

3

Pricing Decisions

LEARNING OBJECTIVES

After studying this chapter you will be able to understand :

- The importance of pricing decision in achieving the organizational goal and long term survival.
- Theory of price, economic theory of pricing and pricing in different market structures.
- Pricing policy to achieve the objectives and overall organisational goal.
- Different principles governing the pricing of a product or services.
- How to price a new product with different characteristics.
- Pricing strategies to be adopted to market the products successfully.
- Appreciate the different strategies of pricing followed by the company and their objectives.
- The importance of products which generate substantial revenue with the help of Pareto Analysis.

3.1 Introduction

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 how pricing is done in different market structures, pricing principles, pricing policies and pricing strategies and Pareto analysis.

3.2 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

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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 = Total revenue line

m = quantity of units sold

x = 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- 1:

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:

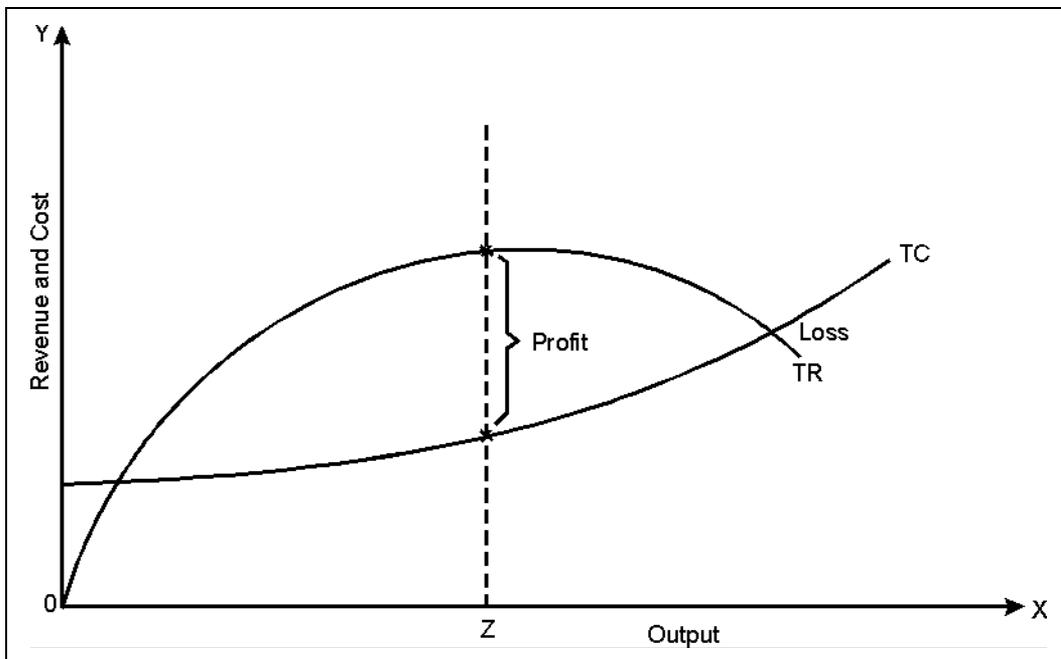
Quantity	Price (₹)	Total sales revenue (₹)	Addition to total revenue (₹)
20	4.00	80.00	—
21	3.90	81.90	1.90
22	3.80	83.60	1.70

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 diagram given on next page. 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.

The slope of the total revenue and total cost curves due to the addition of one unit will be equal to the increase in total revenue. This is the point where there will be no profit increase due to increase of one unit of output. In the figure [Fig. No. (1)], the situation has been depicted at point Z, where the gap between the total cost line and total revenue is the maximum, thus Z 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.



3.2.1 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) i.e.

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

This model determines the level of production upto 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 = Price

$$b = \text{Slope of the demand curve, calculated as } \left[b = \frac{(\text{Change in price})}{(\text{Change in quantity})} \right]$$

Q = Quantity demanded

a = Price at which demand is zero.

(iii) The marginal revenue equation is written as

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

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Example- 2:

Aditya Heavy Engineering Ltd. (AHEL) produces its only product A₇. To manufacture a unit of A₇ a 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.

Determine the unit selling price for A₇ that will maximize the profit of AHEL.

Answer:

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'

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

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

$$₹5,10,000 - 5,000 Q = ₹2,20,000$$

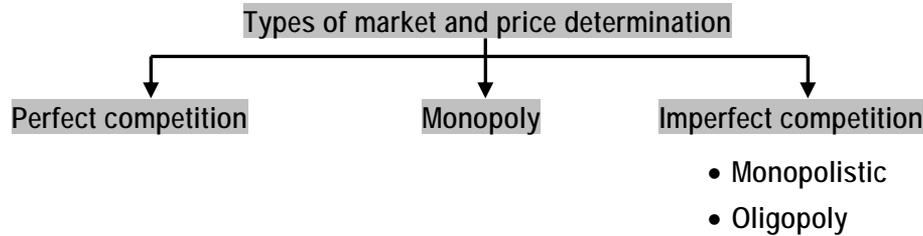
$$Q = 58 \text{ units}$$

By putting the value of 'Q' in *Price equation*, value of 'P' is obtained.

$$\begin{aligned} P &= ₹5,10,000 - (5,000 / 2) \times Q \\ &= ₹5,10,000 - 2,500 \times 58 \text{ units} \\ &= ₹3,65,000 \end{aligned}$$

At selling price of ₹3,65,000 AHEL's profit will be maximum.

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



(a) **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- 3:

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:

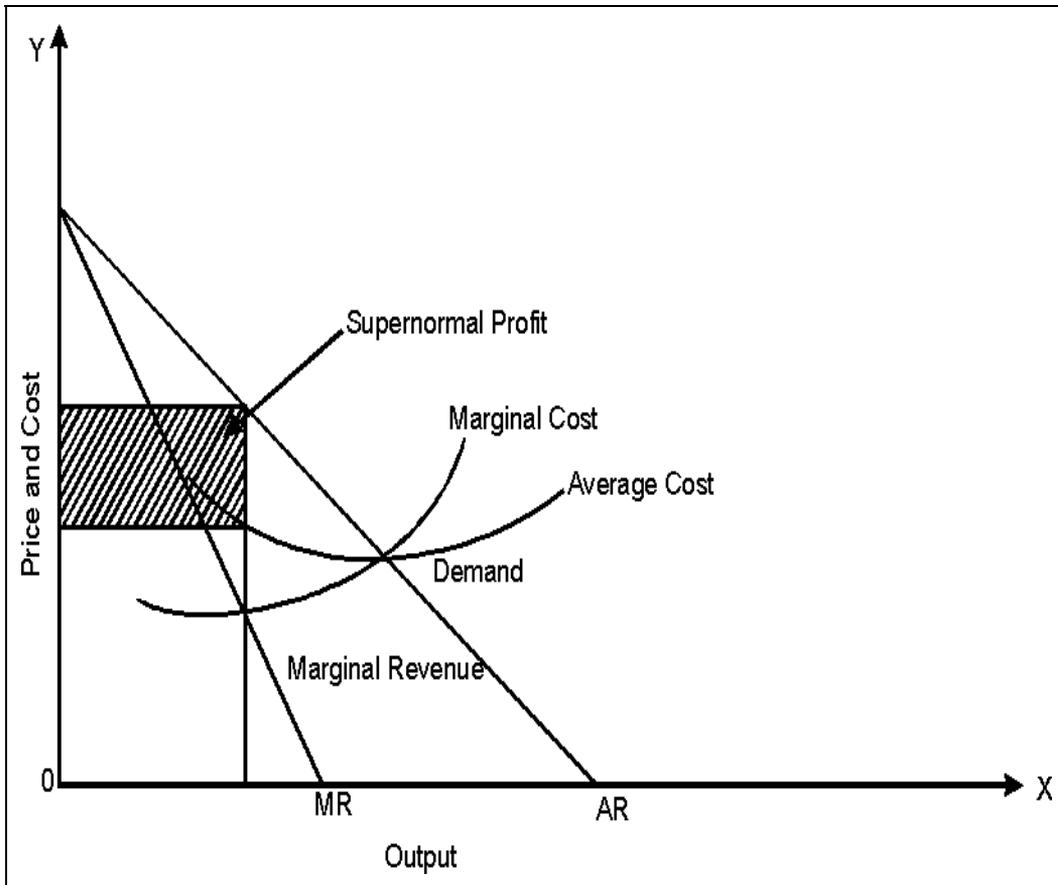
Units	Total revenue (₹)	Total cost (₹)	Marginal cost (₹)	Profit (₹)
0	0	20	-	(20)
1	40	30	10	10
2	80	50	20	30
3	120	85	35	35
4	160	125	40	35
5	200	170	45	30
6	240	217	47	23

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

(b) **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

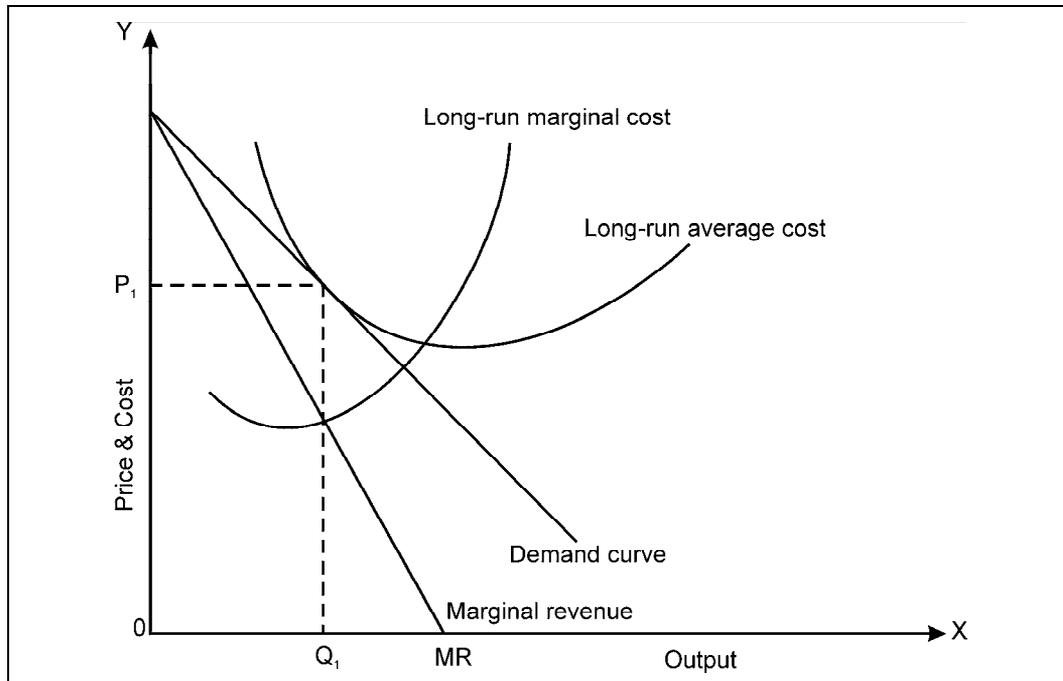
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done taking elasticity of demand for the product into consideration. That means though the seller/ producer can fix any price but it will go for the price where demand for the product and consequent profit will be maximum.



(c) **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. This cost be seen from the following diagram.



The point at which MR and MC curves meet will determine the price level. So the price will be P_1 and output to be manufactured will be Q_1 . The firm may both fix output Q_1 and leave the price to be fixed at P_1 or *vice versa*. There is, however, no protection for the existing firms from the entry of substitute firms in the market.

(d) 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.

3.3 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

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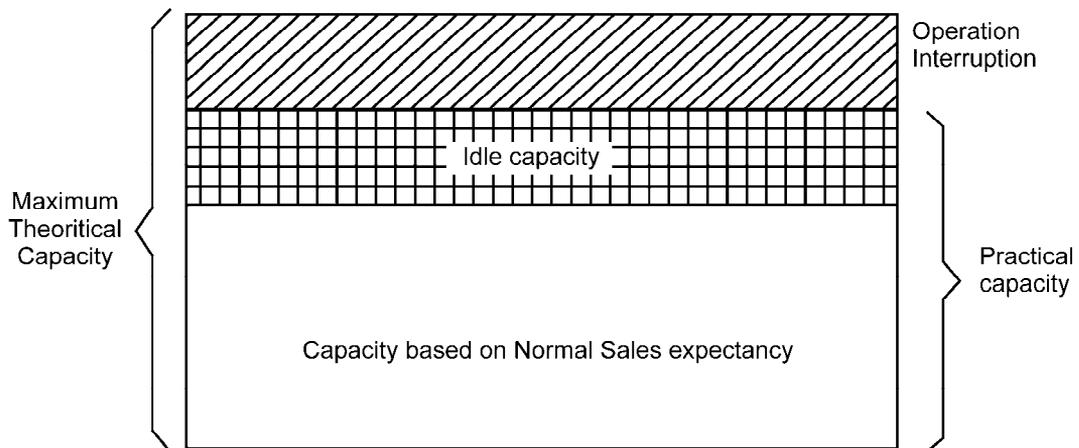
decisions. These are also known as determinants of pricing or market powers. Thus costs alone do not determine price. Cost is only one of the many complex factors which determine prices. There must however, be some margin in prices over total cost if capital is to be unimpaired and production maximised by the utilisation of internal surplus.

The pricing policy and the relative price structure should:

- (a) Provide an incentive to producer for adopting improved technology and maximising production;
- (b) Encourage optimum utilisation of resources;
- (c) Work towards better balance between demand and supply;
- (d) Promote exports; and
- (e) Avoid adverse effects on the rest of the economy.

An individual manufacturer may take his cost of production into account and arrive at a price at which the products are to be sold in the concerned region. A manufacturer having several factories all over the country may determine the weighted average cost of each of the factories and include the same in his computations so as to arrive at a uniform price for the country as a whole, e.g., if prices are to be fixed by a statutory authority, like the Tariff Commissions etc. Weighted average price is also taken into account if large numbers of factories are owned by one manufacturer.

The price may also be fixed after taking into account the cost of a representative unit which may fall within the range of lowest cost unit and the highest cost unit. Alternatively, the factories may be classified into (i) small size factories, (ii) medium size factories, and (iii) large size factories. The cost of medium size factories can be taken into account if this group forms the greater part of the industry. Where, however, the units in an industry are very large as in the case of textile industry for example, some representative sample has to be taken. The sample should be of economic size and also be of representative of the conditions of the different regions. The demand of the product and the cost of the marginal unit may have to be taken into account in fixing the price so that the marginal units are not driven out of the market.



In order to frame a price policy, one of the elements that should receive consideration is the determination of normal capacity. Normal capacity is the utilisation of plant that is necessary to meet the average commercial demand over a period of time, long enough to level out peaks which come with seasonal and cyclical variations. The following chart illustrates the major relationships involved. Price determination should normally be based on the level of production and capacity utilisation likely to be achieved. Any assumption of low utilisation may result in over estimating the cost. Conversely, a high utilisation assumption may result in under estimating the cost. It is, therefore, desirable that the level of production and capacity utilisation which are likely to apply, say in the next three years should be arrived at with utmost care on realistic basis keeping in view not only the past performance but also the future demand. A uniform system of costing should also be devised and introduced in each industry for the fixation of price.

3.4 Principles of Product Pricing

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 formulate 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:

- (i) First it develops a product that satisfy the wants and needs of the customers,
- (ii) After identification and development, it designs a promotion program to convey the value of the products to the customers.
- (iii) It chooses the right distribution channel through which its product will reach to the customers
- (iv) 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 of a product plays the role in marketing strategy to tap into the value created and to generate revenues. So the biggest concern on the part of any organisation is to getting the right price. To arrive at a right price, the following important points to be kept in the mind.

3.4.1 Value-pricing approach: Before discussing this approach, few terms used here is to be understood first.

(i) 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.

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Example- 4:

Mr. Aditya went for a holiday vacation with his family consists of his wife and a three years old son, to Munnar in Kerala through Deccan Tour Ltd. a tour & travel agency which took ₹ 15,000 for the tour. The feature of the holiday package was as follows:

Number of days:	3 days and 2 nights
Stay:	At 3 star hotel
Food & beverages:	Breakfast and Dinner
Sightseeing:	By Indica car with A/c

There is an another travel agency Munnar Crocks Pvt. Ltd. which provides the same tour package with almost the same features with an additional airport pickup and drop facility at ₹ 14,500 only. Airport pickup and drop facility costs ₹1,600.

In the above example, if we have to calculate True economic value (TEV) of the package offered by Munnar Crocks Pvt. Ltd. then it will be

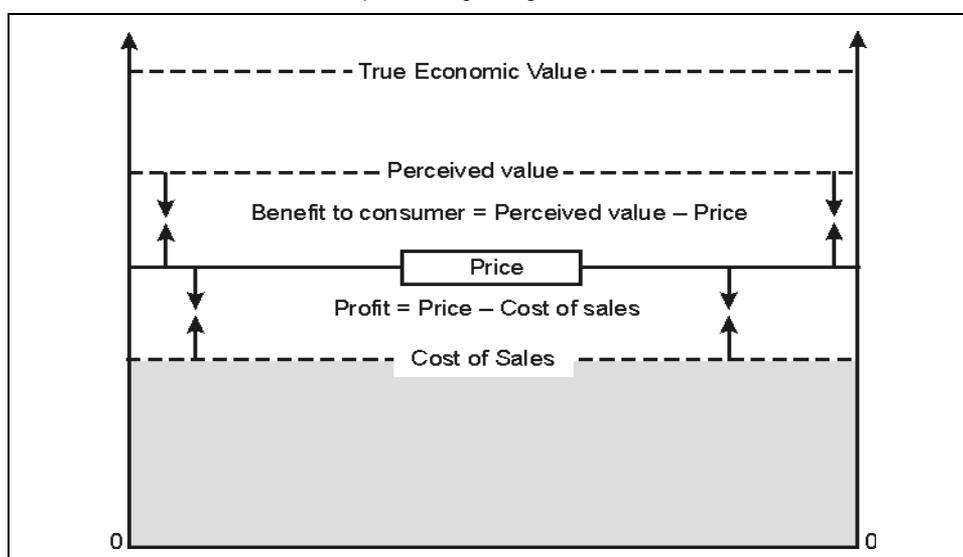
Cost of the next best alternative + Value of performance differential

In this example, the package cost taken by Deccan Tours Ltd. is the cost of the best alternative. Munnar Crocks Pvt. Ltd. has a product differential that is airport pickup and drop facility. Putting these into the formula we can get the TEV of the package.

TEV of the package = ₹15,000 + ₹1,600 = ₹ 16,600

(ii) **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.



3.4.2 Price sensitivity: It measures the customer's behaviour to the change in price of a product. The customer behaviour towards the changes in the price is influenced by the following factors:

(i) The magnitude of price: Price sensitivity tends to be far greater in high cost than lowest cost product categories. For example a 10% change in the price of diamond is more sensitive than the price of toothpaste.

(ii) Cost bearer: Price sensitivity for a product is relatively lower where the user is different from the buyer of the product. For example, in a charitable health centre the beneficiary (i.e. patients) are different from the administrator, hence, users are less price sensitive towards the cost of service.

(iii) Competitors reaction on pricing decision: When price of any product changes without reciprocate change on side of competitors, results in large price sensitivity. In a perfect competitive market lower price attracts more demands. But in case of oligopoly market condition, price sensitivity is neutralised by simultaneous reaction from the competitors in the same direction. For example, when a soft drink company lowers its price, a reciprocal downward change is also seen from the other competitive soft drink company. This reaction neutralise the price sensitivity.

3.4.3 Price customisation: 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 like:

(i) 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.

(ii) Based on customers' past behaviour: A customer with good payment record may be given more discounts then the others.

(iii) 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.

(iv) 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 chalking out a pricing strategies.

3.5 New Product Pricing

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

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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.

(i) 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.

(ii) 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.

(iii) 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 type 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.

Illustration 1

Novice Ltd. is about to introduce a new product with the following estimates:

<i>Price per unit (in ₹)</i>	<i>Demand (in thousand units)</i>
<i>30.00</i>	<i>400</i>
<i>31.50</i>	<i>380</i>
<i>33.00</i>	<i>360</i>
<i>34.50</i>	<i>340</i>
<i>36.00</i>	<i>315</i>
<i>37.50</i>	<i>280</i>
<i>39.00</i>	<i>240</i>

Costs:

Direct material

₹ 12 per unit

Direct labour

₹ 3 per unit

Variable overhead	₹ 3 per unit
Selling expenses	10% on sales
Fixed production overheads	₹ 14,40,000
Administration expenses	₹ 10,80,000

Judging from the estimates, determine the tentative price of the new product to earn maximum profit.

Solution

Novice Ltd.
Statement for determining tentative price
of the new product, from estimates, to earn maximum profit

Price per unit (₹)	Demand (in lakhs of unit)	Sales revenue (in ₹ lakhs)	Variable costs (in ₹ lakhs) (₹ 18* p.u. + 10% of selling price)	Contribution (in ₹ lakhs)
(a)	(b)	(c) = (a) × (b)	(d)	(e) = (c) – (d)
30.00	4.00	120.00	84.00	36.00
31.50	3.80	119.70	80.37	39.33
33.00	3.60	118.80	76.68	42.12
34.50	3.40	117.30	72.93	44.37
36.00	3.15	113.40	68.04	45.36
37.50	2.80	105.00	60.90	44.10
39.00	2.40	93.60	52.56	41.04

[*DM- ₹12 + DL- ₹3 + VO- ₹3 = ₹18]

The tentative price of the new product should be ₹ 36 per unit. At this price the contribution of Novice Ltd. is maximum and maximum profit of the concern comes to ₹ 20,16,000 (Refer to working note).

Working note:

Maximum profit

= Maximum contribution – (Fixed production overheads + Administration expenses)

= ₹ 45,36,000 – (₹ 14,40,000 + ₹ 10,80,000) = ₹ 20,16,000

3.6 Pricing of Finished Product

3.6.1 Cost plus pricing: 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. In arriving at cost of production, it is necessary to determine the size of the unit whose products are to be priced.

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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.

Advantages:

1. **Fair method:** It is a fair method of price fixation. The business executives are convinced that the price fixed will cover the cost.
2. **Assured profit:** If price is greater than cost, the risk is covered. This is true when normal expected capacity basis of cost estimation is used.
3. **Reduced risks and uncertainties:** A decision maker has to take decisions in the face of many uncertainties. He may accept a pricing formula that seems reasonable for reducing uncertainty.
4. **Considers market factors:** This sort of pricing does not mean that market forces are ignored. The mark up added to the cost to make a price reflect the well established customs of trade, which guide the price fixer towards a competitive price.

Disadvantages:

1. **Ignores demand:** It ignores demand. It fails to take into account the buyers' needs and willingness to pay which govern the sales volume obtainable at each series of prices.
2. **Ignores competition:** It fails to reflect competition adequately.
3. **Arbitrary cost allocation:** It takes for granted that the costs have been estimated with accuracy which is not often true particularly in multi-product firms because the common costs are allocated arbitrarily.
4. **Ignores opportunity cost:** For many decisions incremental costs rather than full costs play a vital role in pricing. This aspect is ignored.
5. **Price-volume relationships:** Since the fixed overheads are apportioned on the basis of volume of production, the cost will be more if a sales volume is less and cost will be less if sales volume is more. The increase or decrease in sales volume again is dependent on price. Thus it is a vicious circle—cost plus mark up is price based on sales volume and sales volume is based on price.

Illustration 2

Rational Ltd. produces 3,00,000 kgs. of S and 6,00,000 kgs. of Y from an input of 9,00,000 kgs. of raw material- Z simultaneously. The selling price of S is ₹ 8 per kg and that of Y is ₹ 6 per kg.

Processing costs amount to ₹ 54 lakhs per month as under:

Raw material- Z- 9,00,000 kgs. at ₹ 3 per kg	₹ 27,00,000
Variable processing costs	₹ 18,00,000
Fixed processing costs	₹ 9,00,000
Total	₹ 54,00,000

There is an offer to purchase 60,000 kgs of Y additionally at a price of ₹4 per kg. The existing market for Y will not be affected by accepting the offer. But the price of S is likely to be decreased uniformly on all sales.

Find the minimum reduced average price for S to sustain the increased sales.

Solution

Since, S and Y are produced simultaneously in the ratio of 1:2 from an input of material- Z, therefore when additional 60,000 kgs of Y will be produced then 30,000 kgs. of S will also be produced.

The input of material- Z required for these additional 60,000 kgs of Y and 30,000 kgs. of S will be 90,000 kgs. Hence, the cost of processing 90,000 kgs. of material- Z will be as follows :

	(₹)
Cost of Raw material- Z (90,000 kgs × ₹ 3)	2,70,000
Variable processing cost (90,000 kgs × ₹ 2)	1,80,000
Total cost of processing	4,50,000
Less: Sales revenue from 60,000 kgs. of Y (60,000 kgs × ₹ 4)	2,40,000
Balance cost to be recovered	2,10,000
Current sales revenue from the sale of 3,00,000 kgs. of S (3,00,000 kgs. × ₹ 8)	24,00,000
Total sales revenue to be earned from the sale of S (existing- 3,00,000 kgs. + additional- 30,000 kgs.)	26,10,000
Hence minimum price per kg of S to recover ₹26,10,000 from the sale of 3,30,000 kgs. of S $\left(\frac{₹26,10,000}{3,30,000\text{kgs.}} \right)$	7.91

3.6.2 Rate of Return Pricing: Determination of return on capital employed is one of the most crucial aspects of price fixation process. In this process 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 its investment. Under this method three issues arise:

- The basis on which the capital employed is computed.
- Which items should be covered in the return on capital?
- What rate of return can be regarded as fair?

The rate of return to be earned by the firm or industry must depend on the risk involved. The desirability of earning adequate profits for the purpose of ploughing back into business should be kept in mind.

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It would be correct to assume that allowing the industry to earn adequate return on the capital employed would attract additional capital and increase the number of factories and production of all commodities which must ultimately lead to competition and reduction in costs and prices.

Illustration 3

Electromatic Excellers Ltd. specialises in the manufacture of novel transistors. They have recently developed a technology to design a new radio transistor capable of being used as an emergency lamp also. They are quite confident of selling all of the 8,000 units that they would be making in a year. The capital equipment that would be required will cost ₹ 25 lakhs. It will have an economic life of 4 years and no significant terminal salvage value.

During each of the first four years promotional expenses are planned as under:

Year	1	2	3	4
Advertisement (₹)	1,00,000	75,000	60,000	30,000
Other expenses (₹)	50,000	75,000	90,000	1,20,000

Variable costs of producing and selling the unit would be ₹ 250 per unit.

Additional fixed operating costs incurred because of this new product are budgeted at ₹ 75,000 per year.

The company's profit goals call for a discounted rate of return of 15% after taxes on investments on new products. The income tax rate on an average works out to 40%. You can assume that the straight line method of depreciation will be used for tax and reporting.

Work out an initial selling price per unit of the product that may be fixed for obtaining the desired rate of return on investment.

Present value of annuity of ₹ 1 received or paid in a steady stream throughout 4 years in the future at 15% is 2.855.

Solution: Determination of initial selling price

Let the selling price be ₹ X; Sales value: ₹ 8,000 X

Annual cash costs are:

	(₹)
Variable cost : 8,000 units × ₹ 250	20,00,000
Advertisement and other expenses	1,50,000
Additional fixed costs	75,000
Total cash cost	22,25,000

$$\text{Depreciation per annum} = \left(\frac{\text{₹ } 25,00,000}{4} \right) = \text{₹ } 6,25,000$$

$$\text{Profit for taxation: } 8,000 \times \text{₹ } X - (\text{₹ } 22,25,000 + \text{₹ } 6,25,000) = \text{₹ } 8,000 X - \text{₹ } 28,50,000$$

$$\text{Tax at 40% on profit: } 40\% \text{ of } \{\text{₹ } 8,000 X - \text{₹ } 28,50,000\} = \text{₹ } 3,200 X - \text{₹ } 11,40,000$$

$$\text{Total annual cash outflow: } \text{₹ } 22,25,000 + (\text{₹ } 3,200 X - \text{₹ } 11,40,000) = \text{₹ } 3,200 X + \text{₹ } 10,85,000$$

Net annual cash inflow: ₹ 8,000 X – (₹ 3,200 X + ₹ 10,85,000) = ₹ 4,800 X – ₹ 10,85,000

Now, present value of initial cash outflow = Present value of cash inflow

or, ₹ 25,00,000 = (₹ 4,800 X – ₹ 10,85,000) × 2.855

or, ₹ 13,704 X = ₹ 30,97,675 + ₹ 25,00,000

or, X = ₹ 408.47

Hence selling price should be ₹ 408.47 per unit.

Alternative Solution

	(₹)
Total variable costs per year (8,000 × ₹ 250)	20,00,000
Promotional costs per year	1,50,000
Fixed operating costs per year	75,000
	22,25,000
Less: Income tax 40% (tax shield)	(8,90,000)
	13,35,000
Less: Tax saving on depreciation $\left(\frac{₹ 25,00,000}{4} \times 40\% \right)$	(2,50,000)
Net annual cash outflow	10,85,000
PV factor for 4 years @15%: is 2.855	
Therefore, present value of annual cash outflow (₹10,85,000 × 2.855):	30,97,675
Initial investment	25,00,000
Present value of total outlay	55,97,675
Divide the present value of total outlay by PV factor to get required	
Annual revenue after tax (₹55,97,675 ÷ 2.855)	19,60,657
Required annual revenue before tax $\left(₹ 19,60,657 \times \frac{100}{60} \right)$:	32,67,761
Unit selling price $\left(\frac{₹ 32,67,761}{8,000 \text{ units}} \right)$:	408.47

3.6.3 Variable costs pricing: We have seen a number of decisions based on variable or marginal costing principle in the last chapter. 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 mark up to include fixed costs allocation also.

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Illustration 4

A small scale manufacturer produces an article at the operated capacity of 10,000 units while the normal capacity of his plant is 14,000 units. Working at a profit margin of 20% on sales realisation, he has formulated his budget as under:

Units	10,000 (₹)	14,000 (₹)
Sales realisation	2,00,000	2,80,000
Variable overheads	50,000	70,000
Semi-variable overheads	20,000	22,000
Fixed overheads	40,000	40,000

He gets an order for a quantity equivalent to 20% of the operated capacity and even on this additional production profit margin is desired at the same percentage on sales realisation as for production to operated capacity.

Assuming prime cost is constant per unit of production, what should be the minimum price to realise this objective?

Solution

Working Notes:

(i) Computation of prime cost:

	(₹)	(₹)
Cost of sales (The profit margin is 20% on sales, therefore, cost of sales shall be 80% of ₹ 2,00,000)		1,60,000
Less: Variable overheads	50,000	
Semi-variable overheads	20,000	
Fixed overheads	<u>40,000</u>	(1,10,000)
Prime cost		50,000

(ii) Semi-variable overheads:

$$\text{Variable overhead per unit} = \frac{\text{₹ } 22,000 - \text{₹ } 20,000}{14,000 \text{ units} - 10,000 \text{ units}} = \text{₹ } 0.50$$

$$\text{Fixed Overhead} = \text{₹ } 20,000 - (10,000 \text{ units} \times \text{₹ } 0.50) = \text{₹ } 15,000$$

Computation of differential cost of production of 2,000 additional units for determining minimum price

	Amount (₹)
Prime cost	10,000
$\left(\frac{\text{₹ } 50,000}{10,000 \text{ units}} \times 2,000 \text{ units} \right)$	
Variable overheads	10,000

$\left(\frac{₹50,000}{10,000 \text{ units}} \times 2,000 \text{ units} \right)$	
Semi-variable overheads (Variable part only) (₹0.50 × 2,000 units)	1,000
Differential cost	21,000

The minimum price to be quoted for the additional order

	Amount (₹)
Differential cost	21,000
Add: Profit margin (20% on sales realization i.e. 25% on cost) (25% of ₹ 21,000)	5,250
Total sale value	26,250
Price per unit $\left(\frac{₹26,250}{2,000 \text{ units}} \right)$	13.125

3.6.4 Competitive pricing : 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. *Its 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:

- (i) Going rate pricing
- (ii) Sealed bid pricing

(i) 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.

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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 others' 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.

(ii) **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 firm's 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.

3.6.5 Incremental pricing: Incremental pricing is used because it involves comparison of the impact of decisions on revenues and cost. If a pricing decision results in a greater increase in revenue than in costs, it is favourable. Such a decision is not merely confined to comparison of revenues and costs. It also permits that consideration being given to other objectives of the business. Thus profitability can be set as the matter of primary consideration and then the decision can be adjusted to bring it in consonance with the other decision of the business.

The following points will be useful to show how this technique gives consideration to all repercussions of a decision.

1. **Relevant cost analysis:** This technique considers changes in costs rather than in average cost. Overhead allocations are irrelevant.
2. **Product-Line relationship analysis:** This technique necessitates consideration being given to possible complementary relations in demand. Sale of one product may lead to the sale of a complementary product. This overall effect on profitability has to be evaluated.
3. **Opportunity cost analysis:** The opportunity costs should be covered by the incremental revenue. A price which results in an incremental revenue which in turn merely covers the incremental costs is not sufficient. If the opportunity foregone is greater than incremental revenue, the decision is not sound.
4. **Time factor analysis:** The decision should take into account the short run and long run effects. A high price may increase its immediate profits but may lead to loss of revenue in the long run owing to competitors snatching the business.

5. **CVP analysis:** In fixing prices consideration should be given to price volume relationship. The responsiveness of the market to the price should be such that the volume is increased so that fuller utilisation of plant is achieved.
6. **Risk analysis:** Consideration should also be given to the evaluation of uncertainty. The decision taken should be able to maximise the expected value.

Illustration 5

Prompt Printers Ltd., uses a scheme of pricing based on cost plus. All the overheads are charged, based on direct labour and based on the total cost arrived at, the selling price is fixed.

The following figures are obtained from the Annual Budget for 2015 prepared by the company:

	(₹)
Sales	10,00,000
Direct material	1,80,000
Direct labour	3,20,000
Factory superintendent's salary	30,000
Commission paid on sales (5%)	50,000
Foreman's salaries	60,000
Insurance	10,000
Advertisement	20,000
Depreciation on assets	30,000
Administration expenses	90,000
Variable factory costs :	
Repairs and maintenance	60,000
Tools consumed	40,000
Miscellaneous supplies	10,000

The company has submitted a tender quoting ₹ 10,000 on a large order with a cost of ₹ 1,800 direct materials and ₹ 3,200 direct labour. The customer strikes the business at ₹ 8,900 on a 'take it or leave it' basis. If the company accepts the order, the total sales for 2015 would be ₹ 10,08,900. The company is reluctant to accept the order as it would be against its policy of accepting an order below cost.

Write a note to the Managing Director, recommending the acceptance of the order, substantiating your recommendation fully with supporting figures to explain that the price offered would not be below cost and a sizeable profit also would be made. Also comment on the pricing policy of the company.

Solution:

To : Managing Director
From : Management Accountant

Date:

Subject: Additional order

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The additional order for which the company has submitted a tender quoting ₹ 10,000/- and for which the customer has offered to strike the business at ₹ 8,900/- on a 'take it or leave it' basis and as the company is reluctant to accept the order as it would be against its policy of accepting an order below cost, the following is submitted for consideration of the Managing Director with the recommendation that the acceptance of the order will be profitable to the company as is substantiated by the following figures:

At present the company determines the sales value as follows:

	(₹)	(₹)
Direct material		1,80,000
Direct labour		3,20,000
Variable overheads:		
- Repairs and maintenance	60,000	
- Tools consumed	40,000	
- Miscellaneous supplies	10,000	
- Commission paid on sales	50,000	1,60,000
Fixed overhead		
- Factory superintendent's salary	30,000	
- Foreman's salaries	60,000	
- Insurance	10,000	
- Advertisement	20,000	
- Depreciation on assets	30,000	
- Administration expenses	90,000	2,40,000
Total cost		9,00,000
Profit (balancing figure)		1,00,000
Sales		10,00,000

While applying overhead rate, the company does not distinguish between variable and fixed overheads. Overhead, as can be seen, is charged at 125% of direct labour i.e. $\frac{₹1,60,000 + ₹2,40,000}{₹3,20,000}$ and profit at 1/9 of total cost i.e. $\frac{₹1,00,000}{₹9,00,000}$. On the same basis, the

quotation price has been submitted as follows:

	(₹)
Direct material	1,800
Direct labour	3,200
Overhead (125% of direct labour i.e. 125% of ₹3,200)	4,000
Total cost	9,000
Profit 1/9 of total cost	1,000
Tender price	10,000

But the above quotation against the tender is not giving true picture. This is an additional activity and the total sales after the acceptance of this order would be ₹ 10,08,900. To meet this order, only the variable overheads will be incurred as fixed overheads are absorbed by normal production. Therefore, the revised figures are:

	(₹)	(₹)
Price offered		8,900
Direct material	1,800	
Direct labour	3,200	
Variable overhead excluding sales commission*	1,100	
Sales commission (5% of ₹8,900)	445	6,545
Profit		2,355

*Variable overhead excluding sales commission is ₹1,10,000 (Total variable cost- ₹1,60,000 – Sales commission- ₹50,000) when the prime cost is ₹5,00,000 (DM- ₹1,80,000 + DL- ₹3,20,000), therefore, when prime cost for the additional order is ₹ 5,000 (DM- ₹1,800 + DL- ₹3,200), the variable cost excluding sales commission shall be ₹1,100.

It can be seen from the above that ₹ 8,900 price offered by the customer is well above the incremental cost of the additional order and the profit is above 1/3 of cost, much more than 1/9 of cost. Hence the company should accept the order. In making this recommendation, it has been assumed that the existing sales will remain unaffected by the acceptance of this order.

Comments on the pricing policy of the company

When overheads are capable of being distinguished as variable and fixed, it is wrong to club them together and charge overheads indiscriminately as a percentage of direct labour. Cost plus, as a basis of pricing, is all right for normal activity; but for incremental activity, the relevant cost is only the marginal cost and the profit on marginal activity, is normally greater than that of the original activity. Taking the whole cost and basing the price on cost plus will be misleading. It will result in losing valuable profit opportunity for earning an additional profit.

3.7 Pricing Strategies

Pricing strategy is defined as a broad plan of action by which an organisation intends to reach its goal. Some illustrative strategies are:-

- Expanding product lines that enjoy substantial brand equity
- Offer quantity discounts to achieve increase in sales volume.

Since the right amount of volume has to be selected to optimise profit, sufficient promotional activities are necessary. In some cases it may even take a long time for the producer to establish. There are various types of pricing strategies which firm can adopt. Few of them are as follows:

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

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(a) **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) **Inelastic demand:** The demand is likely to be inelastic in the earlier stages till the product is established in the market.
- (ii) **Sales boost:** The charge 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) **Assured profit:** 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) **Cost revenue matching:** 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.

(b) **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

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. The use of this policy by the existing concerns will discourage the new concerns to enter the market. This pricing policy is also known as "stay-out-pricing".

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

- (i) **Elastic demand:** When demand of the product is elastic to price. In other words, the demand of the product increases when price is low.
- (ii) **Mass production:** When there are substantial savings on large scale production. Here increase in demand is sustained by the adoption of low pricing policy.
- (iii) **Frighten competition:** When there is threat of competition. The prices fixed at a low level act as an entry barrier to the prospective competitors.

3.7.2 Price discounts and differentials:

Distributors' 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.

Various forms of Distributors discounts: Distributors discounts can be classified under the following three categories:

- (i) ***Different net prices for different distributor levels:*** Net prices are commonly used as the device for quoting differential prices to distributors. A list of such prices is given to authorised dealers by manufacturers to facilitate their task of billing.
 - (ii) A uniform list price modified by a structure of discounts, each rate so determined is applied to a different level of distributor: This method is commonly used as it is easy to deal with its use in diverse trade channels. By merely varying the discounts it facilitates cyclical and seasonal adjustments in prices also. Its use helps in keeping actual prices a secret not only among distributors but also among competitors and customers. This method gives to the manufacturers a greater control over the realised margin of different categories of distributors.
 - (iii) ***A single discount combined with differing supplementary discounts to different levels of distributors:*** Supplementary discount gives clear cut picture about the trade channel structure or the suggested resale prices. These discounts reflect distributors cost at different stages and competition between different kinds of distributors. These discounts are often very elaborate and are in use due to tradition in the industry.
- ***Pre-requisites for determining Distributors' Discounts:*** The economic function of distributors discount is to induce different categories of distributors to perform nicely, their respective marketing functions. As such, to build up a discount structure on sound economic lines, it is essential to know about :
 - (i) The services to be performed by the distributors at different levels.
 - (ii) Knowledge about distributors' operating costs.
 - (iii) Discount structure adopted by competitors.
 - (iv) Effect of discounts on distributor's population.
 - (v) Costs of selling to different channels.
 - (vi) Availability of opportunities for market segmentation.
 - **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.

Objectives of quantity discounts: The main objective of quantity discounts is to reduce the number of small orders and thus avoid the high cost of servicing them.

Advantages: Quantity discount system enables the dealer to avail such discounts by buying larger lots. The economic buying by a dealer may enable him to charge lower prices from his customers thereby benefiting them. Finally, lower prices to customers may increase their demand for the commodities which in turn may enable the dealer to purchase larger quantities, reaping still greater discounts, and the manufacturer to reap economies of large-scale production. In some cases, discounts become a matter of trade custom.

Disadvantages: Dealers may find it cheaper to purchase their requirement of commodities from wholesalers, availing themselves of these quantity discounts than from the manufacturers directly. This is because the wholesalers may pass on some of their discount to the dealers. Such a practice may affect the image of the manufacturer in the minds of the dealers.

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.

Time differentials: Charging different prices on the basis of time is another kind of price discrimination. Under time differentials the objective of the seller is to take advantage of the fact that buyer's demand elasticity vary over time. Time differentials can be classified under the following heads.

- (i) **Clock-time differentials:** The price differentials are known as clock-time differentials when different prices are charged for the same service or commodity at different times within a 24 hour period. Common examples of these are the differences between the day and night tariff of a phone call; difference between the rates charged in morning and regular shows in cinema houses.
- (ii) **Calendar-time differentials:** Here price differences are based on a period longer than 24 hours. For example; seasonal price rate variations in the case of winter clothing or hotel accommodation at a hill station and a tourist resort. The main objective here is to exploit the time preferences of the buyers.
- (iii) **Geographical price differentials:** It refers to price differentials based on buyers location. The objective here is to exploit the differences in transport-cost, due to the varying distances between the locations of the plants and customers.
- (iv) **Consumer category price differentials:** Price discriminations are frequently practiced according to consumer categories in the case of public utilities, e.g., electricity, transportation, etc. Electricity companies charge different rates for residential consumers and industrial consumers. The rates may also differ to domestic power, light and fan.

3.7.3 Price Discrimination: Price discrimination means charging different prices and it takes various forms according to whether the basis is customer, product, place or time. These are illustrated as under:

- (a) **Price discrimination on the basis of customer:** In this case, the same product is charged at different prices to different customers. It is, however, potentially disruptive of customer relations.
- (b) **Price discrimination based on product version:** In this case, a slightly different product is charged at a different price regardless of its cost-price relationship. If, for example, a table with wooden top can be sold at ₹ 400, a table with sunmica top costing ₹ 175 extra is sold at ₹ 575. The higher premium in the latter case does not necessarily reflect the higher production cost.
- (c) **Price discrimination based on place:** An example of this method is the seats in cinema theatre where the front seats are charged at lower rates than the back seats.
- (d) **Price discrimination based on time:** An example of this method is the practice of giving off-season concession in sale of fans or refrigerators just after the summer season.

Price discrimination is possible if the following conditions are satisfied:

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

Example- 5:

A company chooses three prices to be charged in three different markets and it can be seen from the figures given below that the intermediate price maximises profit.

Particulars	Price (₹)	Price (₹)	Price (₹)
Selling price per unit	1.20	1.50	1.80
Estimated sales (units)	8,000	6,000	3,000
Sales revenue : (A)	9,600	9,000	5,400
Costs:			
Manufacturing costs	5,200	3,900	1,950
Selling expenses	1,000	500	450
Fixed expenses	1,500	1,500	1,200
Total : (B)	7,700	5,900	3,600
Profit : {(A) – (B)}	1,900	3,100	1,800

3.7.4 Geographic Pricing Strategies: 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.

Point-of-Production Pricing: In a widely used geographic pricing strategy, the seller quotes the selling price at the point of production and the buyer selects the mode of transportation and pays all freight costs. This method of pricing is referred as ex- factory/ works pricing.

Uniform Delivered Pricing: Under uniform delivered pricing, the same delivered price is quoted to all buyers regardless of their locations. Uniform delivered pricing is typically used where freight costs are a small part of the seller's total cost. This strategy is also used by many retailers who believe "free" delivery is an additional service that strengthens their market position.

Zone-Delivered Pricing: Zone-delivered pricing divides a seller's market into a limited number of broad geographic zones and then sets a uniform delivered price for each zone.

Freight-Absorption Pricing: Under freight-absorption pricing, a manufacturer will quote to the customer a delivered price equal to its factory price *plus* the freight costs that would be charged by a competitive seller located near that customer.

3.8 Pareto Analysis

Pareto Analysis is a rule that recommends focus on the most important aspects of the decision making in order to simplify the process of decision making. It is based on the 80: 20 rule that was a phenomenon first observed by Vilfredo Pareto, a nineteenth century Italian economist. He noticed that 80% of the wealth of Milan was owned by 20% of its citizens. This phenomenon, or some kind of approximation of it say, (70: 30 etc.) can be observed in many different business situations. The management can use it in a number of different circumstances to direct management attention to the key control mechanism or planning aspects. It helps to clearly establish top priorities and to identify both profitable and unprofitable targets.

3.8.1 Usefulness of Pareto Analysis: It provides the mechanism to control and direct effort by fact, not by emotions. It helps to clearly establish top priorities and to identify both profitable and unprofitable targets.

Pareto analysis is useful to:

- Prioritize problems, goals, and objectives to Identify root causes.
- Select and define key quality improvement programs.
- Select key customer relations and service programs.
- Select key employee relations improvement programs.
- Select and define key performance improvement programs.
- Maximize research and product development time.
- Verify operating procedures and manufacturing processes.
- Product or services sales and distribution.
- Allocate physical, financial and human resources.

3.8.2 Application of Pareto Analysis: Pareto analysis may be applicable in the presentation of Performance Indicators data through selection of representative process characteristics that truly determine or directly or indirectly influence or conform the desired quality or performance result or outcome. The Pareto Analysis is generally applicable to the following business situations:

(i) Pricing of a product:

- In the case of a firm dealing with multi products, it would not be possible for it to analyse cost-profit- price -volume relationships for all of them. In practice, in case of such firm approximately 20% of products may account for about 80% of total sales revenue. Pareto Analysis is used for analysing the firm estimated sales revenues from various products and it might indicate that approximately 80% of its total sales revenue is earned from about 20% of its products.
- Such analysis helps the top management to delegate the pricing decision for approximately 80% of its products to the lower levels of management, thus freeing themselves to concentrate on the pricing decisions for products approximately 20% which are essential for the company's survival.
- Thus, a firm can adopt more sophisticated pricing methods for small proportion of products that jointly accounts for approximately 80% of total sales revenue. For the remaining 80% of the products which account for 20% of total sales revenue the firm may use cost based pricing method.

(ii) Customer Profitability analysis:

- Instead of analysing products, customers can be analysed for their relative profitability to the organisation.
- Again it is often found that approximately 20% of customers generate 80% of the profit. There will always be some customers who are less profitable than others, just as some products are less profitable than others.
- Such an analysis is useful tool for evaluation of the portfolio of customer profile and decision making such as whether to continue serving a same customer group, what is the extent of promotion expenses to be incurred.

(iii) ABC analysis- Stock Control: Another application of Pareto analysis is in stock control where it may be found that only a few of the goods in stock make up most of the value. In practice approximately 20% of the total quantity of stock may account for about 80% of its value. The outcome of such analysis is that by concentrating on small proportion of stock items that jointly accounts for 80% of the total value, a firm may well be able to control most of monetary investment in stocks.

(iv) Application in Activity Based Costing: In Activity Based Costing it is often said that 20% of an organisation cost drivers are responsible for 80% of the total cost. By analysing, monitoring and controlling those cost drivers that cause most cost, a better control and understanding of overheads will be obtained.

(v) Quality Control:

- Pareto analysis seeks to discover from an analysis of defect report or customer complaints which "vital few" causes are responsible for most of the reported problems.

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- Often, 80% of reported problems can usually be traced to 20% of the various underlying causes. By concentrating once efforts on rectifying the vital 20%, one can have the greatest immediate impact on product quality.
- The Pareto Analysis indicates how frequently each type of failure (defect) occurs. The purpose of the analysis is to direct management attention to the area where the best returns can be achieved by solving most of quality problems, perhaps just with a single action.

Example- 6:

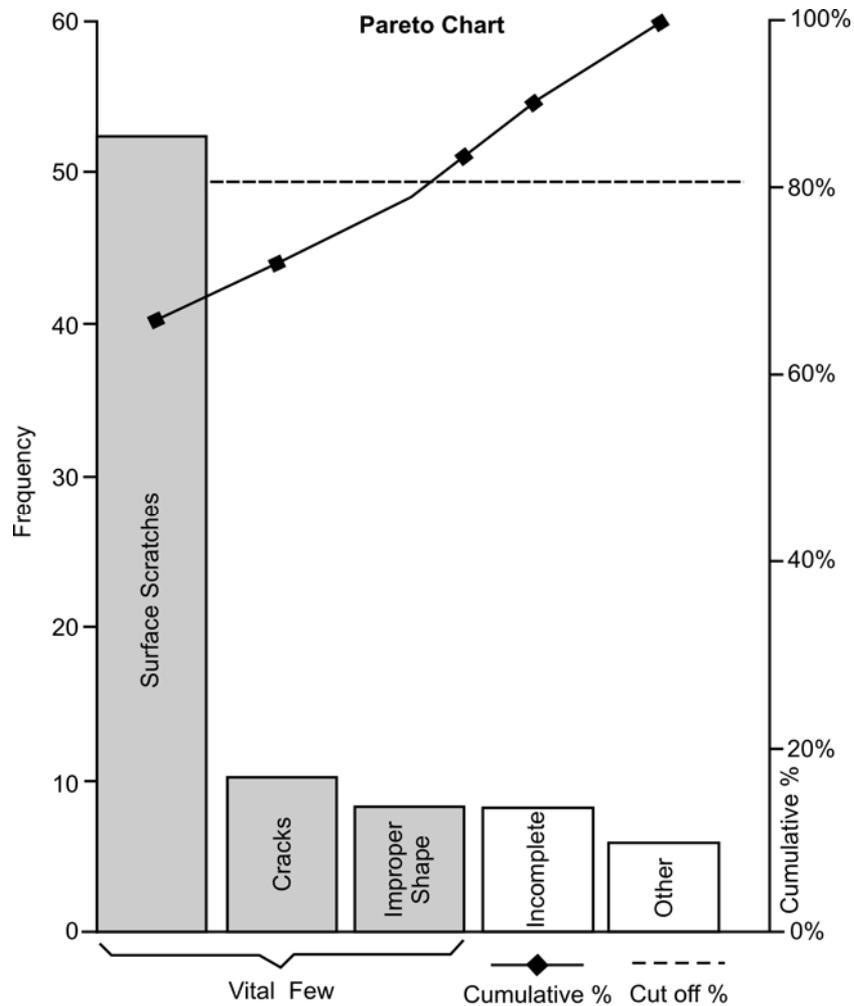
A Toy company performs a Pareto analysis, given a set of 'defect types' and frequencies of their occurrence. The sample data consists of information about 84 defective items. The items have been classified by their 'defect types' as follows:

<i>Defect Types</i>	<i>No. of items</i>
<i>Cracks (due to mishandling of raw material)</i>	<i>10</i>
<i>Improper shapes</i>	<i>8</i>
<i>Incomplete</i>	<i>8</i>
<i>Surface scratches</i>	<i>53</i>
<i>Other (due to bad quality raw material)</i>	<i>5</i>

Frequency table indicating the frequency of occurrence of defects in decreasing order of their occurrence will be as follows:

<i>Defect type</i>	<i>No. of items</i>	<i>(%)</i>	<i>Cumulative %</i>
<i>Surface scratches</i>	<i>53</i>	<i>63.0952</i>	<i>63.0952</i>
<i>Cracks</i>	<i>10</i>	<i>11.9048</i>	<i>75.0000</i>
<i>Improper shape</i>	<i>8</i>	<i>9.5238</i>	<i>84.5238</i>
<i>Incomplete</i>	<i>8</i>	<i>9.5238</i>	<i>94.0476</i>
<i>Other</i>	<i>5</i>	<i>5.9524</i>	<i>100.00</i>

The Pareto chart is then constructed for defect type.



The purpose of Pareto analysis in this example, is to direct attention to the area where best returns can be achieved by solving most of the quality problems, perhaps just with a single action. In this case, use of good quality raw material say plastic may solve 63% of problem and if raw material is handled properly at least 75% the problems may be overcome.

Summary

- 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.
- Under perfect competition, firm has no pricing policy of its own as the sellers are price takers and sells as much as they are capable of selling at the prevailing market price.
- Under the monopoly market, a firm is a price setter i.e. it can fix any price but pricing is done taking elasticity of demand for the product into consideration.

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- 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.
- The oligopolistic firm, while determining the price for its product, takes into consideration not only the demand for the product but also the reactions of the other firms in the same industry to any action or decision it may take.
- Pricing of a product plays the role in marketing strategy to tap into the value created and to generate revenues. So the biggest concern on the part of any organisation is to getting the right price.
- Pricing of a new product is generally a difficult task because of the uncertainty involved in the estimation of their demand.
- 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.
- Perceived value: The value that consumer understands the product deliver to it.
- Revolutionary product: When it is new for the market and has the potential to create its own value.
- Evolutionary Product: An existing product with some added new features and updations.
- Me-too products: A product which is very similar to any other existing product.
- There are various methods available for pricing of a finished product viz. cost- plus pricing, rate of return pricing, variable cost pricing, competitive pricing, incremental pricing etc.
- Pricing strategy is defined as a broad plan of action by which an organisation intends to reach its goals.
- Skimming pricing: It is a strategy of keeping high prices during the early period of product introduction to the market to take the advantage of being market leader and to cover the high product development costs.
- Penetration pricing: This is a pricing strategy adopted to introduce a product into the market at a reasonably low price. This pricing is adopted to get entry into the market and to keep pricing barriers to other firms from entering into the market.
- Pareto Analysis is a rule that recommends focus on the most important aspects of the decision making in order to simplify the process of decision making.
- The purpose of Pareto analysis is to identify the area which is very crucial for the organisation's survival.
- As per Pareto's theory there are only 20% of total products/ operations/ inventory which has significant importance, requires direct attention of the top level management.