



Q4: A monopoly firm has a total fixed cost of Rs 100 and has the following demand schedule:

Quantity	1	2	3	4	5	6	7	8	9	10
Marginal Revenue	100	90	80	70	60	50	40	30	20	10

Find the short run equilibrium quantity, price and total profit. What would be the equilibrium in the long run? In case the total cost is Rs 1000, describe the equilibrium in the short run and in the long run.

Ans:

Quantity	Price (P) (Rs)	TR= $P \times Q$ (Rs)
1	100	100
2	90	180
3	80	240
4	70	280
5	60	300
6	50	300
7	40	280
8	30	240
9	20	180
10	10	100

As the total cost of the monopolist firm is zero, the profit will be the maximum where TR is maximum. That is, at the 6th unit of output the firm will be maximising its profit and the short run equilibrium price will be Rs 50.

$$\text{Profit} = \text{TR} - \text{TC}$$

$$= 300 - 0$$

$$\text{Profit} = \text{Rs } 300$$

If the total cost is Rs 1000, then the equilibrium will be at a point where the difference between TR and TC is the maximum.

TR is the maximum at the 6th level of output.

$$\text{So profit} = 300 - 1000$$

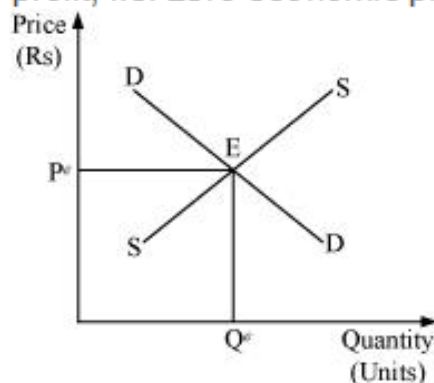
$$= -700$$

So, the firm is earning losses and not profit. As the monopolist firm is incurring losses in the short run, it will stop its production in the long run.

Q5. If the monopolist firm of Exercise 3, was a public sector firm.

The government set a rule for its manager to accept the government fixed price as given (i.e. to be a price taker and therefore behave as a firm in a perfectly competitive market). And the government decide to set the price so that demand and supply in the market are equal. What would be the equilibrium price, quantity and profit in this case?

**Ans :** If the government sets a rule for the public sector firm to accept the fixed price, then, the monopoly firm will have to behave like a perfectly competitive firm and will be a price taker. In this case, the price fixed ( $P^e$ ), as set by the government, will equate the demand and the supply, which will determine the equilibrium point 'E'. At the price  $P^e$ , the firm earns normal profit, i.e. zero economic profit.



Equilibrium price =  $P^e$  (fixed by the government)

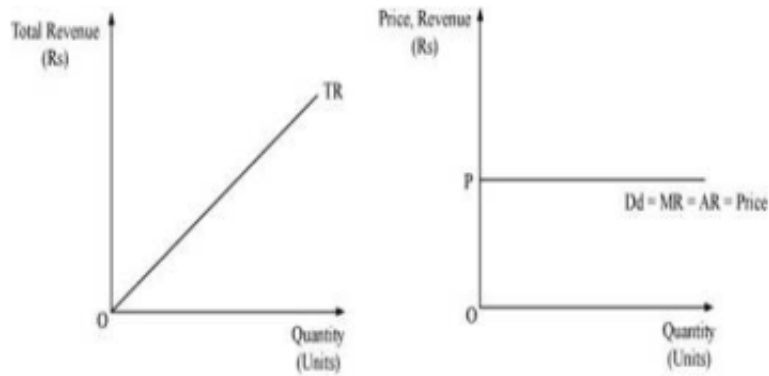
Equilibrium quantity =  $Q^e$

Profit = Normal profit.

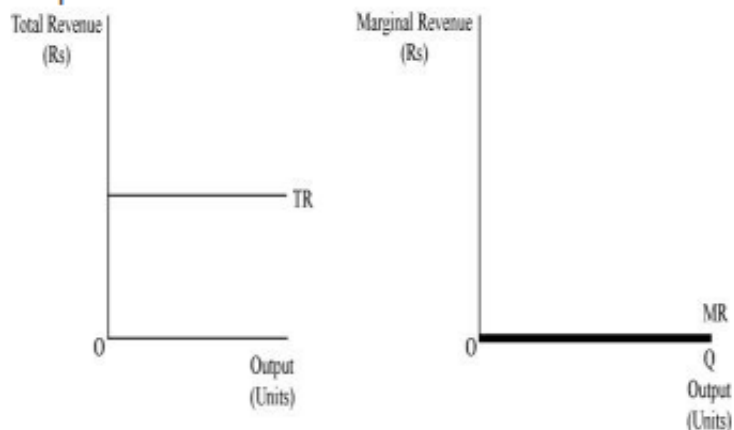
Q6. Comment on the shape of MR curve in case when TR curve is a (a) positively sloped straight line

(b) horizontal straight line

Ans:(i) Based on the relationship between MR and TR it can be said that when TR curve is a positively sloped straight line, then MR curve is a horizontal line. MR and demand curve are the same, and the price (AR) remains constant for different output levels. This happens under perfect competition.



(ii) When TR curve is a horizontal straight line, then MR is zero. Therefore, MR curve is also a horizontal straight line and coincides with the output-axis.



Q7. The market demand curve for a commodity and the total cost for a monopoly firm producing the commodity is given in the schedules below.

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

Quantity	0	1	2	3	4	5	6	7	8
Price	10	60	90	100	102	105	109	115	125

Use the information given to calculate the following:

- The MR and MC schedules
- The quantities for which MR and MC are equal
- The equilibrium quantity of output and the equilibrium price of the commodity
- The total revenue, total cost and total profit in the equilibrium

Ans:

(a)

Quantity (units)	Price / AR (Rs)	TR = $P \times Q$ (Rs)	MR = $TR_n - TR_{n-1}$	TC (Rs)	MC= $TC_n - TC_{n-1}$ (Rs)
0	52	0	—	10	—
1	44	44	44	60	50
2	37	74	30	90	40
3	31	93	19	100	10
4	26	104	11	102	2
5	22	110	6	105	3
6	19	114	4	109	4
7	16	112	-2	115	6
8	13	104	-8	125	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

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