Unit 6

I. Choose the correct answer (each question carries 1 mark)

1. A market structure which produces heterogenous products is called:

    a) Monopoly
    b) Monopolistic competition
    c) Perfect competition
    d) None of the above

2. The change in TR due to the sale of an additional unit is called:

    a) Total revenue
    b) Average revenue
    c) Marginal revenue
    d) Revenue

3. When the price elasticity of demand is more than one, MR has a:

    a) Negative value
    b) Decreasing value
    c) Constant value
    d) Positive value

4. Profit:

    a) P x Q
    b) TR – TC
    c) TFC + TVC
    d) TR/Q

II. Fill in the blanks (each question carries 1 mark)

1. The monopoly firm's decision to sell a larger quantity is possibly only at ____Lower Price__________
2. Competitive behaviour and competitive market structure are in general ___inversely________ related
3. In monopoly market, the goods which are sold have no ___substitute_________
4. TR = __P x Q__________________
5. The revenue received by the firm per unit of commodity sold is called ___Average Revenue____________
6. With the zero-production cost when the total revenue of monopoly firm is maximum, the profit ______Maximum_________

III. Answer the following questions in a sentence / word (each question carries 1 mark)

1. What is monopoly?

A market structure in which there is a single seller is called monopoly.

2. Write the equation of a demand function.

$q = d(p)$

3. Give the meaning of monopolistic competition.

A market structure where the number of firms is large, there is free entry and exit of firms, but the goods produced by them are not homogeneous. Such a market structure is called monopolistic competition.

4. Give the meaning of oligopoly market.

If the market of a commodity consists of more than one seller but the number of sellers is few, the market structure is termed oligopoly

5. What is duopoly?

The special case of oligopoly where there are exactly two sellers is termed duopoly.

IV. Answer the following questions in 4 sentences (each question carries 2 marks)

1. Mention the requirements of a monopoly market structure.

We need

(i) That the market of the particular commodity is perfectly competitive from the demand side ie all the consumers are price takers; and
(ii) That the markets of the inputs used in the production of this commodity are perfectly competitive both from the supply and demand side.

2. State the meaning of average revenue and marginal revenue

The revenue received by the firm per unit of commodity sold is called the Average Revenue (AR). Mathematically, $AR = TR/q$

Change in TR due to the sale of an additional unit is termed Marginal Revenue (MR)

3. State the relationship between marginal revenue and price elasticity of demand.

It is enough to notice only one aspect– price elasticity of demand is more than 1 when the MR has a positive value, and becomes less than the unity when MR has a negative value

4. Write the meaning of monopolistic competition and give an example.

A market structure where the number of firms is large, there is free entry and exit of firms, but the goods produced by them are not homogeneous. Such a market structure is called monopolistic competition. Example, the automobile sector.

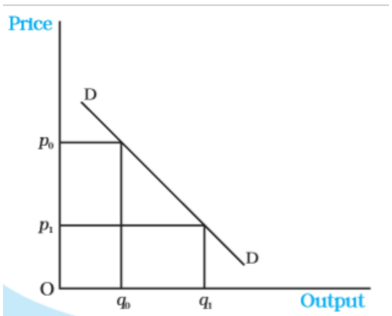
5. Write the features of a monopoly.

A monopoly market structure requires that there is a single producer of a particular commodity; no other commodity works as a substitute for this commodity.

For a monopoly firm, Average Revenue = Demand

V. Answer the following questions in 12 sentences. (each question carries 4 marks)

1. What is market demand curve? Draw a market demand curve for a monopoly firm.



If the market price is at the higher level p0, consumers are willing to purchase the lesser quantity q0. On the other hand, if the market price is at the lower level p1, consumers are willing to buy a higher quantity q1. That is, price in the market affects the quantity demanded by the consumers. This is also expressed by saying that the quantity purchased by the consumers is a decreasing function of the price.

For the monopoly firm, the above argument expresses itself from the reverse direction. The monopoly firm's decision to sell a larger quantity is possible only at a lower price. Conversely, if the monopoly firm brings a smaller quantity of the commodity into the market for sale it will be able to sell at a higher price. Thus, for the monopoly firm, the price depends on the quantity of the commodity sold. The same is also expressed by stating that price is a decreasing function of the quantity sold. Thus, for the monopoly firm, the market demand curve expresses the price that is available for different quantities supplied. This idea is reflected in the statement that the monopoly firm faces the market demand curve.

2. Calculate TR and MR from the following table.

Q	1	2	3	4	5	6	7	8	9	10
P	100	90	80	70	60	50	40	30	20	10

Q	P	TR	MR
1	100	100	100
2	90	180	80
3	80	240	60
4	70	280	40
5	60	300	20
6	50	300	0
7	40	280	-20
8	30	240	-40
9	20	180	-60
10	10	100	-80

3. Briefly explain the monopolistic competitive market.

A market structure where the number of firms is large, there is free entry and exit of firms, but the goods produced by them are not homogeneous. Such a market structure is called monopolistic competition.

This kind of a structure is more commonly visible. There is a very large number of biscuits producing firms, for example. But many of the biscuits being produced are associated with some brand name and are distinguishable from one another by these brand names and packaging and are slightly different in taste.

The consumer develops a taste for a particular brand of biscuit over time, or becomes loyal to a particular brand for some reason, and is, therefore, not immediately willing to substitute it for another biscuit.

However, if the price difference becomes large, the consumer would be willing to choose a biscuit of another brand. The price difference required for the consumer to change the brand consumed may vary. Therefore, if price of a brand is lowered, some consumers will shift to consuming that brand. Further, lowering of the price will lead to more consumers shifting to the brand with the lower price.

4. Show the relationship between average revenue and marginal revenue of a monopoly market with the help of diagrams.

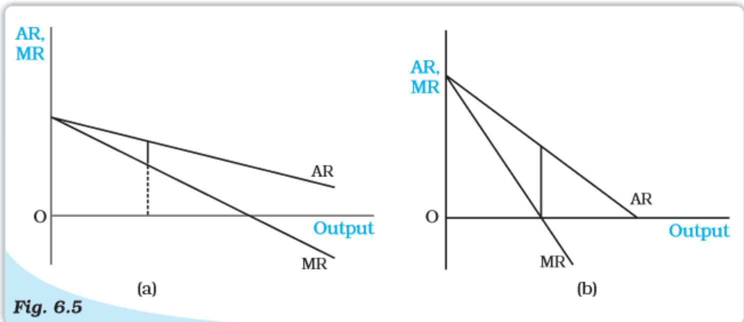
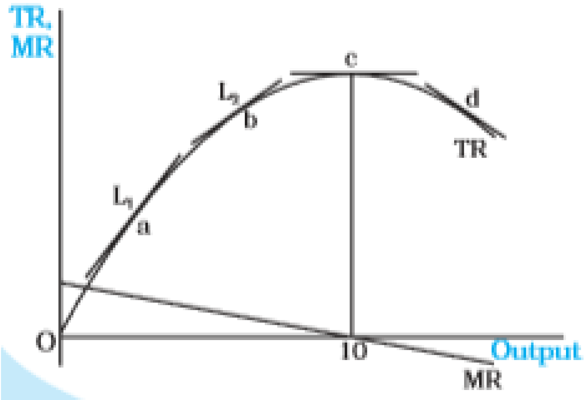


Fig. 6.5



The change in TR due to the sale of an additional unit is termed Marginal Revenue (MR). In the table, this is depicted in the last column. The values in every row of the MR column after the first equal the TR value in that row minus the TR value in the previous row.

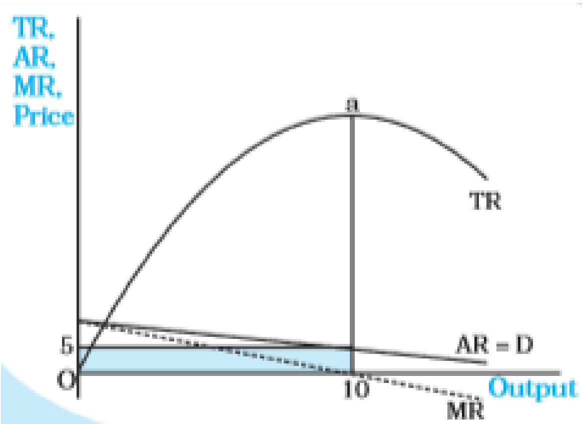
After the quantity reaches 10 units, MR has negative values. In the diagram, MR is depicted by the dotted line. The values of the MR curve are given by the slope of the TR curve. The slope of any smooth curve is defined as the slope of the tangent to the curve at that point.

At point 'a' on the TR curve, the value of MR is given by the slope of the line L_1, and at point 'b' by the line L_2. Both lines have positive slope, but the line L_2 is flatter than line L_1, ie its slope is lesser. The value of MR for the same level of quantity is also lesser. When 10 units of the commodity are sold, the tangent to the TR is horizontal, ie its slope is zero.

The value of the MR for the same quantity is zero. At point 'd' on the TR curve, where the tangent is negatively sloped, the MR takes a negative value. We can now conclude that when total revenue is rising, marginal revenue is positive, and when total revenue shows a fall, marginal revenue is negative

VI. Answer the following questions in 20 sentences (each question carries 6 marks)

1. Explain the short run equilibrium of a monopoly firm with the help of the simple case of zero cost.

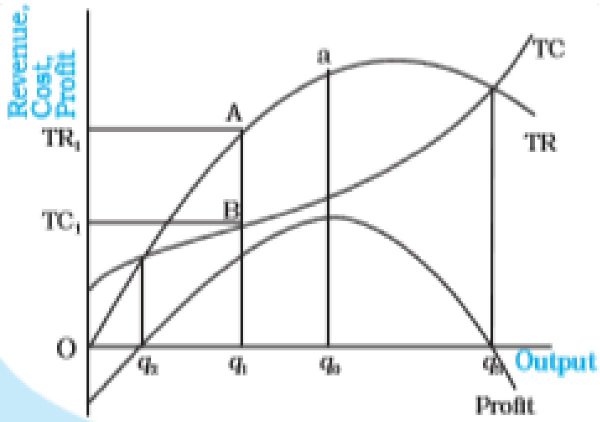


Suppose there exists a village situated sufficiently far away from other villages. In this village, there is exactly one well from which water is available. All residents are completely dependent for their water requirements on this well. The well is owned by one person who can prevent others from drawing water from it except through purchase of water. The person who purchases the water must draw the water out of the well. The well owner is thus a monopolist firm which bears zero cost in producing the good.

The profit received by the firm equals the revenue received by the firm minus the cost incurred, that is, Profit = TR – TC. Since in this case TC is zero, profit is maximum when TR is maximum. This, as we have seen earlier, occurs when output is of 10 units. This is also the level when MR equals zero. The amount of profit is given by the length of the vertical line segment from 'a' to the horizontal axis.

The price at which this output will be sold is the price that the consumers are willing to pay. This is given by the market demand curve D. At output level of 10 units, the price is Rs 5. Since the market demand curve is the AR curve for the monopolist firm, Rs 5 is the average revenue received by the firm. The total revenue is given by the product of AR and the quantity sold, ie Rs 5 × 10 units = Rs 50. This is depicted by the area of the shaded rectangle.

2. Explain the short run equilibrium of a monopolist firm, when the cost of production is positive and by using TR and TC curves with the help of a diagram.



In the figure, we can see that if quantity q1 is produced, the total revenue is TR_1 and total cost is TC_1. The difference, $TR_1 - TC_1$, is the profit received.

The same is depicted by the length of the line segment AB, i.e., the vertical distance between the TR and TC curves at q_1 level of output. It should be clear that this vertical distance changes for different levels of output.

When output level is less than q_2, the TC curve lies above the TR curve, i.e., TC is greater than TR, and therefore profit is negative and the firm makes losses The same situation exists for output levels greater than q_3. Hence, the firm can make positive profits only at output levels between q_2 and q_3, where TR curve lies above the TC curve.

The monopoly firm will choose that level of output which maximises its profit. This would be the level of output for which the vertical distance between the TR and TC is maximum and TR is above the TC, i.e., TR – TC is maximum.

This occurs at the level of output q_0. It should be noticed that the Profit curve has its maximum value at the level of output q_0.

So, the monopoly firm will charge the price corresponding to the quantity level q_0 on the demand curve.

3. Explain how the firms behave in oligopoly.

If the market of a commodity consists of more than one seller but the number of sellers is few, the market structure is termed oligopoly. The special case of oligopoly where there are exactly two sellers is termed duopoly. In analyzing this market structure, we assume that the product sold by the two firms is homogeneous and there is no substitute for the product, produced by any other firm.

Given that there are a few firms, the output decisions of any one firm would necessarily affect the market price and therefore the amount sold by the other firms as also their total revenues. It is, therefore, only to be expected that other firms would react to protect their profits. This reaction would be through taking fresh decisions about the quantity and price of their own output. There are various ways in which this can be theorized. We briefly explain two of them.

Firstly, duopoly firms may collude together and decide not to compete with each other and maximize total profits of the two firms together. In such a case the two firms would behave like a single monopoly firm that has two different factories producing the commodity.

Secondly, take the case of a duopoly where each of the two firms decides how much quantity to produce by maximizing its own profit if the other firm would not change the quantity that it is supplying.

Thirdly, some economists argue that oligopoly market structure makes the market price of the commodity rigid, i.e. the market price does not move freely in response to changes in demand. The reason for this lies in the way in which oligopoly firms react to a change in price initiated by any firm.

If one firm feels that a price increase would generate higher profits, and therefore increases the price at which it sells its output, other firms do not follow. The price increase would therefore lead to a huge fall in the quantity sold by the firm leading to a fall in its revenue and profit. It is therefore not rational for any firm to increase the price.

4. The market demand curve for a commodity and the total cost for a monopoly firm producing the commodity is given by the schedules below. Use the information to calculate the following:

Q	0	1	2	3	4	5	6	7	8
P	52	44	37	31	26	22	19	16	13

Q	0	1	2	3	4	5	6	7	8
Total Cost	10	60	90	100	102	105	109	115	125

a) The MR and MC schedules
b) The quantity for which the MR and MC are equal
c) The equilibrium quantity of output and equilibrium price of the commodity

d) The total revenue, total cost and total profit in equilibrium.

a)

Q	P	TC	TR	MR	MC
0	52	10	0	0	10
1	44	60	44	44	50
2	37	90	74	30	30
3	31	100	93	19	10
4	26	102	104	11	2
5	22	105	110	6	3
6	19	109	114	4	4
7	16	115	112	-2	6
8	13	125	104	-8	10

b) MR equals MC at the 6th unit of output.

c) At equilibrium, MR equals MC, and here MR equals MC at the 6th unit of output, where MC is upward sloping. Thus, the equilibrium price is Rs 19.

d) TR = Rs 114

TC = Rs 109

Total profit = TR – TC

= Rs 114 – 109

= Rs 5