorough market study and consumer behavior analysis.
A new product is analysed into three categories for the purpose of pricing:

**Revolutionary Product**: A product is said to be revolutionary when it is new for the market and has the potential to create its own value. This type of product has revolutionary impact on the market and consumer behaviour. It replaces the existing method or technology and the approach to doing a work is quite different and unique. These products enjoy the benefit of product differentials and have the potential of being market leader.

*Revolutionary product may enjoy the premium price as a reward for its innovation and taking first initiative.*

**Evolutionary Product**: A product introduces upgraded version with few additional characteristics of the product is known as evolutionary product.

*The evolutionary products may be priced taking cost-benefit, competitor, and demand for the product into account.*

**Me-too Product**: A product is said to be me-too product when its emergence is a result of the success of a revolutionary product. These types of products are very similar (in ordinary language imitation) to revolutionary and/or evolutionary products of other firms. The firm while producing me-too products, generally follows the similar production process and technology that is used by the other firms. These are known as market followers.

*The me-too products are price takers as the price is determined by the market mainly by the competitive forces.*

---

**Three New Product Pricing Situations**

(Source: The Price Advantage By Michael V. Marn, Eric V. Roegner, Craig C. Zawada)
### Independent Situations

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Situation</th>
<th>RP/EP/MP</th>
<th>Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>(i) Adjustable work table like a stool, has been successfully capturing the market. Company X makes a small variant of this product and is trying to enter the market.</td>
<td>Me-too Product (MP)</td>
<td>Market Price that is determined by competitive forces for the successful product.</td>
</tr>
<tr>
<td></td>
<td>(ii) R &amp; D has just been completed on an innovative computer processor in the shape of a pen, with accompanying pen-like devices to act as keyboard projector and monitor projector. This is expected to get the laptops out of business due to extreme ease of portability of just 3 pen-like light weight devices.</td>
<td>Revolutionary Product (RP)</td>
<td>Premium Pricing, it can expect to make a tidy profit as a reward for innovation and taking its first initiative.</td>
</tr>
<tr>
<td></td>
<td>(iii) A successful mobile manufacturing company has built into its latest mobile phone, an additional sliding screen and improved its processor capabilities so that the phone is almost a laptop.</td>
<td>Evolutionary Product (EP)</td>
<td>Demand Based Pricing, Price higher than the earlier version to justify its Costs and Benefits subject to what amount can be stepped up in the market.</td>
</tr>
</tbody>
</table>

While preparing to enter the market with a new product, management must decide whether to adopt a skimming or penetration pricing strategy.

### Skimming Pricing

It is a policy of high prices during the early period of a product’s existence. This can be synchronised with high promotional expenditure and in the later years the prices can be gradually reduced. The reasons for following such a policy are:

(i) The demand is likely to be inelastic in the earlier stages till the product is established in the market.

(ii) The change of high price in the initial periods serves to skim the cream of the market that is relatively insensitive to price. The gradual reduction in price in the later year will tend to increase the sales.

(iii) This method is preferred in the beginning because in the initial periods when the demand for the product is not known the price covers the initial cost of production.

(iv) High initial capital outlays, needed for manufacture, results in high cost of production. Added to this, the manufacturer has to incur huge promotional activities resulting in increased costs. High initial prices will be able to finance the cost of production particularly when uncertainties block the usual sources of capital.
Penetration Pricing

This policy is in favour of using a low price as the principal instrument for penetrating mass markets early. It is opposite to skimming price. The low price policy is introduced for the sake of long-term survival and profitability and hence it has to receive careful consideration before implementation. It needs an analysis of the scope for market expansion and hence considerable amount of research and forecasting are necessary before determining the price.

Penetrating pricing, means a pricing suitable for penetrating mass market as quickly as possible through lower price offers. This method is also used for pricing a new product. In order to popularise a new product penetrating pricing policy is used initially. The company may not earn profit by resorting to this policy during the initial stage. Later on, the price may be increased as and when the demand picks up. Penetrating pricing policy can also be adopted at any stage of the product life cycle for products whose market is approached with low initial price. The use of this policy by the existing concerns will discourage the new concerns to enter the market.

We must distinguish penetration pricing from Predatory Pricing. Predatory Pricing (loss leading) is the practice of selling a product or service at a very low price, intending to drive competitors out of the market or create barriers to entry for potential new competitors.

The three circumstances in which penetrating pricing policy can be adopted are as under:

(i) When demand of the product is elastic to price. In other words, the demand of the product increases when price is low.

(ii) When there are substantial savings on large scale production. Here increase in demand is sustained by the adoption of low pricing policy.

(iii) When there is threat of competition. The prices fixed at a low level act as an entry barrier to the prospective competitors.

Independent Situations

<table>
<thead>
<tr>
<th>Situation</th>
<th>Appropriate Pricing Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) ‘A’ is a new product for the company and the market and meant for large scale production and long term survival in the market. Demand is expected to be elastic.</td>
<td>Penetration Pricing</td>
</tr>
<tr>
<td>(ii) ‘B’ is a new product for the company, but not for the market. B’s success is crucial for the company’s survival in the long term.</td>
<td>Market Price or Price Just Below Market Price</td>
</tr>
<tr>
<td>(iii) ‘C’ is a new product to the company and the market. It has an inelastic market. There needs to be an assured profit to cover high initial costs and the unusual sources of capital have uncertainties blocking them.</td>
<td>Skimming Pricing</td>
</tr>
</tbody>
</table>
| (iv) ‘D’ is a perishable item, with more than 80% of its shelf life over. | Any Cash Realizable Value ‘(*) this amount decreases every passing day.”

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Concept in Practice

**Samsung Smartphones**

Samsung has reached unbelievable heights with its smartphones, which helped the brand to become a symbol of quality and reliability for its consumers. Smartphones of Samsung are leading the market with Apple’s iPhone. As Apple, Samsung also uses skimming price to gain the upper hand over their competitors. For instance, Galaxy S6 and S6 Edge were the brands new products of Samsung claiming that they were the most beautiful smartphones ever created. S6 Edge (64 GB) that costs 1 180$ smoothly sold around the globe.

(Source: http://inevitablesteps.com/marketing/samsung-marketing-strategy/)

### PRICING AND PRODUCT LIFE CYCLE

<table>
<thead>
<tr>
<th>Introduction Stage</th>
<th>Growth Stage</th>
<th>Maturity Stage</th>
<th>Decline Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Skimming Policy with high prices, but low profit margin due to high fixed costs.</td>
<td>▪ Reduce price to penetrate market further.</td>
<td>▪ Price to match or beat competitor.</td>
<td>▪ Cut price if not repositioning.</td>
</tr>
<tr>
<td>▪ Penetration Policy to enter the market and gain a high share quickly or to prevent competitors from entering.</td>
<td></td>
<td>▪ Retain higher prices in some market segments.</td>
<td>▪ Some increases in prices may occur in the late decline stage.</td>
</tr>
</tbody>
</table>

(Source: Marketing Fundamentals 2007-2008 By Geoff Lancaster, Frank Withey)

### Case Scenario

*Netcom Ltd. manufactures and sells a number of products. All of its products have a life cycle of less than one year. Netcom Ltd. uses a four stage life cycle model (Introduction, Growth, Maturity and Decline).*

*Netcom Ltd. has recently developed an innovative product. It was decided that it would be appropriate to adopt a market skimming pricing policy for the launch of the product.*

*However, Netcom Ltd. expects that other companies will try to join the market very soon.*

*This product is currently in the Introduction stage of its life cycle and is generating significant unit profits. However, there are concerns that these current unit profits will not continue during the other stages of the product’s life cycle.*
Required
EXPLAIN, with reasons, the changes, if any, to the unit selling price and the unit production cost that could occur when the products move from the previous stage into each of the following stages of its life cycle:

(i) Growth

(ii) Maturity

Solution

Growth Stage
Compared to the introduction stage the likely changes are as follows:

Unit Selling Prices:
These are likely to be reducing for a number of reasons:
- The product will become less unique as competitors use reverse engineering to introduce their versions of the product.
- Netcom may wish to discourage competitors from entering the market by lowering the price and thereby lowering the unit profitability.
- The price needs to be lowered so that the product becomes attractive to different market segments thus increasing demand to achieve the growth in sales volume.

Unit Production Costs:
These are likely to reduce for a number of reasons:
- Direct materials are being bought in larger quantities and therefore Netcom may be able to negotiate better prices from its suppliers thus causing unit material costs to reduce.
- Direct labour costs may be reducing if the product is labour intensive due to the effects of the learning and experience curves.
- Other variable overhead costs may be reducing as larger batch sizes reduce the cost of each unit.
- Fixed production costs are being shared by a greater number of units.

Maturity Stage
Compared to the growth stage the likely changes are as follows:

Unit Selling Prices:
These are unlikely to be reducing any longer as the product has become established in the market place. This is a time for consolidation and whilst there may be occasional offers to tempt customers to buy the product the selling price is likely to be fairly constant during this period.
**Unit Production Costs:**

Direct material costs are likely to be fairly constant in this phase and may even rise as the quantities required diminish compared to those required in the growth stage with the consequential loss of negotiating power.

Direct labour costs are unlikely to be reducing any longer as the effects of the learning and experience curves have ended. Indeed the workers may have started working on the next product so that their attention towards this product has diminished with the result that these costs may increase.

Overhead costs are likely to be similar to those of the end of the growth phase as optimum batch sizes have been established and are more likely to be used in this maturity stage of the product life cycle where demand is more easily predicted.

---

**PRICE ADJUSTMENT POLICIES**

Having set prices, often companies will need to adjust their basic prices to account for various customer differences and changing situations. Companies, therefore, need to establish price adjustment policies as follows:

- **Distributor’s Discounts**
- **Quantity Discounts**
- **Cash Discounts**
- **Price Discrimination**
- **Geographic Pricing**

**Distributor’s Discounts**

It means price deductions that systematically make the net price vary according to buyer’s position in the chain of distribution. These discounts are given to various distributors in the trade channel e.g., wholesalers, dealers and retailers. As these discounts creates differential prices for different
customers on the basis of marketing functions performed by them, so these are also called as functional discounts.

**Quantity Discounts**

Quantity discounts are price reductions related to the quantities purchased. It may take several forms. It may be related to the size of the order which is being measured in terms of physical units of a particular commodity. This is practicable where the commodities are homogeneous or identical in nature, or where they may be measured in terms of truck-loads. However, this method is not applicable in the case of heterogeneous commodities as it is difficult to add them in terms of physical units or truck loads e.g. textile and drug industry. Quantity discounts are useful in the marketing of materials and supplies but are rarely used for marketing equipment and components.

**Cash Discounts**

Cash discounts are price reductions based on promptness of payment. It is a convenient device to identify and overcome bad credit risks. In those trades where credit risk is high, the percentage of cash discount given is also high. If a buyer decides to purchase goods on credit, he has to pay a higher price by foregoing the cash discount.

**Price Discrimination**

Price discrimination means charging different prices and it takes various forms according to whether the basis is customer, product, place or time. Price discrimination is possible if the following conditions are satisfied:

- the maker must be capable of being segmented for price discrimination;
- the customers should not be able to resell the product of the segment paying higher price; and
- the chance of competitors’ underselling in the segment of higher prices should not be possible.

Under *time differentials* the objective of the seller is to take advantage of the fact that buyer’s demand elasticity vary over time.

**Geographic Pricing**

In pricing, a seller must consider the costs of shipping goods to the buyer. These costs grow in importance as freight becomes a larger part of total variable costs. Pricing policies may be established whereby the buyer pays all the freight expense, the seller bears the entire cost, or the seller and buyer share this expense. The strategy chosen can influence the geographic limits of a firm’s market, locations of its production facilities, sources of its raw materials, and its competitive strength in various geographic markets.

**Structured Approach to Pricing Decisions**

Logical and acceptable way of structuring the process:
SENSITIVITY ANALYSIS IN PRICING DECISIONS

Sensitivity analysis is very significant in making pricing decisions, and striking the right balance in which the price is good-looking enough to generate enough sales, yet is also profitable for the firm. It is also important for determining how much can be spent on development or marketing, etc. Simple analysis of past pricing decisions can inscribe poor pricing controls, and sources of value leakage and more sophisticated price sensitivity analysis can identify opportunities to increase or decrease prices to drive sales.

Product pricing decisions must be balanced against costs and competitive market conditions. Sensitivity analysis is required to determine how sales and costs will respond to changes in the market conditions.

Sensitivity analysis is performed by choosing the critical parameters upon which we based our pro forma computations, and systematically changing them to assess how the changes will affect the overall outcome. Some of these factors are external, and change according to the market and economy. This analysis is important towards understanding how the company will withstand external changes, for example:

- Market Demand
- Changes in Market Prices
- Exchange Rate Fluctuation
Other factors are typically internal, and in these cases sensitivity analysis is valuable in making important decisions within the company. For example:

- Initial Outlay, R & D
- Production Cost
- Marketing Costs
- Introduction Dates
- Product Prices

(Source: How to Create a Successful Business Plan By Dan Galai, Lior Hillel, Daphna Wiener; Introduction to Managerial Accounting By Larry M. Walther, Christopher J. Skousen)

### PRICING OF SERVICES: ISSUES

- When services are uniquely tailored to each customer’s needs, the pricing cannot be easy. Each service transaction is likely to have distinct pricing structure.
- In certain services customer’s participation is essential. The customer may have to incur certain intangible costs over and above monetary cost while making use of a service. The pricing decision in such services should accommodate the intangible costs that a customer may have to bear with.
- Some of the services like health care, education, communication, transport, etc. fall within the larger domain of government. Therefore, price of those services tends to be regulated.
- Some services pricing is determined in a collective manner. Trade association, professional bodies, or other institutions may impose broad guidelines for fixing the price.

### SUMMARY

- Theory of Price –The basic approach in most of the micro-economic theory (theory of the individual firm and its relation to other firms) defines the term optimum price as that price which yields the maximum profits (excess of total revenues over total costs). It also assumes that the firm takes into consideration the position of demand and cost functions and that the firm produces one product.
- Pricing Model – Pricing model is a mathematical model which uses economic theory of pricing.
  (i) As per economic theory of pricing, Profit is Maximum at a level of output where Marginal Revenue (MR) is equal to Marginal Cost (MC). This model determines the level of production up to which production can be continued.
  (ii) The Basic Price Equation, which is used to determine the Price where Profit is Maximum.
The equation is written as:

\[ P = a - bQ, \]

Where,

\[ P = \text{Price}, \]

\[ b = \text{Slope of the Demand curve}, \text{ Calculated as} \]

\[ b = \frac{\text{Change in Price}}{\text{Change in Quantity}}, \]

\[ Q = \text{Quantity Demanded}, \]

\[ a = \text{Price at which demand is zero}. \]

(iii) The Marginal Revenue equation is written as:

\[ \text{Marginal Revenue (MR)} = P = a - 2bQ \]

- **Pricing under Different Market Structures**
  - (i) **Perfect Competition** – Under this type of market, firm has no pricing policy of its own as the sellers are price takers (i.e. it has to accept the price determined by the market) and sell as much as they are capable of selling at the prevailing market price.
  
  - (ii) **Monopoly** – Under the monopoly, a firm is a price setter i.e. it can fix any price but here also the pricing is done taking elasticity of demand for the product into consideration. That means though the seller/producer can fix any price but it will go for the price where demand for the product and consequent profit will be maximum.
  
  - (iii) **Monopolistic Competition** – Under monopolistic condition, consumers may buy more at a lower price than at higher price. The profit can be maximised by equating marginal revenue with marginal cost.
  
  - (iv) **Oligopoly** – The oligopolistic firm, while determining the price for its product, consider not only the demand for the product but also the reactions of the other firms in the industry to any action or decision it may take.

- **Pricing Strategies of Oligopolies**
  - (i) **Predatory Pricing** – Keeping price artificially low, and often below the full cost of production.
  
  - (ii) **Limit-Pricing Strategy** to discourage entrants, which is also called entry forestalling price.
  
  - (iii) **Collusion with rivals and raise price together**, but this may attract new entrants.
  
  - (iv) **Cost-Plus Pricing** – A straightforward pricing method, where a firm sets a price by calculating average production costs and then adding a fixed mark-up to achieve a desired profit level.

**Non-Price Strategies** – Non-price competition is the favoured strategy for oligopolists because price competition can lead to destructive price wars. Strategies like improving
Quality & After Sales Servicing, Spending on Advertising, Sponsorship, and Product Placement etc.

- Pricing Policy – Although cost is an important aspect of pricing, consumer demand and competitive environment are frequently far more significant in pricing decisions.

- Creating value for the customers is one of the important objectives of a firm. A firm makes all the efforts to create value and to achieve this it formulates its marketing strategy in that direction.

- Price Sensitivity – It measures the customer’s behaviour to the change in price of a product.

Nine factors that contribute to price sensitivity are Unique Value Effect, Substitute Awareness Effect, Difficult Comparison Effect, Total Expenditure Effect, End-Benefit Effect, Shared Cost Effect, Sunk Investment Effect, Price Quality Effect and Inventory Effect.

- Controlled experimentation for measuring price sensitivity – In this method, customers are offered different brands at different prices and customer’s responses are obtained. Then the company’s brand prices are changed and customer’s response at each price level is recorded. The price at which demand for the product starts declining is the level where price sensitivity begins and based on the response level, sensitivity can be measured. It depends on the nature of the product and buyer characteristics.

- Price Customization – Price customisation is done in various ways –
  (i) Based on product line, (ii) Based on customer's past behaviour, (iii) Based on demographics and (iv) Based on time differential.

- Pricing Methods –
  (i) Cost-Based Pricing Method – estimate the cost of product & fix a margin of profit. The term 'cost' here means Full Cost at current output and wages level since these are regarded as most relevant in price determination.

  Pricing based on total costs is subjected to two limitations viz arbitrary allocation of inter-departmental overheads and estimation of normal output.

  In order to avoid these complications, Variable Costs which are considered as relevant costs are used for pricing, by adding a markup (to include fixed costs allocation also).

  (ii) Competition-Based Pricing Method – When a company sets its price mainly on the consideration of what its competitors are charging, its pricing policy under such a situation is called competitive pricing or competition-oriented pricing.

  Going Rate Pricing – It is a competitive pricing method under which a firm tries to keep its price at the average level charged by the industry. The use of such a practice of pricing is especially useful where it is difficult to measure costs.

  Sealed Bid-Pricing – Competitive pricing dominates in those situations where firms compete on the basis of bids, such as original equipment manufacturer and defense contract work.
(iii) Value- Based Pricing Method – to price the product on the basis of customer’s perception of its value.

Objective Value or True Economic Value (TEV) –

\[ \text{TEV} = \text{Cost of the Next Best Alternative} + \text{Value of Performance Differential} \]

- Strategic Pricing of New Products – A new product is analysed into three categories for the purpose of pricing –
  
  (i) Revolutionary Product – Revolutionary product may enjoy the premium price as a reward for its innovation and taking first initiative.
  
  (ii) Evolutionary Product – The evolutionary products may be priced taking cost-benefit, competitor, and demand for the product into account.
  
  (iii) Me-too Product – The me-too products are price takers as the price is determined by the market mainly by the competitive forces.

- While preparing to enter the market with a new product, management must decide whether to adopt a skimming or penetration pricing strategy.

  (i) Skimming Pricing – It is a policy of high prices during the early period of a product’s existence. This can be synchronised with high promotional expenditure and in the later years the prices can be gradually reduced.
  
  (ii) Penetrating Pricing, means a pricing suitable for penetrating mass market as quickly as possible through lower price offers. The company may not earn profit by resorting to this policy during the initial stage. Later on, the price may be increased as and when the demand picks up.

- Predatory Pricing (loss leading) is the practice of selling a product or service at a very low price, intending to drive competitors out of the market or create barriers to entry for potential new competitors.

- Price Adjustment Policies –
  
  (i) Distributor’s Discounts – It means price deductions that systematically make the net price vary according to buyer’s position in the chain of distribution.
  
  (ii) Quantity discounts are price reductions related to the quantities purchased.
  
  (iii) Cash discounts are price reductions based on promptness of payment.
  
  (iv) Price Discrimination – charging different prices and it takes various forms according to whether the basis is customer, product, place or time.
  
  (v) Geographic Pricing – Pricing policies may be established whereby the buyer pays all the freight expense, the seller bears the entire cost, or the seller and buyer share this expense. The strategy chosen can influence the geographic limits of a firm’s market, locations of its production facilities, sources of its raw materials, and its competitive strength in various geographic markets.
Pricing and Product Life Cycle

(i) Introduction Stage – Skimming Policy with high prices, but low profit margin due to high fixed costs. Growth Stage - Reduce price to penetrate market further. Maturity Stage - Price to match or beat competitor. Decline Stage - Cut price if not repositioning.

(ii) Introduction Stage – Penetration Policy to enter the market and gain a high share quickly or to prevent competitors from entering. Maturity Stage - Retain higher prices in some market segments. Decline Stage - Some increases in prices may occur in the late decline stage.

Pricing of Services (Issues) – Each service transaction is likely to have distinct pricing structure, accommodation of the intangible costs that a customer may have to bear with, pricing regulated by government or collective groups like trade associations in certain specific sectors.

If the selling price is below the total cost but above the marginal cost the contribution will leave an under-recovery of fixed expenses. If the product is sold at marginal cost, the loss will be there to the extent of fixed expenses. If sold at a price less than the marginal cost, the loss will be greater than fixed expenses.

In periods of recession, a firm may sell its articles at a price less than the total cost but above the marginal cost for a limited period.

It may also be justifiable to sell the product at a price below marginal cost for a limited period provided the materials are of perishable nature, stocks are huge and market prices have fallen, reduction results in increased sales of other products having larger profit margin.

Differential selling prices, which is above, the marginal cost but below the total cost is resorted to in order to absorb surplus capacity. This can be done in two ways either dumping of branded products in another market above marginal cost, or the firm may produce and sell a branded article, say product A, which covers the entire fixed overheads and use the surplus capacity to produce another product B, which may be sold at a price above its marginal cost.

TEST YOUR KNOWLEDGE

Pricing and Product Life Cycle

1. Swift Tech Ltd. (STL) is a leading IT security solutions and ISO 9001 certified company. The solutions are well integrated systems that simplify IT security management across the length and depth of devices and on multiple platforms. STL has recently developed an Antivirus Software and company expects to have life cycle of less than one year. It was decided that it would be appropriate to adopt a market skimming pricing policy for the launch of the product. This Software is currently in the Introduction stage of its life cycle and is generating significant unit profits.
**Required**

(i) EXPLAIN, with reasons, the changes, if any, to the unit selling price that could occur when the Software moves from the Introduction stage to Growth stage of its life cycle.

(ii) Also, IDENTIFY necessary strategies at this stage.

**Profit Maximization Model**

2. Baithway India Ltd. (BIL) is an ISO 9001:2008, a premier multi-discipline company. BIL manufactures a diverse range of products viz. Pressure Vessels, Wagons, Steel Castings etc. To manufacture Wagons, BIL undertake structural fabrication jobs and manufacturing, retrofitting of EOT crane. It is presently the flagship company of the Baithway Group comprising of renowned companies such as Krishna Agriculture, Chiang Phosphate etc. The Group was launched with the idea of one virtual company with diversified businesses, and is based on four fundamental principles - Collaboration, Sustainability, Inclusiveness and being Global.

Baithway India Ltd. has two Divisions namely, Bogie Division (BD) and Wagon Division (WD) for manufacturing of Wagon. ‘BD’ manufactures Bogies and ‘WD’ manufactures various type of Wagons like Freight Wagon, Tank Wagon, Special Wagon etc. To manufacture a Wagon, ‘WD’ needs 4 Bogies. ‘BD’ is the only manufacturer of the Bogies and supplies both ‘WD’ and outside customers. Details of ‘BD’ and ‘WD’ for the coming financial year 2018-19 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>BD</th>
<th>WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Costs (₹)</td>
<td>9,20,20,000</td>
<td>16,45,36,000</td>
</tr>
<tr>
<td>Variable Cost per unit (₹)</td>
<td>2,20,000</td>
<td>4,80,000*</td>
</tr>
<tr>
<td>Capacity per month (units)</td>
<td>320</td>
<td>12</td>
</tr>
</tbody>
</table>

* excluding transfer costs

Market research has indicated that the demands in the market for Baithway India Ltd.’s products at different quotations are as follows-

For Bogies: Quotation price of ₹3,20,000 no tender will be awarded, but demand will increase by 30 Bogies with every ₹10,000 reduction in the unit quotation price below ₹3,20,000.

For Wagons: Quotation price of ₹17,10,000 no tender will be awarded, but the demand for Wagons will be increased by 2 Wagons with every ₹50,000 reduction in the unit quotation price below ₹17,10,000.

Further, ‘BD’ is the only manufacturer of Bogies but due to increased demand, competitors are entering the market. The division is reviewing its pricing policy and carrying out some market research. After the market research, the division ‘BD’ has decided to introduce new type of “E” Class Bogies in the market and to obtain the patent right for such unique Bogies. High growth in future characterizes this Class.
**Required**

(i) **CALCULATE** the unit quotation price of the Wagon that will maximise Baithway India Ltd.’s profit for the financial year 2018-19.

(ii) **CALCULATE** the unit quotation price of the Wagon that is likely to emerge if the divisional managers of ‘BD’ and ‘WD’ both set quotation prices calculated to maximise divisional profit from sales to outside customers and the transfer price is set at market selling (quotation) price.

   [Note: If \( P = a – bQ \) then \( MR = a – 2bQ \)]

(iii) **RECOMMEND** appropriate pricing strategy while introducing the “E” Class Bogies.

**Pricing Methods**

3. The budgeted cost data of a product manufactured by Ayudhya Ltd. is furnished as below:

<table>
<thead>
<tr>
<th>Budgeted units to be produced</th>
<th>2,00,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost (₹)</td>
<td>32 per unit</td>
</tr>
<tr>
<td>Fixed cost (₹)</td>
<td>16 lacs</td>
</tr>
</tbody>
</table>

It is proposed to adopt cost plus pricing approach with a mark-up of 25% on full budgeted cost basis.

However, research by the marketing department indicates that demand of the product in the market is price sensitive. The likely market responses are as follows:

<table>
<thead>
<tr>
<th>Selling Price (₹ per unit)</th>
<th>44</th>
<th>48</th>
<th>50</th>
<th>56</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Demand (units)</td>
<td>1,68,000</td>
<td>1,52,000</td>
<td>1,40,000</td>
<td>1,28,000</td>
<td>1,08,000</td>
</tr>
</tbody>
</table>

**Required**

ANALYSE the above situation and DETERMINE the best course of action.

**ANSWERS/ SOLUTIONS**

1. Following acceptance by early innovators, conventional consumers start following their lead. New competitors are likely to now enter the market attracted by the opportunities for large scale production and profit. STL may wish to discourage competitors from entering the market by lowering the price and thereby lowering the unit profitability. The price needs to be lowered so that the product becomes attractive to different market segments thus increasing demand to achieve the growth in sales volume.

**Strategies** at this stage may include the following

(i) Improving quality and adding new features such as Data Theft Protection, Parental Control, Web Protection, Improved Scan Engine, Anti Spyware, Anti Malware etc.

(ii) Sourcing new market segments/distribution channels.
(iii) Changing marketing strategy to increase demand.

(iv) Lowering price to attract price-sensitive buyers.

2. (i) Assumed Quotation Price ‘P’, Quantity ‘Q’

The Marginal Cost of a ‘Wagon’ is ₹13,60,000
(₹2,00,000 × 4 Bogies + ₹4,80,000)

*Demand Function* for a ‘Wagon’

\[
P = ₹17,10,000 - (₹50,000 / 2) \times Q
\]

Revenue (R) = \( Q \times [17,10,000 - 25,000 \times Q] \)
= \( 17,10,000 Q - 25,000 Q^2 \)

Marginal Revenue (MR) = \( 17,10,000 - 50,000 Q \)

Marginal Cost (MC) = ₹13,60,000

*Profit is Maximum where Marginal Revenue (MR) equals to Marginal Cost (MC)*

\[
17,10,000 - 50,000 Q = 13,60,000
\]

\[
Q = 7.00 \text{ units}
\]

By putting the value of ‘Q’ in *Demand Function*, value of ‘P’ is obtained.

\[
P = 17,10,000 - (50,000 / 2) \times Q
= 17,10,000 - 25,000 \times 7.00
= ₹15,35,000
\]

At ₹15,35,000 unit Quotation Price of a Wagon, the Baithway Company Ltd.’s Profit will be Maximum.

(ii) At ‘BD’ the Divisional Manager would ensure that Divisional Marginal Revenue should be *equal to* Division’s Marginal Cost so that Profit can be Maximum.

\[
\text{MR of a Bogies} = \text{MC of Manufacturing a Bogies}
\]

\[
3,20,000 - 2(10,000/ 30) \times Q = 2,20,000
\]
\[
Q = 150 \text{ units}
\]

Selling Price of a Bogie i.e ‘P’ is

\[
P = 3,20,000 - (10,000/ 30) \times 150
= ₹2,70,000
\]

‘BD’ will earn Maximum Profit when it will Quote ₹2,70,000 to the Outside Market. Since, Outside Market Quotation is *Transfer Price* as well, so Transfer Price to WD will be ₹2,70,000 and it forms part of WD’s Marginal Cost.

At ‘WD’, Division Manager would ensure that Divisional Marginal Revenue should be *equal to* Division’s Marginal Cost so that Profit can be Maximum.
MR of a Wagon = MC of Manufacturing a Wagon

17,10,000 – 50,000 \times Q = (2,70,000 \times 4 \text{ Bogies}) + ₹4,80,000

Q = 3.00 units

Quotation Price of a Wagon ‘P’ should be:

\[
P = 17,10,000 – 25,000 \times 3.00 \\
= ₹16,35,000
\]

The unit Quotation Price of Wagon that emerges as a result of Market Based Transfer Pricing is ₹16,35,000.

(iii) Whenever a new product is launched into the market, management can adopt either Skimming or Penetration strategy.

The idea behind Skimming Strategy is to intentionally keep a price high to recover the high R&D and marketing expenses associated with developing a new product. For Price Skimming to work, the product must be perceived as having unique advantage over its competing products, very difficult to copy or protected by patents.

Division ‘BD’ may follow Skimming Strategy by taking advantage of the distinctive features of Bogie “E”. High prices in the early stages of a Bogies’ life cycle are expected to generate high initial cash flows, this will help the division to recover the high development costs it would incur. Further, this new Bogie “E” is protected from competition through entry barrier. Such barrier is patent.

With Penetration Strategy, a low price is initially charged for the product rather than high prices. The idea behind this is that the price will make the product accessible to many buyers and therefore the high sales will compensate for the lower prices being charged. This penetration pricing is adopted for rapid market acceptance, maximum sales and discouraging competition from the market, however this strategy is not for all companies since it requires a cost structure and scale economics that remain unaffected by narrow profits margin.

The circumstances which may favor a penetration pricing policy are:

- Highly elastic demand for the product, i.e. the lower the price, the higher the demand. This situation is not mentioned in this case for Bogies “E”.
- If significant economies of scale could be achieved so that higher sales volumes would result in reductions in costs. However, in this case, it cannot be ascertained.
- Where entry barriers are low, however in this case, new competitors cannot enter the market as Bogies “E” is protected by patent.
- If company desires to shorten the initial period of the product’s life-cycle to enter the growth and maturity stages quickly, however, there is no evidence the division ‘BD’ wish to do this.
Overall, Due to the uniqueness, heavy R&D cost, and barrier to entry for competitor, a market skimming pricing strategy is appeared to be the more appropriate pricing strategy for Bogie “E”.

3. Analysis of Cost plus Pricing Approach

The company has a plan to produce 2,00,000 units and it proposed to adopt Cost plus Pricing approach with a markup of 25% on full budgeted cost. To achieve this pricing policy, the company has to sell its product at the price calculated below:

<table>
<thead>
<tr>
<th>Qty.</th>
<th>2,00,000 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Cost (2,00,000 units × ₹ 32)</td>
<td>₹ 64,00,000</td>
</tr>
<tr>
<td>Add: Fixed Cost</td>
<td>₹ 16,00,000</td>
</tr>
<tr>
<td>Total Budgeted Cost</td>
<td>₹ 80,00,000</td>
</tr>
<tr>
<td>Add: Profit (25% of ₹ 80,00,000)</td>
<td>₹ 20,00,000</td>
</tr>
<tr>
<td>Revenue (need to earn)</td>
<td>₹ 1,00,00,000</td>
</tr>
<tr>
<td>Selling Price per unit</td>
<td>₹ 50 p.u.</td>
</tr>
</tbody>
</table>

However, at selling price ₹50 per unit, the company can sell 1,40,000 units only, which is 60,000 units less than the budgeted production units.

After analyzing the price-demand pattern in the market (which is price sensitive), to sell all the budgeted units market price needs to be further lowered, which might be lower than the total cost of production.

Statement Showing “Profit at Different Demand & Price Levels”

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Budgeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty. (units)</td>
<td>1,68,000</td>
<td>1,52,000</td>
<td>1,40,000</td>
<td>1,28,000</td>
<td>1,08,000</td>
</tr>
<tr>
<td>Sales</td>
<td>₹ 73,92,000</td>
<td>₹ 72,96,000</td>
<td>₹ 70,00,000</td>
<td>₹ 71,68,000</td>
<td>₹ 64,80,000</td>
</tr>
<tr>
<td>Less: Variable Cost</td>
<td>₹ 53,76,000</td>
<td>₹ 48,64,000</td>
<td>₹ 44,80,000</td>
<td>₹ 40,96,000</td>
<td>₹ 34,56,000</td>
</tr>
<tr>
<td>Total Contribution</td>
<td>₹ 20,16,000</td>
<td>₹ 24,32,000</td>
<td>₹ 25,20,000</td>
<td>₹ 30,72,000</td>
<td>₹ 30,24,000</td>
</tr>
<tr>
<td>Less: Fixed Cost</td>
<td>₹ 16,00,000</td>
<td>₹ 16,00,000</td>
<td>₹ 16,00,000</td>
<td>₹ 16,00,000</td>
<td>₹ 16,00,000</td>
</tr>
<tr>
<td>Profit (₹)</td>
<td>₹ 4,16,000</td>
<td>₹ 8,32,000</td>
<td>₹ 9,20,000</td>
<td>₹ 14,72,000</td>
<td>₹ 14,24,000</td>
</tr>
<tr>
<td>Profit (% on total cost)</td>
<td>5.96</td>
<td>12.87</td>
<td>15.13</td>
<td>25.84%</td>
<td>28.16%</td>
</tr>
</tbody>
</table>
Determination of the Best Course of Action

(i) Taking the above calculation and analysis into account, the company should produce and sell 1,28,000 units at ₹56. At this price company will not only be able to achieve its desired mark up of 25% on the total cost but can earn maximum contribution as compared to other even higher selling price.

(ii) If the company wants to uphold its proposed pricing approach with the budgeted quantity, it should try to reduce its variable cost per unit for example by asking its supplier to provide a quantity discount on the materials purchased.