

## UNIT – V

### 1.1 Introduction

The concept of a market is central to the understanding of the determination of price and quantity of output of a commodity under consideration. In ordinary language, the term market refers to a public place in which goods and services are bought and sold. In economics, it has a different meaning. Different economists have tried to define market in different ways. Cournot defines market as, “not any particular market place in which things are bought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with each other that the prices of the same goods tend to equality easily and quickly”. To Ely, “Market means the general field within which, the force determining the price of particular product operate”. Stonier and Hague explain the term market as “any organization whereby buyers and sellers of a good are kept in close touch with each other”.

#### Meaning of Market

A **Market** is a place where the exchange of goods takes place. In other words, a place where the purchase and sale of goods take place is a market. The market is the nervous system of modern economic life where producers and consumers carry out the sale and purchase transactions. The market has a different and wider meaning in Economics, as it does not refer to a specific place. In **Economics**, a Market is a region where the buyers and sellers don't have to assemble at a specific place for the sale and purchase of goods. Instead, they have to be in contact with each other through any communication means, such as the internet, letter, mail, telephone, etc.

#### Basic Components of Market

**Buyers:** There should be buyers of the product. If a country consists of people who are very poor, there can hardly be market for luxuries like cars, VCR etc.

**Seller:** A commodity should be offered for sale in the market. Otherwise there is no question of buying the commodity. Therefore, existence of sellers is a necessity for any market.

**Contact:** Buyers and sellers should have close contact with each other.

**Price:** There should be a price for the commodity. The exchange of commodities between buyers and sellers occurs at a particular price which is mutually agreeable to both the buyers and sellers.

This is because, in a modern economy, most of the production does not take place for self-consumption by the producers themselves. Thus, by the term market of a good, it should not be taken to mean a place where the buyers and sellers meet each other and conduct purchase and sale transactions. The market consists of two components;

- ✓ A Firm
- ✓ An Industry

A Firm

A firm is a business unit engaged in the task of producing and selling of goods or services. It is identified by the fact that it is only one unit of entrepreneurship. The entrepreneurship may not be provided by a single individual. It may be exercised jointly by a board or a group of individuals in some defined manner. However, the firm has a unified and coordinated authority of decision making. In essence, these decisions relate to the objectives (such as, profit maximization, or sales maximization, etc.) and other policy decisions (such as, what to produce) of the business unit.

An Industry

An industry is a set of firms which are conceptually closely associated in the sense of having some common type(s) of activities. A good example of an industry is a set of firms which are producing a certain type of a manufactured good or providing a certain type of service. The good supplied by the firms of the industry may be homogenous in the sense that the buyers believe that products of all firms are perfect substitutes of each other.

A consignment of the good, by itself, does not provide the identity of the supplier. The buyers, therefore, are indifferent between the sources of supply. Instead, they select between alternative supplier firms by comparing the prices being asked by them. In contrast, the industry may also comprise those firms which are producing differentiated products. This means that the product of one firm can be distinguished from that of the other. The buyers do not consider the products of different firms as perfect substitutes. However, if the firms are to belong to one industry, then their products must be close substitutes of each other. There is no pre-determined number of firms which an industry must have. Their number can vary

according to the structure of the market. At one extreme, it may have only one firm in which case it is called a monopoly or a one-firm industry. At the other extreme, an industry may have such a large number of firms that each of them accounts for an extremely small portion of the total supply of the industry and is not able to influence the price of the product. Between these two extremes, there can be several other possibilities. There are various kinds of markets prevailing in the economy. From the point of view of syllabus the following are covered.

- ✓ Perfect Competition
  - ✓ Monopoly
  - ✓ Monopolistic Competition
- Essential or Characteristics of a Market

**i) Area**

In economics, a market is not related to a specific place, instead, it spreads over an area that becomes the point of contact between the producers/sellers and consumers/buyers. With the advancement of technology and modern means of communication, the market area of a product has become wide.

**ii) Commodity**

In economics, a market is not related to a specific place but to a specific product. It means that a market can exist if there is one commodity that will be purchased and sold among the buyers/consumers and sellers/producers.

**iii) Buyers and Sellers**

Another characteristic of a market is the presence of buyers and sellers. The buyers and sellers must contact each other in the market. However, it does not mean that they should meet physically, the contact can be through modern means of communication, like the internet, mail, telephone, etc.

**iv) Competition**

For a market to exist, it is necessary that there is free competition amongst the buyers and sellers. The absence of competition in the market results in the charging of different prices for the homogeneous commodity by the sellers.

Basis for Classification of the Market Structure

The factors determining the market structure are as follows:

**i) Number of Buyers and Sellers**

The volume/number of buyers and sellers in the market of a commodity exercises a great influence on the price of a commodity. If there are a large number of buyers and

sellers in the market, then a single buyer or seller cannot influence the price of a commodity. However, if there is one seller of a commodity, such as Railways, then the seller has great control over its price.

**ii) Nature of the Commodity**

The nature of the commodity has a great impact on the price of the commodity. If a commodity is homogeneous in nature (identical goods such as pen, paper, etc.), then it is sold at a uniform price in the market. If a commodity is heterogeneous in nature (non-identical, totally different goods, such as different toothpaste brands, etc.), then it may be sold at different prices. However, commodities with no close substitutes, such as Railways can charge a higher price from the buyers.

**iii) Freedom of Movement of Firms**

Freedom in entry and exit of firms results in price stability in the market. However, restrictions on the entry of new firms or exit of the existing ones can lead to the firms influencing the price of goods and services, as they have no fear of competition from other existing or new firms.

**iv) Knowledge of Market Conditions**

If the buyers and sellers are aware of the market conditions and have full knowledge about them, then the uniform price of goods and services prevails in the market. Whereas, if the buyers and sellers are unaware of the market conditions, then sellers are in a position to charge their customers different prices.

**v) Mobility of Goods and Factors of Production**

Free movement of factors of production from one place to another results in a uniform price in the market. However, if the movement of factors of production is not free, then the prices may differ from each other.

**Forms of Market Structure**

**Figure 5.1**

**Forms of Market Structure**



The different forms of market structure are Perfect Competition and Imperfect Competition (Monopoly, Monopolistic Competition, and Oligopoly).

#### i) Perfect Competition

A market situation where a large number of buyers and sellers deal in a homogeneous product at a fixed price set by the market is known as **Perfect Competition**. Homogeneous goods are goods of similar shape, size, quality, etc. In other words, in a perfect competitive market, the sellers sell homogeneous products at a fixed price determined by the industry, not by a single firm. In the real world, the situation of perfect competition does not exist; however, the closest **example** of a perfect competition market is agricultural goods sold by the farmers. Goods like wheat, sugarcane, etc., are homogeneous in nature and their price is influenced by the market.

#### ii) Monopoly

Monopoly is a completely opposite form of market and is derived from two Greek words, Monos (meaning single) and Polus (Meaning seller). A market situation where there is only one seller in the market selling a product with no close substitutes is known as **Monopoly**. **For example**, Indian Railways. In a monopoly market, there are various restrictions on the entry of new firms and exit of the existing firms. Also, there are chances of Price Discrimination in a Monopoly market.

#### iii) Monopolistic Competition

A Monopolistic Competition Market consists of the features of both Perfect Competition and a Monopoly Market. A market situation in which there is a large number of firms selling closely related products that can be differentiated is known as **Monopolistic Competition**. The products of monopolistic competition include toothpaste, shampoo, soap, etc. **For example**, the market for soap enjoys full competition from different brands and has freedom of entry showing the features of a perfect competition market. However, every soap has its own different feature, which allows the firms to charge a different price for them. It shows the features of a Monopoly Market.

#### iv) Oligopoly

A market situation where the number of big sellers of a commodity is less and the number of buyers is more is known as **Oligopoly Market**. As the number of sellers in this market is less, the price and output decision of one seller impacts the price and output decision of other sellers in the market. In other words, the interdependence among the sellers of a commodity is high. **For example**, luxury car producers like BMW, Audi, Ford, etc., come under Oligopoly Market, as the number of sellers of luxury cars is less and its buyers are more.

## 1.2 Perfect Competition

Perfect competition refers to the market structures where competition among the sellers and buyers prevails in its most perfect form. In the perfectly competitive market, a single market price prevails for the commodity, which is determined by the forces of total demand and total supply in the market. Under perfect competition, every participant (whether a seller or a buyer) is a price-taker. Everyone has to accept the prevailing market price as individually no one is in a position to influence it.

Perfect Competition in economic theory has a meaning diametrically opposite to the everyday use of the term. In practice, businessmen use the word competition as synonymous to rivalry. In theory, Perfect Competition implies no rivalry among firms. Perfect Competition, therefore, can be defined as a market structure characterized by complete absence of rivalry among the individual firms. That is to say perfect competition is a market structure where there is a perfect degree of competition and single price prevails. Perfect Competition Market is a hypothetical market structure where in every seller takes the market prices as the price of his own product, firms are incapable of influencing the market price either by acting singly or in a group.

Main Features

### i) Homogeneous Product

In a perfect competition, it is not possible to distinguish between the products of individual firms. There are no distinctive features of the product associated with any specific firm. The product, in that sense, is homogeneous and undifferentiated. To the buyer, product supplied by one firm is a perfect substitute of that supplied by another.

### ii) Large Number of Sellers

Perfect competition is characterized by a large number of firms. Here, the term large denotes the fact that no individual firm is in a position to significantly influence the total supply of the industry and thereby affects the price of the product. Every firm in the industry is thus, a price taker. It can sell any quantity of its own product at the going price. For it, the demand for its product is perfectly elastic. It, of course, must be remembered that the maximum quantity, which this firm can supply, is insignificantly small when viewed in relation to the aggregate supply of the industry as a whole.

### iii) Large Number of Buyer

Perfect competition is also characterized by a large number of buyers who are in competition with each other for the available supply. Their number is so large that any single

buyer may change the quantity purchased without significantly affecting the total demand in the market and affecting the price of the product. Like an individual firm, an individual buyer is also a price taker. He can buy any quantity of the product he likes at going price. To him, the product has perfect elasticity of supply.

**iv) Full Knowledge of Market**

It is assumed that in perfect competition, every buyer and seller has full knowledge of the prevailing price of the product, as also the prices being asked by the sellers and being offered by the buyers. This 'perfect knowledge' enables every buyer and seller to make use of any opportunity that may exist to strike a better bargain.

**v) Economic Rationality**

Economic rationality is another feature of perfect competition. It means that every buyer and seller is motivated by his own economic interest in his decisions to buy or sell. This, coupled with the assumption of perfect knowledge, ensures that a uniform price prevails in the market.

**vi) No Transportation Cost**

It is assumed that there is no transaction cost to be incurred by buyers and sellers in their activities. The price paid by a buyer is exactly equal to the price received by the seller. There is no resource cost in terms of time or other expenses to be incurred i.e. there are no transaction costs. In particular, a seller has no need to incur any selling expenses (say, in the form of advertisements) because his product is not differentiated from the products supplied by other sellers.

**vii) Free Entry and Exit**

Perfect competition is also characterized by free entry and exit. Basically, the terms entry and exist apply to the suppliers, though their coverage can be extended to buyers also. It means that, given enough time, any existing firm can close down and leave the industry or any new firm can enter the industry. There is no legal, institutional, or technical hurdle in doing so. It is only estimated economic benefits or losses that guide the firms in these decisions. Similarly, any existing buyer of the product can increase his purchases, cut them or reduce them to zero. New buyers can also enter the market and offer to buy any quantity they like.

Conditions or Characteristics of Perfect Competition

The following conditions must exist for a market structure to be perfectly competitive. These are also the distinct features or distinguishing marks of perfect competition:

**i) Large Number of Sellers**

A perfectly competitive market structure is basically formed by a large number of actual and potential firms and sellers. Their number is sufficiently large and as the size of each firm is relatively small, so the individual seller's or firm's supply is just a fraction of the market supply. Consequently, any variation in individual supply has a negligible effect on the total supply. Thus, an individual firm or seller cannot exert any influence on the ruling market price. In a perfectly competitive market, thus, a firm is a price-taker.

**ii) Large Number of Buyers**

There are a very large number of actual and potential buyers so that each individual buyer's demand constitutes just a fraction of the total market demand. Hence, no individual buyer is in a position to exert his influence on the prevailing price of the product. From the above two conditions, it follows that though an individual buyer or seller cannot affect the price, all firms together or all buyers together can change the market supply or demand as a whole, so that the market price will be affected.

**iii) Product Homogeneity**

The commodity supplied by each firm in a perfectly competitive market is homogeneous. That means, the product of each seller is virtually standardised, *i.e.*, there is no identification of the product of each seller, as there is no product differentiation. Since each firm produces an identical product, their products can be readily substituted for each other. Hence, the buyer has no specific preference to buy from a particular seller only. He purchase from any particular seller is a matter of chance and not of choice, on account of the homogeneity of goods.

**iv) Free Entry and Exit of Firms**

There is free entry of new firms into the market. There is no legal, technological, economic, financial or any other barrier to their entry. Similarly, existing firms are free to quit the market. Thus, the mobility of firms ensures that whenever there is scope in the business, new entry will take place and competition will remain always stiff. Due to the natural stiffness of competition, inefficient firms would have to eventually quit the industry.

**v) Perfect Knowledge of Market Conditions**

Perfect competition requires that all the buyers and sellers must possess perfect knowledge about the existing market conditions, especially regarding the market price, quantities and sources of supply. When there is such perfect knowledge, no buyer could be charged a price different from the market price. Similarly, no seller would unnecessarily lose by selling at a lower price than the prevailing market price. This way, perfect knowledge ensures transactions at a uniform price.



**vi) Perfect Mobility of Factors of Production**

A necessary assumption of perfect competition is that factors of production are perfectly mobile. Perfect mobility of factors alone can ensure easy entry or exit of the firms. Again it also ensures that the factor costs are the same for all firms.

**vii) Government Non-intervention**

Perfect competition also implies that there is no government intervention in the working of market economy. That is to say, there are no tariffs, subsidies, rationing of goods, control on supply of raw materials, licensing policy or other government interference. Government non-intervention is essential to permit free entry of firms and for automatic adjustment of demand and supply through the market mechanism.

**viii) Absence of Transport Costs Element**

It is essential that competitive position of no firm is adversely affected by the transport cost differences. It is thus assumed that there is absence of transport cost as all firms are closer to the market or there is equal transport cost faced by all, as all firms are supposed to be equally far away from the market.

**Equilibrium of the Firm under Perfect Competition**

Under perfect competition, the firms are unable to alter the price of the product by changing the quantity of its own output. The prices of the input are given; therefore, cost conditions are also given. In other words, under perfect competition, it can only decide to alter the quantity of its output without changing price of the product.

A firm is said to be in equilibrium when its profits are maximum, which in lieu depends on the cost and revenue conditions of the firm. The concepts of cost and revenue vary in short run and long run. Thus a competitive firm has four equilibrium states differing on the basis of period of operation as follows:

- i) Short Run equilibrium of a Competitive Firm
- ii) Long Run equilibrium of a Competitive Firm
- iii) Short Run equilibrium of a Competitive Industry
- iv) Long Run equilibrium of a Competitive Industry

**i) Short Run Equilibrium of a Competitive Firm**

Under the short run period, the following are the major assumptions;

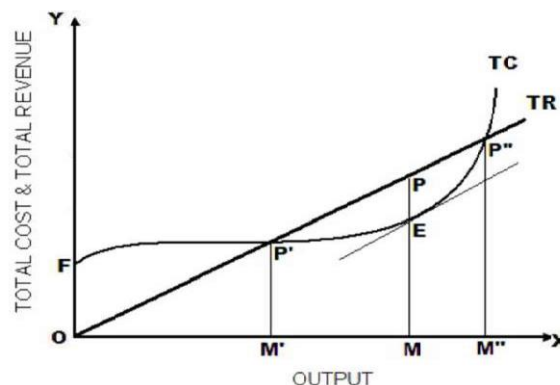
- ✓ Price of product is given in the market at which a firm can sell any quantity
- ✓ Plant size of firm is given(constant)
- ✓ Firm is facing given short run cost curves

The equilibrium conditions in such a case are similar as stated in previous unit. There are two approaches to deriving the maximum profit i.e.  $\pi = TR$  less  $TC$  or at a point where  $MR$  equates  $MC$ .

Since a perfectly competitive firm is a price taker, it is faced with a straight line demand curve i.e.  $AR$  is parallel to  $X$  axis as its Marginal Revenue ( $MR$ ). It can also be seen that, given the assumption of profit maximisation by the firm, it will be in equilibrium when there is no scope for either increasing its profit income or reducing its loss by changing the quantity of output. It cannot improve its economic position by changing the output.

Figure 5.2

### Equilibrium of a Firm using $TR$ and $TC$ Curves



In the Fig. 5.2,  $X$  axis shows levels of output and  $Y$  axis shows costs and revenues.  $TR$  is Total Revenue Curve  $TC$  is Total Cost Curve  $P$  is Equilibrium Point, where the distance between  $TR$  and  $TC$  is maximum. A general case of this equilibrium of the firm, in the short run and under perfect competition, is illustrated in Fig 5.2.

The equilibrium point is attained when,

$$\pi = TR - TC$$

is maximum; where  $TR = P \times Q$  ( $P$  is given as constant) and  $TC$  is total cost.

Therefore, in short run since prices are given, the  $TR$  curve is a straight line through the origin  $O$  as shown in the figure. Its slope is positive and equal to the price of the product and Average Revenue ( $AR$ ). In the short run, a firm has to incur both fixed and variable costs. Fixed costs are there even when the output is reduced to zero. As a result, total cost ( $TC$ ) curve starts from  $Y$ -axis at a positive distance from origin  $O$ . Assuming that fixed costs are  $OF$ , the  $TC$  curve starts from point  $F$  on the  $Y$ -axis. The short run average cost curve ( $SAC$ ) is U-Shaped. The total cost curve in the figure is represented by  $TC$ .

|                         |                   |                                                          |
|-------------------------|-------------------|----------------------------------------------------------|
| <b>Before point P',</b> | <b>TC &gt; TR</b> | <input checked="" type="checkbox"/> <b>Total Loss</b>    |
| <b>From P' to P'',</b>  | <b>TC &lt; TR</b> | <input checked="" type="checkbox"/> <b>Normal Profit</b> |

|                   |                   |                                            |
|-------------------|-------------------|--------------------------------------------|
| At P,             | PE                | <input type="checkbox"/> Maximum Profit    |
| <b>After P'',</b> | <b>TC &gt; TR</b> | <input type="checkbox"/> <b>Total Loss</b> |

Thus, OM is the equilibrium output of the firm in the short run under perfect competition. At any other output, its total profit is less than PE. It is also noted that if the output is reduced to OM' or increased to OM'', the profit of the firm is reduced to zero. Further, for output less than OM' or greater than OM'', TC exceeds TR and results in a loss for the firm.

The conditions of profit maximisation (or loss minimization) can be translated into what are known as marginal conditions. Thus profit,

$\pi = TR - TC$  is maximized if

✓ its first derivative is zero

✓ second derivative is negative **Differentiating  $\pi = TR - TC$  with respect to Q;  $d\pi =$**

$dTR/dQ - dTC/dQ$

□  $d\pi/dQ = 0$

□  $dTR/dQ - dTC/dQ = 0$

□  $dTR/dQ = dTC/dQ$

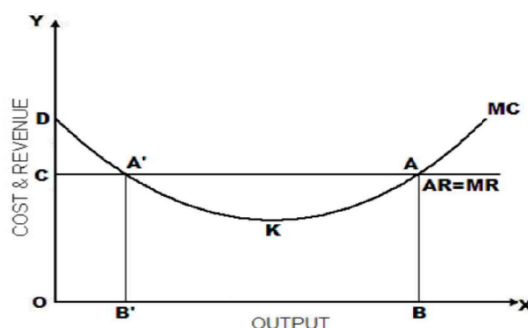
$MC = MR$ ; this is the first marginal condition.

$d^2\pi/dQ^2 < 0$ ; this is the second marginal condition

Graphically, this condition states that for equilibrium of the firm, MC curve should intersect MR curve from below and, after intersection, lie above MR curve. If we translate this condition in ordinary words, it means the following. The firm should keep on adding to its output as long as  $MR > MC$  because additional output adds more to its revenue than to its cost and thus its profit income increases. Furthermore, if its MC is equal to MR but the firm finds that by adding to its output, MC becomes smaller than MR, then the firm should decide to increase its output.

Figure 5.3

### Equilibrium of a Firm using MC and MR Curves



On account of perfect competition, the demand for the product of the firm is perfectly elastic. The firm can sell all its output at the going price in the market. Accordingly, its demand curve (AR curve) runs parallel to X-axis throughout its length and its MR curve coincides with AR curve.

As regards the supply side, we should recall the set of four cost curves of the firm, namely, the AFC, the AVC, the MC and the ATC. Out of these, the supply curve of the firm is that portion of the MC curve which lies above AVC curve and is upward sloping. The actual equilibrium of the firm is determined by the intersection of its supply and demand curves. An explanation of this phenomenon is provided below.

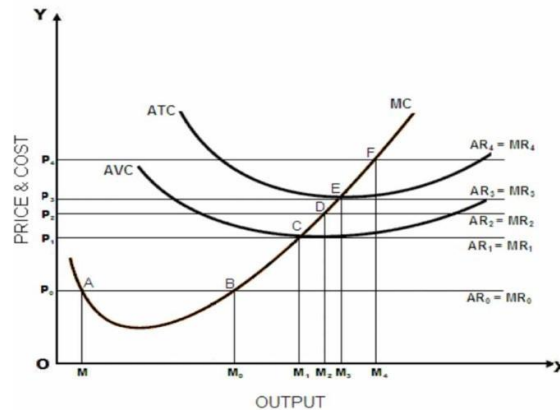
To begin with we note that, in the short run, the firm cannot avoid fixed costs. They have to be incurred even if production is reduced to zero. However, the variable costs are directly related to the quantity of output. The implication is that, in the short run, the firm cannot avoid losses by not producing. Therefore, it decides to continue production even at a loss, provided the loss does not exceed its fixed costs. It means that the firm would decide to produce if its average price (that is, per unit price of the good) equals or exceeds its AVC.

On account of the law of variable proportions, the average variable cost curve is U-shaped. Let us also recall that marginal cost represents a change in the total cost so that it is related only to the variable costs and not fixed costs. And since AVC curve is U-shaped, MC curve is also U-shaped. It lies below AVC curve when the latter is downward sloping. However, MC curve starts rising when the rate of fall in AVC curves slows down, intersects it at its lowest point, and rises above it. We have also seen above that a firm attains its best possible position (that is, the position of maximum profit or minimum loss) when its MC curve cuts its MR curve from below. At the same time, price per unit of the product must be able to recover at least the average variable cost. When the price exceeds AVC, the firm is able to recover a part of its fixed costs also with a resultant reduction in its losses. In case the price equals the average of total cost, the firm is able to recover its full costs (including the component of 'normal profit'). And if the price is still higher, it earns an abnormal profit. Thus, in determination of short term equilibrium of the firm, two conditions should be satisfied:

- ✓ MC must equal MR and cut it from below
- ✓ AR must equal or exceed AVC

Figure 5.4

### Equilibrium of a Competitive Firm in Short Run



In Figure 5.4, we consider five different prices to illustrate the supply behaviour and associated equilibrium of the firm. There is an average revenue curve corresponding to each price. It runs parallel to X-axis and the MR curve also coincides with it.

- ✓ When the price is  $OP_0$ , the corresponding  $MR_0$  curve cuts  $MC$  curve at two points, A and B. At point A, none of the above-stated two conditions of equilibrium is satisfied. At point B,  $MC$  curve cuts  $MR_0$  curve from below but the second condition is not satisfied.  $AR$  is still less than  $AVC$ . Therefore, the firm incurs a loss greater than its fixed cost if it decides to produce when the price is  $OP_0$ . The firm, therefore, decides to close down but it cannot leave the industry.
- ✓ If the price happens to be higher and equal to  $OP_1$  (that is, equal to the least possible average variable cost), the firm decides to produce. In this case, not only  $MC$  curve cuts  $MR_1$  curve from below (a point C);  $AR_1$  is also equal to  $AVC$ . Thus, we find that either the firm does not produce at all, or it produces at least equal to  $OM_1$ .
- ✓ In the third case, price ( $OP_2$ ) exceeds  $AVC$  but is still less than  $ATC$ .  $MR_2$  and  $MC$  curves intersect each other at point D. The firm produces  $OM_2$ . It still incurs a loss but less than its fixed costs because it is able to recover a portion of the latter.
- ✓ In case the price rises to  $OP_3$ , the firm is able to recover its full cost including fixed costs. Its  $MC$  curve cuts  $MR_3$  curve from below at point E and  $AR_3 = ATC$ . All the conditions of its equilibrium are satisfied. It produces  $OM_3$ .
- ✓ If the price rises even further, say,  $P_4$ , the point of intersection of  $MR_4$  and  $MC$  curves moves to F. The firm is able to recover not only its total cost but is able to earn an abnormal profit also. It produces  $OM_4$ .

It should be noted from above that in the short run, existing firms can close down but they cannot leave the industry and new ones cannot enter it. Therefore, when our firm is incurring a loss, it continues production so long, its' losses do not exceed fixed costs. Similarly, if it earns an abnormal profit, they are not wiped out by new firms entering the industry.

#### Long Run Equilibrium of a Competitive Firm

Long term is defined as that period in which the firm has the opportunity of varying all its inputs. There are no fixed costs and therefore average fixed cost curve vanishes. The average cost (AC) curve denotes average total cost (ATC) curve. More precisely, in the long run the firm can decide to go in for any of the alternative plants of different scales.

We have seen earlier that in the long run, the average cost (AC or LRAC) curve of the firm formed by its short run average cost curves (that is, plant curves) is also U-shaped. Up to a certain scale, there are increasing returns and LRAC curve slopes downwards. This is followed by the phase of constant returns in which LRAC curve is neither rising nor falling. And the third phase is that of diminishing returns to scale in which LRAC curve slopes upwards. We have also seen that corresponding to the U-shaped LRAC curve, long term marginal cost (LRMC) curve is also U-shaped and that it cuts LRAC from below at the lowest point of the latter.

Since the firm can vary all its inputs in the long run, it follows that it has the option to close down and leave the industry.

Similarly, new firms can also enter the industry. This condition, termed 'free entry and exit of firms' has two implications.

- ✓ The firm is not compelled to operate when incurring a loss. It can leave the industry.
- ✓ No firm is able to earn an abnormal profit (that is, a profit in excess of the 'normal' one). It can only earn 'normal profit' which forms a part of its costs and is incorporated in its LRAC curve. This happens because abnormal profit earned by existing firms attracts new firms. And as they enter the industry, supply increases, price comes down and abnormal profit is wiped out.

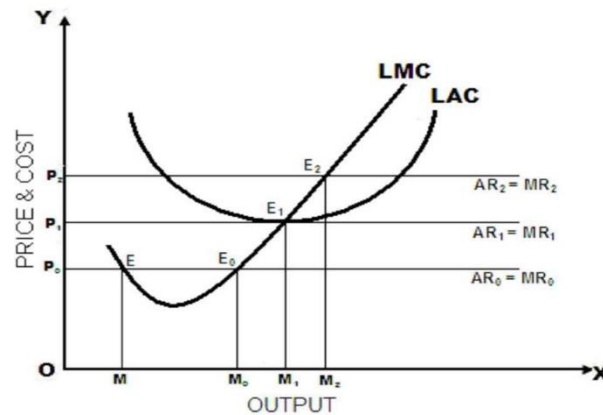
At this stage, let us specifically note that two conditions have to be satisfied for the firm to be in state of long run equilibrium.

- ✓ MC curve must intersect MR curve from below

- ✓  $AR \geq AC$ , so that the firm does not incur a loss and close down. In practice, however, on account of free entry and exit of firms,  $AR$  cannot exceed  $AC$  and is equal to the latter

Figure 5.5

### Long Run Equilibrium of a Competitive Firm



Determination of long run equilibrium of the firm under perfect competition is explained in Figure 5.5 in which output is measured along X-axis and costs are measured along Y-axis. The firm is a price taker. For it the price of its product is given and fixed. It can sell any quantity it can produce at the going price. Its  $AR$  curve runs parallel to X-axis and  $MR$  curve coincides with it.

For the purpose of explaining the determination of firm's equilibrium, we are considering three alternative prices given to the firm by the industry.

- ✓ Let us assume that the price in the market is below the optimum cost of the firm, say,  $OP_0$  from which we get corresponding average revenue ( $AR_0$ ) and marginal revenue ( $MR_0$ ) curves. Now  $MR_0$  curve cuts  $LMC$  curve at two points,  $E$  and  $E_0$ , but none of these is a long term equilibrium position of the firm. At point  $E$ ,  $LMC$  curve cuts  $MR_0$  curve from above. At  $E_0$ ,  $LMC$  curve cuts  $MR_0$  curve from below, but the second condition of equilibrium is not satisfied.  $AR_0 < LAC$  and the firm incurs a loss.
- ✓ Similarly, if the price of the firm's product is more than the optimum cost (least possible average cost) of the firm, the firm cannot be in stable equilibrium (even though both conditions of equilibrium are satisfied). Thus, let the price be  $OP_2$  with average revenue curve ( $AR_2$ ) and marginal revenue curve ( $MR_2$ ).  $LMC$  curve is intersecting  $MR_2$  curve from below at point  $E_2$  and  $AR_2 > LAC$ . But the firm is not



allowed to enjoy the abnormal profit. New firm enters the industry, supply increases and price falls till no firm can earn abnormal profit.

- ✓ Long run stable equilibrium of the firm is attained at a point where when price of the product is equal to its optimum cost of production. In Figure 5.5, this equilibrium price is OP1. In this case, marginal revenue curve (MR1) cuts LMC curve from below at lowest point of LAC (E1). At the same time, AR1 is equal to LAC, so that the firm does not incur a loss or earn an abnormal profit. At this stage, there is no incentive for existing firms to leave the industry or new ones to join it. The corresponding equilibrium output is OM1.

In conclusion, we may also note that in long run equilibrium, the firm produces an 'optimum' output at the least possible average cost. It is this position where the firm is operating under 'constant returns' to scale. Consequently, its  $MC = AC$ . At the same time,  $MC = MR$  and  $AR$

$= AC$ , so that we get  $AC = AR = MC = MR$ .

**Equilibrium of Industry under Perfect Competition**

An industry comprises all the firms which are producing goods which the buyers consider substitutes of each other. As such the determination of price of such a product is the result of interaction between total demand for the output of all the firms taken together and their supply.

On the demand side, the important fact to be noted is that a change in its supply affects the price of the product also. The industry is not a price taker. Though the contribution of an individual firm in total supply is so insignificant that it cannot make any noticeable difference to the price of the product, this is not so with the industry. The change in supply made by the firms taken together alters the aggregate supply to such an extent that it cannot sell more without lowering the price. This results in a downward sloping demand curve for the industry.

The fact of a negatively sloped demand curve for the industry can also be understood as follows. A firm can sell more of its output by attracting customers from its competing firms. In the process, the total sales of the industry need not increase. But an industry can sell more when the existing buyers buy more of its product and/or new buyers enter the market and buy its product. Now it follows that existing buyers are already equating their marginal utility with the price. They would buy more only if price falls. Similarly, for the new buyers, the existing price is higher than the marginal utility of the product. And, therefore, they would also buy more of the good only if the price is reduced. Accordingly, the demand curve

for the product of the firm must have a negative slope indicating that more of the product can be sold only by reducing its price.

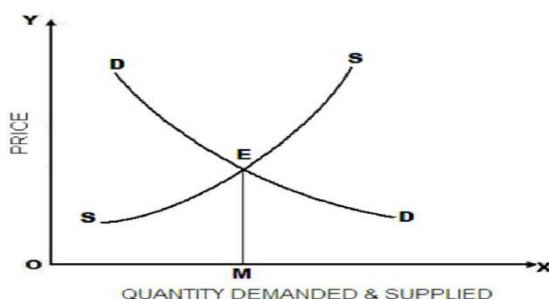
The exact location and slope of the demand curve varies from product to product and also for the same product from one time interval to the other. There can also be several reasons on account of which its demand curve may shift in its slope and location. However, there is no theoretical basis for predicting these changes. Therefore, even while recognising that demand curve for a product can and often does shift over time, the economists assume that it retains its position when we move from short term to long term. In other words, demand curve for the industry is always drawn with a negative slope without specifically providing for a change in either its exact slope or its exact location.

#### Short Run Equilibrium of a Competitive Industry

We have noted above that when an industry changes the quantity of its supply, there is a corresponding change in the price of its product also. It follows, therefore, that when it is in equilibrium, there is no tendency on its part to change the quantity of its output. We also know that the price of the industry's product is determined by intersection of its demand and supply curves. Having seen the nature of industry's demand curve, we may look into the nature of its supply curve which is obviously the summation of individual supply curves of the firms constituting it. That is to say, we get the industry's supply curve by adding the quantities which its firms are ready to sell at alternative prices. Since the supply curve of a firm, in the short run, is that upward sloping portion of its marginal cost curve which lies above its average variable cost curve, therefore, the supply curve of the industry also is upward sloping.

Figure 5.6

#### Short Run Equilibrium of a Competitive Industry



In figure 5.6 DD is demand curve and SS is supply curve. The intersection of both curves at E is the equilibrium of a competitive industry.

Short term equilibrium of the industry, which is determined by the intersection of its demand and supply curves, is illustrated in Figure 5.6, in which quantities demanded and

supplied are measured along X-axis and price per unit is measured along Y-axis. While the demand curve is downward sloping, the supply curve has a positive slope. In Figure 5.6, short term demand and supply curves of the industry intersect at point E. The equilibrium price and output of the industry are, therefore, EM And OM respectively. It is noteworthy that in case the industry happens to be in a non-equilibrium position, it automatically gets adjusted to its equilibrium position This is because, in such a case, there is either an excess of supply or an excess of demand at the existing price. In case of excess supply, the firms are left with unsold stocks which they try to dispose off by reducing price. And in case of excess demand, some customers are not able to buy the quantities they wanted to. They, therefore, bid up price in competition with each other.

#### Long Run Equilibrium of a Competitive Industry

The slope of the demand curve of industry remains negative even in the long run, implying that it can sell more of the product only by reducing the price and vice versa.

However, the long run supply curve of the industry cannot be derived by horizontal summation of the supply curves of the individual firms. The reason is that in the long run, existing firms can leave the industry and new ones can join it. Moreover, it is possible that due to various reasons, the industry may suffer from some internal/ external diseconomies or enjoy some economies. These factors can shift the position of the long term supply curve of the industry. Another fact which complicates the derivation of long run supply curve of the industry is that while in the short run, individual firms may incur losses or enjoy abnormal profit, in the long run, these possibilities tend to be wiped out. When the industry is in equilibrium, its individual firms are also simultaneously in such equilibrium that they neither make an abnormal profit nor incur a loss.

Thus, long run supply curve of the industry is derived by taking into account all these determining variables. It is not derived by adding those portions of the MC curves of the individual firms which lie above the AC curves of the firms. Instead it is the locus of the pairs of those points which represent quantities of its output and the least average cost at which its firms can produce it.

Economists believe that the factors at work in the long run may result in one of the three situations, namely, that of diminishing, constant, and increasing returns, indicating the shift in the average cost of its firms.

### 1.3 Monopoly

The term monopoly means a single seller. In economics, this term refers to a firm the product of which has no close substitute in the market. It is, in that sense, a single firm industry.

Moreover, irrespective of the profit income of the existing producer firm, new firms cannot enter the industry. Hurdles to their entry may be on account of various reasons. There may be legal barriers, or the producer may own a technology or a naturally occurring substance which others cannot avail of. It is also possible that the size of the market may be too small and no new firm may find it economically worthwhile to enter it.

In the absence of a substitute product, the monopolist is free to fix a price of his choice. He can refuse to sell his product for a price below the one decided by him. However, he cannot determine the demand for his product. He cannot force the buyers to buy his product at a price of his choice. A buyer will buy it only if its price does not exceed its marginal utility to him.

Therefore, if the monopolist wants to increase his sales, he has to reduce the price of his product so as to induce

- ✓ existing buyers to buy more
- ✓ new buyers to enter the market

Therefore, the demand conditions for his product are not the ones which are associated with a firm under competitive conditions. Instead, the demand conditions faced by him are similar to the ones which are faced by the industry as a whole. In other words, a monopoly firm faces a negatively sloped demand curve for his product. In the long run, the demand curve can shift both in its slope and location. However, there is no theoretical basis for determining the direction and extent of this shift.

As regards his cost of production, it may be assumed that a monopoly firm faces a given technology. Moreover, the monopolist faces conditions similar to those faced by a single firm under competitive conditions. He is not the sole buyer of the inputs used by his firm, but only one in the entire market. He has no control over the prices of the inputs used by him.

We have seen earlier that when a firm aims at maximising its profit, it attains its equilibrium when

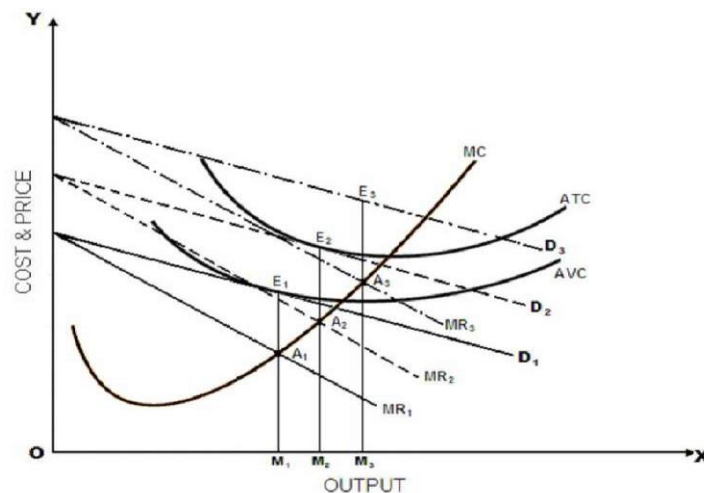
- ✓ its MC curve cuts its MR curve from below
- ✓ its  $AR > AC$

### Short Run Equilibrium of a Monopolist

In the short run, by definition, the monopolist firm cannot vary all its factors of production. Its short run cost curves are similar to the ones faced by a firm operating in the short run and under perfect competition. It is also noteworthy that, in the short run, the monopolist may incur a loss but it will shut down the plant only if the loss exceeds its fixed costs. On the other hand, if the demand for its product is quite strong, it may make an extra profit.

Figure 5.7

### Short Run Equilibrium of a Monopolist



Determination of short run equilibrium of a monopoly is depicted in Figure 5.7 with quantity of output measured along X-axis. Correspondingly, price and cost of production are measured along Y-axis. We have drawn three cost curves of the monopoly, namely, average variable cost curve, average total cost curve and marginal cost curve. Similarly, three alternative demand curves have been drawn to explain alternative possible positions of equilibrium.

- ✓ Demand curve labeled D1 is tangent to AVC curve at point E1. Its corresponding marginal cost curve MC intersects MR1 curve from below at point A1. Thus, we note that while the first condition of equilibrium of the firm is satisfied, the monopolist is not able to recover his full cost of production. However, the loss which is equal to fixed costs cannot be reduced by closing down the plant. In this situation, therefore, the monopolist decides to produce OM1 quantity of output, sell it at price E1M1 and suffer a loss equal to fixed costs. Note that there would be no production if the demand curve lies to the left of its position of D1. In that case the monopolist would

have added to his losses by operating his plant. Consequently, his best option would have been to close down the plant and minimize the loss to fixed costs.

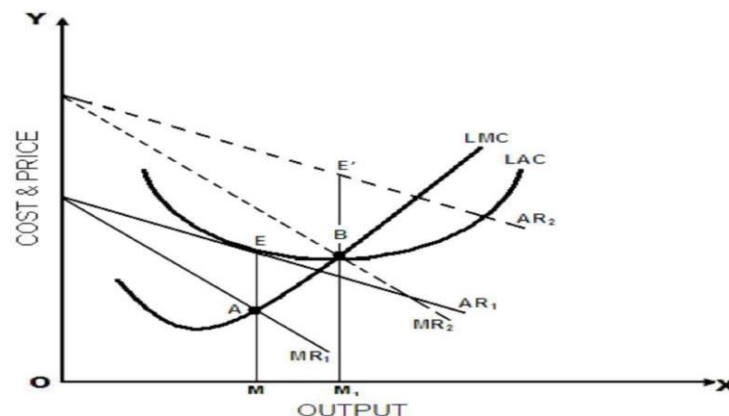
- ✓ If the demand curve lies to the right of D1, the monopolist is able to recover a part of his fixed cost also. He is able to recover his full cost of production if the demand curve happens to be tangent to ATC curve (such as D2). With D2 as the demand curve, equilibrium position of the monopolist is given by the intersection of MC curve with MR2 curve at A2 which corresponds to the point of tangency (E2) of D2 with ATC curve. In this case not only MC curve cuts MR2 curve from below but, at the same time,  $AR = ATC$ . The monopolist makes a normal profit by producing OM2 and selling it at price E2M2.
- ✓ The monopolist may earn an abnormal profit if the demand curve lies further to the right of D2 (such as D3). As before, the equilibrium position of the monopolist is determined with reference to the point of intersection between MC curve and MR3 curve at A3. The monopolist decides to produce OM3 and is able to sell it at price E3M3.

#### Long Run Equilibrium of a Monopolist

In the long run, by definition, the monopolist can vary all the inputs. Therefore, the determination of equilibrium of the firm can be analyzed with the help of only two cost curves, namely, AC and MC. Moreover, the monopolist would not stay in the market if he is to operate at a loss. By implication, therefore, the demand curve must be tangent to the AC curve or must lie to the right and intersect it twice.

Figure 5.8

#### Long Run Equilibrium of a Monopolist



In Figure 5.8, long term AC and MC curves of the monopolist are drawn U-shaped. The reasons for their being U-shaped have been discussed earlier. As before, equilibrium

the firm is that its MC curve should cut MR curve from below and its AR should be greater than or equal to AC. In Figure 5.8, we depict two alternative cases of the determination of equilibrium of the monopolist, namely, (i) with normal profit, and (ii) with abnormal profit. Remember that the monopolist will not operate in the long run if there is a loss.

In the first case, demand curve (AR) of the monopolist is AR1 and it is tangent to AC or LAC curve at point E. It should be noted that if demand curve lies to the left of AC curve, the monopoly is not able to recover its AC at any output and, therefore, it closes down and leaves the market. However, when AR curve is tangent to AC curve, the monopoly is able to recover its average cost (including normal profit) and is; therefore, ready to stay in the market and produce. Further, it should be noted that, by the very nature of relationship between MR and AR on the one hand and between MC and AC on the other, (i) the perpendicular drawn from point E to X-axis, (ii) the MC curve and (iii) MR curve are concurrent (at point A). As a result, all the conditions of equilibrium of monopoly are satisfied. Thus, at point A, MC curve of the firm cuts MR curve from below. At the same time, AR is equal to AC at point E. Accordingly; the monopoly produces OM and sells it a price EM per unit which covers its average cost including normal profit.

In the second case, the monopolist is able to make an abnormal profit. Its marginal revenue curve is MR2 which cuts its MC curve from below at point B. The corresponding height of its average revenue curve (AR2) is E'M1. Accordingly, the monopolist produces OM1 and is able to sell it at E'M1 per unit with an extra profit of E'B per unit. Moreover, this extra profit is not competed away because there is no substitute good in the market and no new firm can enter the market and produce it.

#### Discriminating Monopoly

Since a monopolist can fix the price of his product, it is possible that he may find it profitable not to charge a uniform price for his entire output but sell it at varying prices. The term used to denote this phenomenon is 'price discrimination' and the monopoly practicing it known as 'discriminating monopoly'. Thus, price discrimination is the absence of a policy of uniform price for the entire output. Instead, the monopolist sells portions of it at two or more prices. And this happens even when the product is homogeneous and one unit of it cannot be distinguished from the other. Professor Pigou mentions three types of price discrimination.

- ✓ The monopolist may charge a separate price for each unit sold by him. This is known as the price discrimination of first degree.

- ✓ The monopolist may sell his output in 'batches' or 'lots', charging a separate price for each batch or lot. This is known as price discrimination of second degree.



- ✓ The monopolist may split up the market for his product on the basis of the buyers, He may divide buyers into two or more categories and charge from each category a different price. This is known as price discrimination of third degree.

#### Reasons for Price Discrimination

There are three main reasons for price discrimination viz.

- ✓ Monopoly awareness of consumer ignorance for the cost of product
- ✓ There are two different markets
- ✓ Charge of discriminating prices for the same product or services from the different customers

The monopolist is aware of consumer ignorance for the cost of product due to lack of knowledge and communication of proper information. In rendering professional services or personal services discriminating price can be charged by a monopolist from different customers. A doctor specialist having monopoly in his professional specialization can charge higher fee from rich and lesser fee from poor clients. Such discrimination is possible when the service rendered or commodities cannot be resold.

Price discrimination may be practiced under the circumstances when cost difference might exist due to distance between one market or another, lower price in poorer market and higher prices in sophisticated market could be frontiers; cheaper commodity in one market may not be resold at dearer markets because of excessive cost of transportation. charged. Such price discrimination occurs when firm's different markets are separated by distance or by national frontiers; cheaper commodity in one market may not be resold at dearer markets because of excessive cost of transportation.

#### Features of Monopoly

The following are the main characteristics of a pure monopoly market:

- ✓ There exists only one seller but there are many buyers.
- ✓ The monopoly firm is the industry.
- ✓ There are many entry barriers such as natural, economic, technological or legal, which do not allow competitors to enter the market. The monopolist has, therefore, complete hold over the market supply and price determination.
- ✓ A monopoly firm is a "price-maker." In a monopoly market, the price is solely determined at the discretion of the monopolist, since he has control over the market supply.

- ✓ There are no closely competitive substitutes for the product of the monopolist. So the buyers have no alternative or choice. They have to either buy the product from the monopolist or go without it.
- ✓ Monopoly is a complete negation of competition.
- ✓ Since a monopolist has a complete control over the market supply in the absence of a close or remote substitute for his product, he can fix the price as well as quantity of output to be sold in the market. Though a monopolist is a price-maker, he has no unlimited power to charge a high price for his product in the market. This is because, he cannot disregard demand situation in the market. If buyers refuse to buy at a very high price, he has to keep a lower price. He will produce that level of output which maximises the profits and charge only that price at which he is in a position to dispose of his entire output. Thus, the monopolist sets price for his product in relation to the demand position, and not just fix any price he likes.

#### Types of Monopoly

The following are the important types of monopoly:

##### i) Pure Monopoly and Imperfect Monopoly

Pure monopoly means a single firm which controls the supply of a commodity which has no substitutes, not even a remote one. It possesses absolute monopoly power. Such a monopoly is very rare. Imperfect monopoly means a limited degree of monopoly. It refers to a single firm which produces a commodity having no close substitutes. The degree of monopoly is less than perfect in this case and it relates to the availability of a close substitute. In practice, there are many cases of such imperfect monopoly. Pure monopoly is a complete negation of competition. Imperfect monopoly, however, does not totally rule out the possibility of competition. It implies a threat of competition from the rivals producing remote substitutes. Hence, imperfect monopoly lacks absolute monopoly power in deciding price and output policy. Pure monopoly is referred to as absolute monopoly, while imperfect monopoly is referred to as limited or relative monopoly.

##### ii) Legal, Natural, Technological and Joint Monopolies

On the basis of the sources of deriving monopoly power, monopolies may be classified as: (i) legal, (ii) natural, (iii) technological, and (iv) joint. Legal monopolies emerge on account of legal provisions like patents, trademarks, copyrights, etc. The law forbids the potential competitors to imitate the design and form of products registered under the given brand names, patents or trademarks. Natural advantages like good location, old-age establishment, involvement of huge investment, business reputation, etc., confer natural

monopolies on many firms. Technological expertise, economies of large scale and efficiency of superior capital use and the process of mechanisation, etc., confer technological monopolies to big firms. Through business combinations like trusts, cartels, syndicates, etc., some firms may unite in a group and acquire joint monopolies in the market.

**iii) Simple Monopoly and Discriminating Monopoly**

A simple monopoly firm charges a uniform price for its product to all the buyers. A discriminating monopoly firm charges different prices for the same product to different buyers. A simple monopoly operates in a single market. A discriminating monopoly operates in more than one market.

**iv) Private Monopoly and Public or Social Monopoly**

Considering the nature of ownership, monopolies may be grouped into: (i) private monopolies, and (ii) public or social monopolies. When an individual or a private body controls a monopoly firm, it is regarded as a private monopoly. When production is solely owned, controlled and operated by the state, it is regarded as a social or public monopoly. Public monopolies are confined to nationalised industries.

## **1.4 Monopolistic Competition**

At the end of the lesson, you will be able to:

- ✓ Understand the characteristics of the monopolistic competition
- ✓ Understand the concept of product differentiation and its significance under the monopolistic competition.
- ✓ Analyze the equilibrium of a firm under the monopolistic competition.

The types of market under which we discussed the determination of equilibrium of a firm/industry in the foregoing portions do not exist in reality. They are all hypothetical and only help us in analyzing the real markets in a logical and systematic manner. The case of a monopolistic competition is one such market which we shall discuss below.

A monopolistic competition is defined as that market structure in which each seller produces a 'differentiated product'. The concept of product differentiation means that the product marketed by one seller can be distinguished from the products marketed by other sellers in some form or other. Some of the important methods of product differentiation include: trademarks, brand names size packing or color etc. of the item and technical specifications etc.

Thus, in this market structure, each seller is a monopolist of his differentiated product. The buyers can get it only from him and from none else. At the same time, however, a

products offered by different sellers are close substitutes of each other. The buyers are always comparing the prices of their products together with the perceived 'quality' of each. In other words, there is also an intense competition between suppliers for a share in the market. For this reason, it is a market structure in which there is a competition between a group of firms while each firm is a monopolist of its own product. It is, therefore, termed as monopolistic competition.

However, defining a monopolistic competition in this manner, though very realistic, poses certain problems of its own.

- ✓ Since the products supplied by the competing firms are not homogeneous, therefore, we cannot define the concept of a 'market demand for the product' precisely, that is, it is not possible to determine the average revenue curve of the 'industry' as a whole.
- ✓ Not only that, it is very difficult to even define an industry in a precise manner for the reason that its constituent firms are not supplying the same product. At the most, we may think of a 'group' of firms selling close substitutes of each other.
- ✓ It is not possible to have a satisfactory definition of even a 'group'. This is because the 'product group' (such as scooters, or motor cycles) under consideration is itself in competition with other 'product groups'.

Given these limitations, let us mention some of the salient features of the monopolistic competition.

#### Monopolistic Competition

- ✓ The first feature of monopolistic competition, as mentioned above, is product differentiation. A buyer can get a specific type of the 'product' only from one final source (may be, through the dealers and sub dealers, etc.).
- ✓ Product differentiation necessitates incurring of selling expenses on the part of firms under market structure of monopolistic competition.
- ✓ Monopolistic competition is characterized by a large number of sellers. The demand and supply conditions of these sellers are inter-dependent. However, in spite of their large number, no individual seller becomes a price taker. He has the authority to demand a price of his choice, though he also considers the demand conditions for his product while exercising this authority. In other words, in spite of there being a large number of sellers, the demand curve for the product of an individual seller is downward sloping. Its demand is not perfectly elastic. It also has large number of buyers also.

- ✓ The fact that each firm produces a 'differentiated product' implies that it can distinguish it further by varying its 'quality'. An improvement in the 'quality' implies an increase in its average cost of production while deterioration in quality implies a reduction in average cost of production. Also an improvement in quality is expected to 'increase' the demand for the product so that, for each given quantity, the buyers are ready to pay a higher price.
- ✓ The firms under the monopolistic competition face a competitive market as regards the inputs used by them. They also have to operate within a given technological range. The result is that no firm is able to compete out its rival by producing a 'better quality' product at a lower average cost.
- ✓ It is assumed that each firm has an accurate knowledge of its demand and cost conditions. This feature implies that the firm is able to estimate the impact of any change in the quantity and/or quality of its product on both its cost of production and average revenue. This knowledge, therefore, enables the firm to maximize its expected profit income.
- ✓ Every existing firm can leave the 'group' of firms belonging to the 'product group' (sometimes inaccurately called the industry). Similarly, new firms can enter the group and produce close substitutes of the existing products in the group. This free entry and exit of firms ensures that, in the long run, no firm incurs a loss and no firm is able to earn abnormal profit.
- ✓ At the same time, every firm in monopolistic competition is assumed to pursue the goal of profit maximisation. Its aim is not to maximize sales proceeds, or an increase in the market share, etc.
- ✓ It is also assumed that in monopolistic competition all firms have identical cost and demand conditions. This simplifying assumption helps us in analyzing the determination of group equilibrium. It enables us to analyze the working of an individual firm and use it as the representative of the working of the entire group. In the absence of this assumption, we have to separately work out the determination of output, product quality, and price of each firm within the group.
- ✓ Product differentiation necessitates incurring of selling expenses on the part of firm under the monopolistic competition.

Since product differentiation and selling expenses form the foundation of monopolistic competition, let us explain them a little further.

## **Evaluation of Monopolistic Competition**

### **Merits**

- ✓ An important merit of monopolistic competition is that it is much closer to reality than several other models of market structure. Firstly, it incorporates the facts of product differentiation and selling costs. Secondly, it can be easily used for the analysis of duopoly and oligopoly.
- ✓ Under monopolistic competition, it is possible to see that even when each individual firm produces under conditions of increasing returns, not only the firm under consideration but the entire group of firms can be in equilibrium.
- ✓ Moreover, monopolistic competition is able to show that even when each individual firm is producing under increasing returns, it still earns only normal profit in the long run. The theory of monopolistic competition helps us in bringing in the concept of market share of an individual firm. This opens up the possibility of considering those situations in which a firm may be pursuing a goal other than profit maximisation.
- ✓ In monopolistic competition we are able to consider the interaction between several interdependent variables on the basis of which a firm takes its decisions.

### **Demerits**

- ✓ The biggest conceptual difficulty with monopolistic competition is the concept of a 'group' of firms. There is no standard theoretical foundation for deciding the boundaries of a group.
- ✓ Related with the concept of a group of firms, we face the difficulty of defining the meaning of a 'close substitute'. We are not told at what values of cross elasticity, two products become close substitutes of each other.
- ✓ The theory of monopolistic competition fails to take into account the fact that the demand by final consumers is largely influenced by the retail dealers because the consumers themselves are not fully aware of the technical qualities of the product.
- ✓ Similarly, the theory fails to fully account for the determination of equilibrium quantities and prices of goods like raw materials and other inputs. To a large extent, their demand is governed by a combination of the technical quality, price, and timely availability rather than by brand name, etc. Given the technical quality of an input, its demand is governed more by its price and availability than its brand name.

## **Comparison between Perfect Competition, Monopoly and Monopolistic Competition**

There are certain common and non-common features among different form of markets exists in a system. Some of the major points of distinction among these markets are presented

in the following table.

| Features                                       | Perfect Competition                | Monopoly                                                                                                                                                 | Monopolistic Competition                                                              |
|------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Number of selling firm                         | Large                              | Single                                                                                                                                                   | Varied but not too many                                                               |
| Number of buyers                               | Large                              | Large                                                                                                                                                    | Large                                                                                 |
| Size of the market for each firm               | Very small                         | Large                                                                                                                                                    | Small                                                                                 |
| Entry and exit condition                       | Free                               | No entry                                                                                                                                                 | Free                                                                                  |
| Degree of monopoly power                       | Zero (NIL)                         | Full                                                                                                                                                     | Limited                                                                               |
| Price Uniform and low                          | Very                               | High                                                                                                                                                     | Moderate                                                                              |
| Price policy of firm                           | Price taker                        | Price Maker                                                                                                                                              | Price Maker (some control over price depending on consumer brand loyalty)             |
| Market knowledge                               | Information                        | Complete                                                                                                                                                 | Incomplete                                                                            |
| Capacity Utilization                           | Optimum                            | Sub-optimum                                                                                                                                              | Sub-optimum                                                                           |
| Price Elasticity of Demand for individual firm | Perfectly elastic (Infinite)       | Less elastic                                                                                                                                             | High                                                                                  |
| AR and MR Curve                                | Equal                              | Different                                                                                                                                                | Different                                                                             |
| Selling Cost                                   | Nil                                | Small                                                                                                                                                    | Large                                                                                 |
| Equilibrium Conditions                         | $MR=MC$<br>$Slope(MC) < Slope(MC)$ | $MR=MC$ Slope $<$ Slope of MR                                                                                                                            | $MR=MC$ Slope (MC) $<$ Slope (MC)                                                     |
| Nature of decision variable                    | Only output                        | Both price and output are within his control but at one time decision can be taken only about one of them. It faces a trade off between price and output | Nature and extent of product differentiation and hence the level of selling expenses. |

### Duopoly

Duopoly is a special case of the theory of oligopoly in which there are only two sellers. Both the sellers are completely independent and no agreement exists between them. Even though they are independent, a change in the price and output of one will affect the other, and may set a chain of reactions. A seller may, however, assume that his rival is unaffected by what he does, in that case he takes only his own direct influence on the price.

If, on the other hand, each seller takes into account the effect of his policy on that of his rival and the reaction of the rival on himself again, then he considers both the direct and the indirect influences upon the price. Moreover, a rival seller's policy may remain unaltered

either to the amount offered for sale or to the price at which he offers his product. Thus the duopoly problem can be considered as either ignoring mutual dependence or recognising it.

#### Characteristics of Duopoly Market

The duopoly market have some characteristics which is alike characteristics of oligopoly market. So the characteristics of duopoly market are as follows:

- ✓ Presence of monopoly element- products are differentiated and each product enjoy some amount of customer loyalty as a result firm enjoy some monopoly power.
- ✓ Price rigidity exists in this type of market structure. It means price of product in this market does not change immediately with change in demand and supply in market.
- ✓ In this type of market structure either advertising is done to increase its sales volume or by improving quality of its product.
- ✓ There is interdependency among firms as no firm can ignore the action and reaction of its rival firm.
- ✓ The demand curve is indeterminate, any step taken by rival firm will effect firms product demand.
- ✓ There exists a conflict attitude among a firm as they have two types of attitude on one hand they want to have joint venture to increase their profit and on the other hand they want to earn profit individually. So these both attitude have conflict among themselves.

#### Monopolistic Competition

- ✓ Monopolistic Competition refers to a situation where there are many sellers of a differentiated product.
- ✓ There is competition which is not perfect, between many firms making very similar products which are close but not perfect substitutes.
- ✓ Monopolistic market exhibits characteristic of both perfect competition and monopoly.

#### Features of Monopolistic Competition

##### **i) A large number of sellers**

In a market with monopolistic competition, there are a large number of sellers who have a small share of the market.

##### **ii) Product differentiation**

In a monopolistic competition, all brands try to create product differentiation to add an element of monopoly over the competing products. This ensures that the product offered by the brand does not have a perfect substitute. Therefore, the manufacturer can raise the price of the product without having to worry about losing all its customers to other brands. However, in such a market, while all brands are not perfect substitutes, they are close substitutes for each other. Hence, the seller might lose at least some customers to his competitors.

##### **iii) Freedom of entry or exit**

Like in perfect competition, firms can enter and exit the market freely.

##### **iv) Non-price competition**

In a monopolistic competition, sellers compete on factors other than price. These factors include aggressive advertising, product development. better distribution, after sale services etc. Sellers don't cut the price of their products but incur high costs for the



promotion of their goods. If the firms indulge in price-wars, which is the possibility under a perfect competition, some firms might get thrown out of the market.

**v) Selling Cost**

Another feature of the monopolistic competition is that every firm tries to promote its product by different types of expenditures. Advertisement is the most important constituent of the selling cost which affects demand as well as cost of the product. The main purpose of the monopolist is to earn maximum profits; therefore, he adjusts this type of expenditure accordingly.

**vi) Lack of Perfect Knowledge**

The buyers and sellers do not have perfect knowledge of the market. There are innumerable products each being a close substitute of the other. The buyers do not know about all these products, their qualities and prices. Therefore, so many buyers purchase a product out of a few varieties which are offered for sale near the home. Sometimes a buyer knows about a particular commodity where it is available at low price. But he is unable to go there due to lack of time or he is too lethargic to go or he is unable to find proper conveyance. Likewise, the seller does not know the exact preference of buyers and is, therefore, unable to get advantage out of the situation.

**vii) More Elastic Demand**

Under monopolistic competition, demand

**viii) Less Mobility**

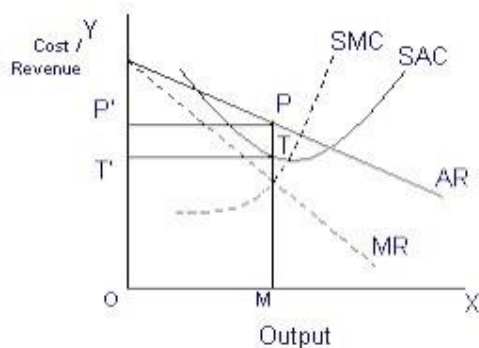
Under monopolistic competition both the factors of production as well as goods and services are not perfectly mobile curve is more elastic. In order to sell more, the firms must reduce its price.

**Price Determination Under Monopolistic Competition**

Under monopolistic competition, the firm will be in equilibrium position when marginal revenue is equal to marginal cost. So long the marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if the MR is less than MC, it is obvious he will reduce his output where the MR is equal to MC. In short run, therefore, the firm will be in equilibrium when it is maximising profits, i.e., when  $MR = MC$ .

**(a) Short Run Equilibrium: Short run equilibrium is illustrated in the following diagram:**

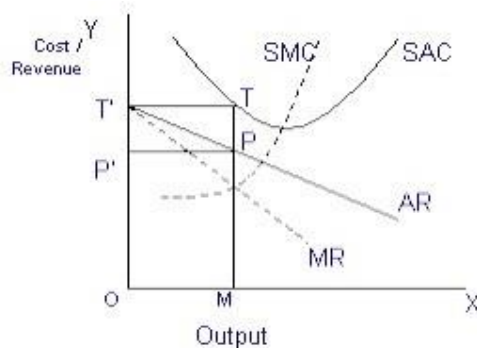
**Figure 5.9**  
**Monopolistic Competition Short Run Equilibrium**



**(a) Short Run Equilibrium With Profit**

In the above diagram, the short run average cost is MT and short run average revenue is MP. Since the AR curve is above the AC curve, therefore, the profit is shown as PT. PT is the supernormal profit per unit of output. Total supernormal profit will be measured by multiplying the supernormal profit to the total output, i.e.  $PT \times OM$  or  $PTT'P'$  as shown in figure (a). The firm may also incur losses in the short run if it is facing AR curve below the AC curve. In figure (b) MP is less than MT and TP is the loss per unit of output. Total loss will be measured by multiplying loss per unit of output to the total output, i.e.,  $TP \times OM$  or  $TPP'T'$ .

**(b) Short Run Equilibrium With Loss**

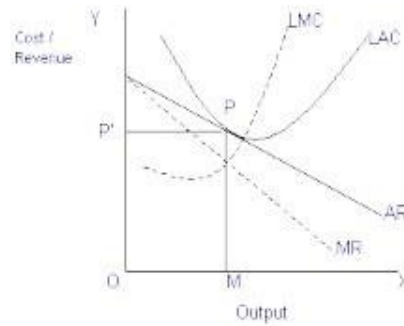


**(b) Long Run Equilibrium**

Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits. If in the short run firms are suffering from losses, then in the long run some firms will leave the industry so that remaining firms are earning normal profits.

The AR curve in the long run will be more elastic, since a large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is established when firms are earning only normal profits. Now profits are normal only when  $AR = AC$ . It is further illustrated in the following diagram:

**Figure 5.10**  
**Long Run Equilibrium in Monopolistic Competition**



## Oligopoly

It is a market situation comprising only a few firms in a given line of production. Their products may be standardised or differentiated. The price and output policy of oligopolistic firms are interdependent. The oligopoly model fits well into such industries as automobile, manufacturing of electrical appliances, etc., in our country.

Feller defines oligopoly as “competition among the few.” In an oligopolistic market, the firms may be producing either homogeneous products or may be having product differentiation in a given line of production.

The following are the distinguishing features of an oligopolistic market:

- i) **Few Sellers.** There are a few sellers supplying either homogeneous products or differentiated products.
- ii) **Homogeneous or Distinctive Product.** The oligopoly firm may be selling a homogeneous product. For example, steel/aluminium/copper. These can be a unique or distinctive product. For example, automobile-passenger cars.
- iii) **Blockaded Entry and Exit.** Firms in the oligopoly market face strong restrictions on entry or exit.
- iv) **Imperfect Dissemination of Information.** Detailed market information's relating to cost, price and product quality are usually not publicized.
- v) **Interdependence.** The firms have a high degree of interdependence in their business policies about fixing of price and determination output.
- vi) **High Cross Elasticities.** The firms under oligopoly have a high degree of cross elasticities of demand for their products, so there is always a fear of retaliation by rivals. Each firm consciously considers the possible action and reaction of its competitors while making any change in the price or output.
- vii) **Advertising.** Advertising and selling costs have strategic importance to oligopoly firms. “It is

only under oligopoly that advertising comes fully into its own.” Each firm tries to attract consumers towards its product by incurring excessive expenditure on advertisements.

**viii)Constant Struggle.** Competition is of unique type in an oligopolistic market. Here, competition consists of constant struggle of rivals against rivals.

**ix)Lack of Uniformity.** Lack of uniformity in the size of different oligopolies is also a remarkable characteristic.

**x)Lack of Certainty.** Lack of certainty is also an important feature. In oligopolistic competition, the firms have two conflicting motives: (i) to remain independent in decision-making, and (ii) to maximise profits, despite the fact that there is a high degree of independence among rivals in determining their course of business. To pursue these ends, they act and react to the price output variation of one another in an unending atmosphere of uncertainty.

**Xi)Price Rigidity.** In an oligopolistic market, each firm sticks to its own price. This is because, it is in constant fear of retaliation from rivals if it reduces the price. It, therefore, resorts to advertisement competition rather than price cut. Hence, there is price rigidity in an oligopolistic market.

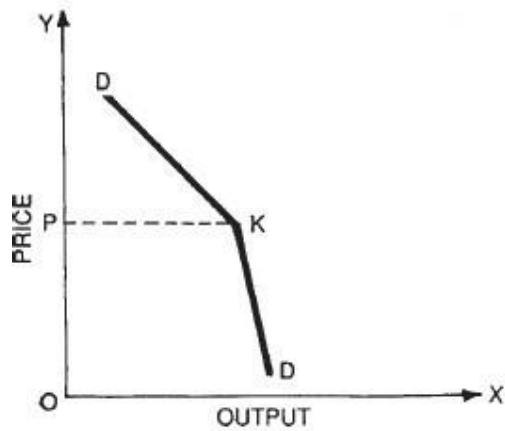
**xii)Kinked Demand Curve:** According to Paul Sweezy, firms in an oligopolistic market have a kinked demand curve for their products.

### **Kinked Demand Curve**

The kinked demand curve or the average revenue curve is made of two segments: (i) the relatively elastic demand curve and (ii) relatively inelastic demand curve as shown in Figure 5.11.

In Figure 5.11 corresponding to the given price  $OP$ , there is a kink at point  $K$  on the demand curve  $DD$ . Thus,  $DK$  is the elastic segment and  $KD$  is the inelastic segment of the curve. Here, the kink implies an abrupt change in the slope of the demand curve. Before the kink point, the demand curve is flatter, after the kink it becomes steeper.

Figure 5.11 Kinked Demand Curve



Above the kink at a given price, demand curve is more elastic and below the kink less

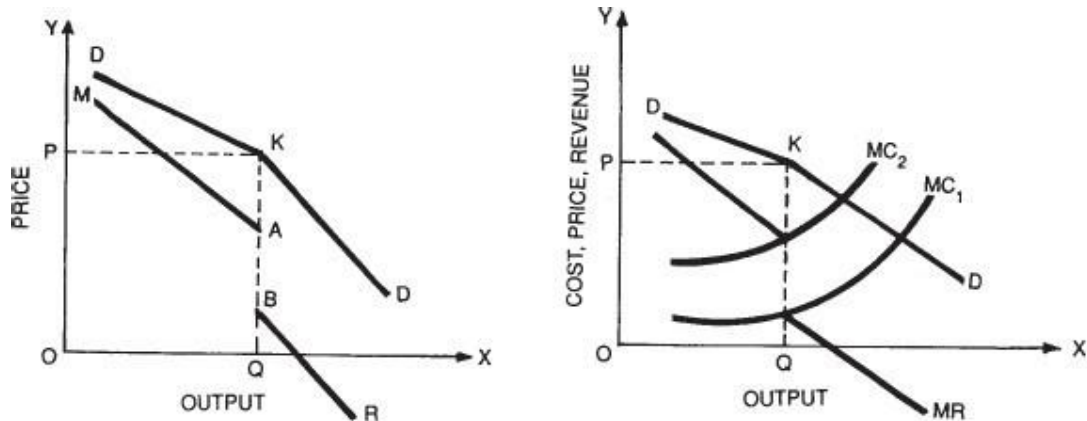
The kink leads to indeterminateness of the course of demand for the product of the

seller concerned. He thus, thinks it worthwhile to follow the prevailing price and not to make any change in it, because raising of price would contract sales as demand tends to be more elastic at this stage. There is also the fear of losing buyers to the rivals who would not raise their prices. On the other hand, a lowering of price would imply an immediate retaliation from the rivals on account of close interdependence of price output movement in the oligopolistic market. Hence, the seller will not expect much rise in his sale with price reduction.

### **Kinked Demand Curve Theory of Oligopoly Prices**

An important point involved in kinked demand curve is that it accounts for the kinked average revenue curve to the oligopoly firm. The kinked average revenue curve, in turn, implies a discontinuous marginal revenue curve  $MA-BR$  (as shown in Figure 5.12). Thus, the kinky marginal revenue curve explains the phenomenon of price rigidity in the theory of oligopoly prices.

Figure 5.12



#### **Discontinuous Marginal Revenue Curve**

Because of discontinuous marginal revenue curve ( $MR$ ), there is no change in equilibrium output, even though marginal cost changes hence, there is price rigidity.  $OP$  does not change.

#### **Oligopoly Price Rigidity**

It is observed that quite often in oligopolistic markets, once a general price level is reached whether by collusion or by price leadership or through some formal agreement, it tends to remain unchanged over a period of time. This price rigidity is on account of conditions of price interdependence explained by the kinky demand curve. Discontinuity

of the oligopoly firm's marginal revenue curve at the point of equilibrium price, the price output combination at the kink tends to remain unchanged even though marginal cost may change, as shown in Figure 5.12.

In the Fig 5.12, it can be seen that the firm's marginal cost curve can fluctuate between  $MC_1$  and  $MC_2$  within the range of the gap in the  $MR$  curve, without disturbing the equilibrium price and output position of the firm. Hence, the price remains at the same level  $OP$ , and output  $OQ$ , despite change in the marginal costs.

#### Pattern of Behaviour in Oligopolistic Markets

Haynes, Mote and Paul (1970) have enlisted the following important patterns of behaviour normally observed in oligopolistic markets:

##### i) Price Leadership

A traditional leader in the oligopoly market announces price changes from time to time which other competitors follow. The dominant firm may assume the price leadership. There is barometric price leadership when a smaller firm tries out a new price, which may or may not be recognised by the larger firms.

The price leadership of a firm depends on a number of factors, such as:

- ✓ Dominance in the Market. Dominating position in the market is achieved by the firm when it claims a substantial share of the market.
- ✓ Initiative. When the firm develops a product or a new sales territory.
- ✓ Aggressive Pricing. When the firm charges lower prices aggressively and captures a sizeable market.
- ✓ Reputation. When the firm acquires reputation for sound pricing policies and accurate decisions due to its longstanding in the business, the other firms may accept its leadership.

#### **ii) Price Wars**

Under cut-throat competition among the rivals, price wars may emerge in an oligopolistic market. Under price wars, firms tend to charge prices even below their variable cost. Price wars are never planned. They occur as a consequence of one firm cutting the prices and others following suit.

#### **iii) Price Cuts to Weed out Competition**

A financially strong firm may deliberately resort to price cuts to eliminate competitors from the market and secure its position.

#### **iv) Collusion**

Business syndicates or trusts may be formed by the competing firms and agree to charge a uniform price, thereby to eliminate price retaliation or price cut competition. Such business collusion implies conversion of an oligopoly into a monopoly. Business collusion is considered illegal under anti-trust laws, such as the Competition Act, 2002, in India.

#### **v) Secret Price Concessions**

Sometimes, oligopolists may offer secret price concessions for selected buyer instead of having an open price cut, which is likely to be retaliated by their rivals.

#### **vi) Non-Price Competition**

Owing to the danger of retaliation in price cut competition, the oligopolists may also resort to non-price competition by competing in sales promotion efforts, advertising, product improvement, etc. Here, too, the rivals do retaliate.

#### **Sources of Oligopoly**

The factors that give rise to oligopoly are broadly the same as those for monopoly. The main sources of oligopoly are described here briefly.

#### **i) Huge capital investment**



Some industries are by nature capital-intensive, e.g., manufacturing automobiles, aircraft, ships, TV sets, computers, mobile phones, refrigerators, steel and aluminium goods, etc. Such industries require huge initial investment. Therefore, only those firms which can make huge investment can enter these kinds of industries. In fact, a huge investment requirement works as a natural barrier to entry to the oligopolistic industries.

**ii) Economies of scale**

By virtue of huge investment and large scale production, the large units enjoy absolute cost advantage due to economies of scale in production, purchase of industrial inputs, market financing, and sales organization. This gives the existing firms a comparative advantage over new firms in price competition. This also works as a deterrent for the entry of new firms.

**iii) Patent rights**

In case of differentiated oligopoly, firms get their differentiated product patented which gives them an exclusive right to produce and market the patented commodity. This prevents other firms from producing the patented commodity. Therefore, unless new firms have something new to offer and can match the existing products in respect of quality and cost, they cannot enter the industry. This keeps the number of firms limited.

**iv) Control over certain raw materials**

Where a few firms acquire control over almost the entire supply of important inputs required to produce a certain commodity, new firms find it extremely difficult to enter the industry. For example, if a few firms acquire the right from the government to import certain raw materials, they control the entire input supply.

**v) Merger and takeover**

Merger of rival firms or takeover of rival firms by the bigger ones with a view to protecting their joint market share or to put an end to waste of competition is working, in modern times, as an important factor that gives rise to oligopolies and strengthens the oligopolistic tendency in modern industries. Mergers and takeovers have been one of the main features of recent trend in Indian industries.

Features of Oligopoly Market

**i) Few Sellers**

Under the Oligopoly market, the sellers are few, and the customers are many. Few firms dominating the market enjoy a considerable control over the price of the product.

## **ii) Interdependence**

It is one of the most important features of an Oligopoly market, wherein, the seller has to be cautious with respect to any action taken by the competing firms. Since there are few sellers in the market, if any firm makes a change in the price or promotional scheme, all other firms in the industry have to comply with it to remain in the competition. Thus, every firm remains alert to the actions of others and plan their counterattack beforehand to escape the turmoil. Hence, there is a complete interdependence among the sellers with respect to their price-output policies.

## **iii) Advertising**

Under Oligopoly market, every firm advertises their products on a frequent basis with the intention to reach more and more customers and increase their customer base. This advertising makes the competition intense. If any firm does a lot of advertisement while the other remained silent, then you will observe that his customers are going to the firm which is continuously promoting its product. Thus, in order to be in the race, each firm spends lots of money on advertisement activities.

## **iv) Competition**

It is genuine that with a few players in the market, there will be an intense competition among the sellers. Any move by one firm will have a considerable impact on its rivals. Thus, every seller keeps an eye over its rivals and be ready with the counterattack.

## **v) Entry and Exit Barriers**

The firms can easily exit the industry whenever they want, but has to face certain barriers to enter into it. These barriers could be Government license, Patent, large firm's economies of scale, high capital requirement, complex technology, etc. Also, sometimes the government regulations favour the existing large firms, thereby acting as a barrier for the new entrants.

## **vi) Lack of Uniformity**

There is a lack of uniformity among the firms in terms of their size, some are big, and some are small. Since there are less number of firms, any action taken by one firm has a considerable effect on the other. Thus, every firm must keep a close eye on its counterpart and plan the promotional activities accordingly.

