

## **NON-COMPETITIVE MARKETS**

Question 1: What would be the shape of the demand curve so that the total revenue curve is  
a) a positively sloped straight line passing through the origin?  
(b) a horizontal line?

Question 2: 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
Price	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.

Question 3: 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?

Question 4: Comment on the shape of MR curve in case when TR curve is a

1. positively sloped straight line
2. horizontal straight line

Question 5: 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	3	26	22	19	16	13

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

Use the information given to calculate the following:

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

(d) The total revenue, total cost and total profit in the equilibrium

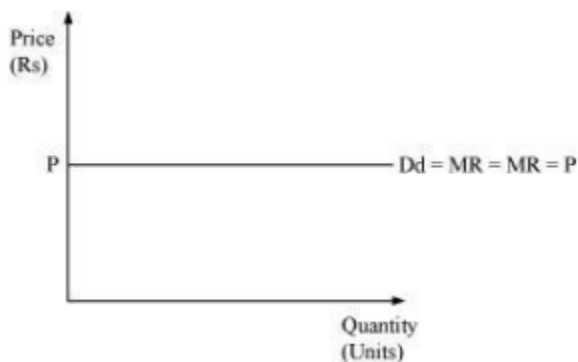
Question 6: Will the monopolist firm continue to produce in the short run if a loss is incurred at the best short run level of output?

Question 7: Explain why the demand curve facing a firm under monopolistic competition is negatively sloped.

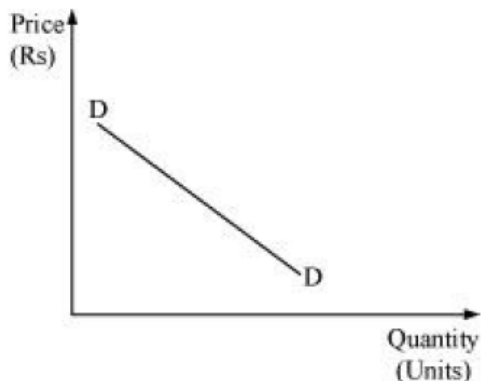
Question 8: What is the reason for the long run equilibrium of a firm in monopolistic competition to be associated with zero profit?

## ANSWERS

Answers 1: (a) If the total revenue curve is a positively sloped straight line passing through the origin, then the slope of the demand curve will be a horizontal line parallel to the x-axis.



(b) If the total revenue curve is a horizontal line, then the demand curve will be downward sloping.



Answer 2:

Quantity (Q)	Price (P) (Rs)	TR = P × Q (Rs)	TFC	TVC	TC	Total Profit = TR – TC
1	100	100	100	0	100	0

2	90	180	100	0	100	80
3	80	240	100	0	100	140
4	70	280	100	0	100	180
5	60	300	100	0	100	200
6	50	300	100	0	100	200
7	40	280	100	0	100	180
8	30	240	100	0	100	140
9	20	180	100	0	100	80
10	10	100	100	0	100	0

Let the total variable cost of the monopolist firm is zero. Now, 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.

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

$$= 300 - 100$$

$$\text{Profit} = \text{Rs } 200$$

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.

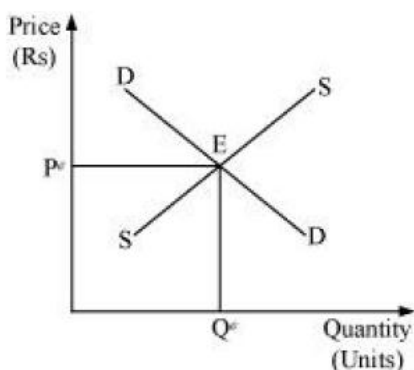
TR is the maximum at the 6th level of output.

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

$$= -700$$

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.

Answer 3: 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.

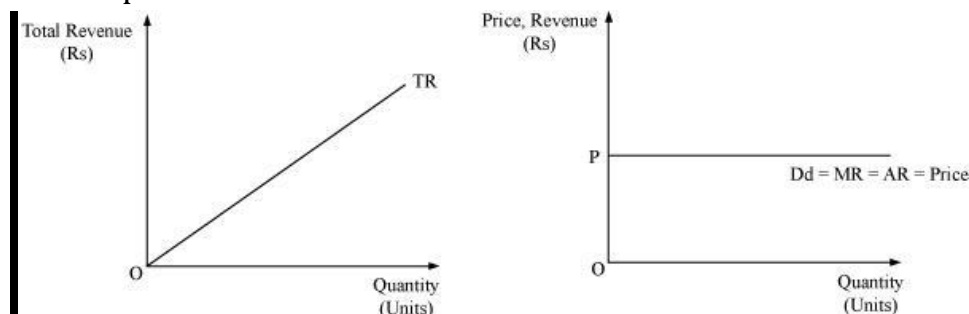


Equilibrium price =  $P_e$  (fixed by the government)

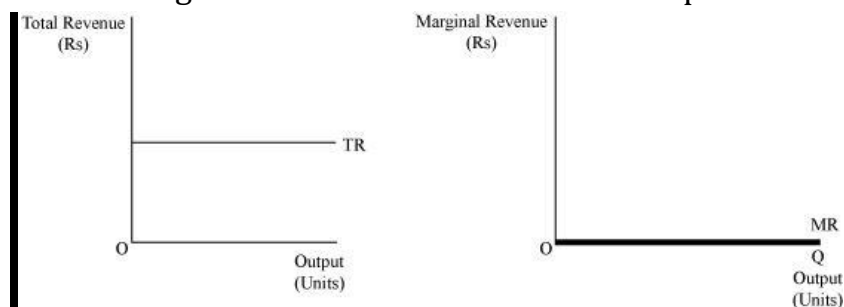
Equilibrium quantity =  $Q_e$

Profit = Normal profit

Answer 4: (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.



Answer 5: (a)

Quantity (units)	Price/AR (Rs )	TR = P × Q (Rs )	MR = TR <sub>n</sub> – TR <sub>n</sub> – 1 (Rs )	TC (Rs )	MC = TC <sub>n</sub> – TC <sub>n</sub> – 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.

$$(d) TR = \text{Rs } 114$$

$$TC = \text{Rs } 109$$

$$\text{Total profit} = TR - TC$$

$$= \text{Rs } 114 - 109$$

$$= \text{Rs } 5$$

Answer 6: A monopolist firm can earn losses in the short run if the price is less than the minimum of AC. But if the price falls below the minimum of AVC, then the monopolist will stop production. The firm will continue to produce when the price is in between the minimum of AVC and the minimum of AC.

Answer 7: A monopolistic firm has differentiated products; thus, it has to lower its price in order to increase its sales. Further, the products of different monopolistic firms are close substitutes to each other. Hence, the demand for all the products is elastic. For this reason, the demand curve is negatively sloped.

Answer 8: The long run time horizon is featured by the free entry and exit of firms. If the firms in the short run are earning abnormal or super normal profits, then, new firms will be attracted to enter the market. Due to the new entrants, the market supply will increase. It leads to the reduction in the price that ultimately falls sufficiently to become equal to the minimum of average cost. When the market price is equal to the minimum of AC, it implies that all the firms earn normal profit or zero economic profit.

On the contrary, if in the short run the firms are earning abnormal losses, then the existing firms will stop production and exit the market. This will lead to a decrease in the market supply, which will ultimately raise the price. The price will continue to rise until it becomes equal to the minimum of AC. 'Price = AC' implies that in the long run all the firms will earn zero economic profit.

Hence, when the price is equal to the minimum of AC, neither any existing firm will exit nor any new firm will enter the market.