Chapter Name

Producer's Equilibrium under perfect Competition.

Producer Equilibrium :- It is a situation where producer maximizes his profit out of given resources.

Perfect Competition :- Perfect competition is that type of market in which they are very large no. of buyers and selling homogenous product at same price.

Explain how a firm achieves its equilibrium when it sells more quantity at same price use MR-MC Approach

Sol: Producer equilibrium :- It is a situation where producer maximizes his profit out of given resources

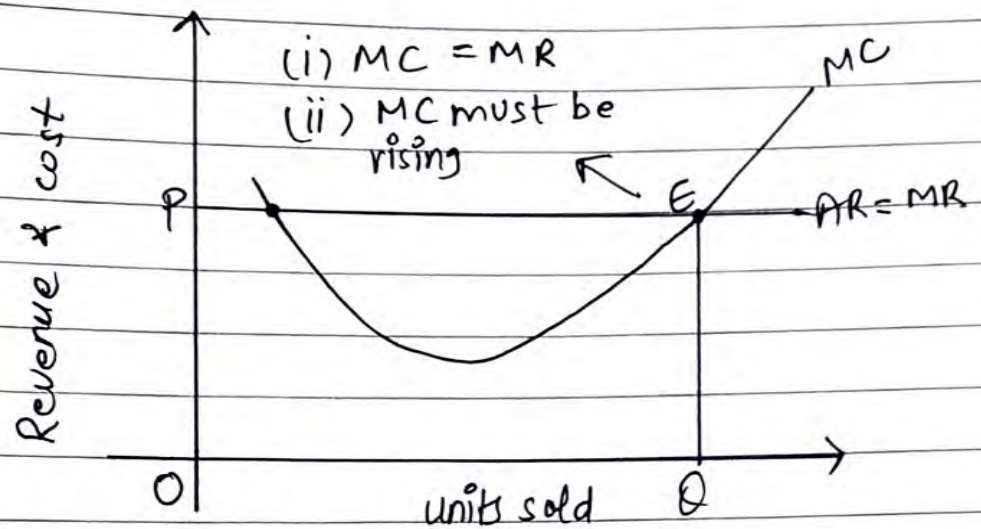
conditions through MR-MC Approach :-

1. MR must be equal to MC i.e. MR = MC, and
2. MC must be rising after MR = MC.

OR

MC > MR after MR = MC

It is explained in following diagram :



In above diagram, X-axis shows output and y-axis shows MR, MC. MR-curve is parallel to X-axis in perfect competition and MC-curve is U-shaped.

Point E' is not a producer equilibrium point because at this point, MR = MC when MC is falling it is so because after point E', producer will continue to increase output as long as MR = MC as producer will find it profitable when MR = MC.

Conclusion :- So, E is producer equilibrium point where he produces OQ unit of output.

The condition of producer equilibrium using MR = MC approach

Sol According to MR = MC approach, a producer must satisfy following conditions to achieve equilibrium :-

(1) MR = MC

(2) MC must be rising after MR = MC.

Equality of MR & MC is necessary because if MR > MC :-

Since, MR is additional gain and MC is additional expenditure, producer will find this situation profitable. He will stop producing more till MR = MC. So, MR > MC is not and if MR < MC.

Here, additional gain is less than additional expenditure. It means increase in output will lead to decrease in output. So, MC > MR after MR = MC is also required to achieve equilibrium

Q What happens to the output when :-

(a) MR > MC

(b) MC > MR

Ans. 1. output will increase till MR = MC

2. output will decrease till MR = MC

Q. What is meant by Profit ?

Sol.

Profit is excess of TR over TC.

i.e. profit = TR − TC.

Q. The following Table shows the total cost schedule of a competitive firm. It is given that the price of the good is Rs. 10. calculate the profit at each output level. Find the profit maximising level of output

Total Quantity sold	0	1	2	3	4	5	6	7	8	9	10
TC	5	15	22	27	31	38	49	63	81	101	123

Quantity Sold	TC (Rs.)	Price (Rs)	TR (Rs.)	Profit = (TR - TC) (Rs.)
0	5	10	0	0 - 5 = -5
1	15	10	10	10 - 15 = -5
2	22	10	20	20 - 22 = -2
3	27	10	30	30 - 27 = 3
4	31	10	40	40 - 31 = 9
5	38	10	50	50 - 38 = 12
6	49	10	60	60 - 49 = 11
7	63	10	70	70 - 63 = 7
8	81	10	80	80 - 81 = -1
9	101	10	90	90 - 101 = -11
10	123	10	100	100 - 123 = -23

Profit maximizing level of output is 5 units, because here, the difference between here, the difference between total revenue and total cost (i.e profit) is maximum which is equal to 12.

Q. The following table shows the total revenue and total cost schedules of a competetive firm. Calculate the profit at output level. Determine also the market price of the goods.

Quantity sold (units)	0	1	2	3	4	5	6	7
TR (in ₹)	0	5	10	15	20	25	30	35
TC (in ₹)	5	7	10	12	15	23	33	40
Profit (₹)	–	–	–	–	–	–	–	–

Quantity Sold (in units)	TR (₹)	TC (₹)	Profit (₹) TR - TC	Market Price $\frac{TR}{Q}$ (₹)
0	0	5	-5	5
1	5	7	-2	5
2	10	10	0	5
3	15	12	3	5
4	20	15	5	5
5	25	23	2	5
6	30	33	-3	5
7	35	40	-5	5

Market price $= \frac{TR}{Q} =$ Rs. 5.

Q. On the basis of the information given below, determine the level of output at which the producer will be in equilibrium. use the marginal cost - marginal revenue approach.
Give reasons for your answer.

Output (units)	1	2	3	4	5	6	7
AR (₹)	7	7	7	7	7	7	7
TC (₹)	7	15	22	28	33	40	48

Ans.

Output (units)	AR (₹)	TC (₹)	MC (₹) $MC_n = TC_n - TC_{n-1}$	MR (₹) $MR_n = TR_n - TR_{n-1}$
1	7	7	–	7
2	7	15	8	7
3	7	22	7	7
4	7	28	6	7
5	7	33	5	7
6	7	40	7	7
7	7	48	8	7

The producer achieves equilibrium at 6 units of output. It is because this level of output satisfies both the conditions of producer's equilibrium (i) MC is equal to MR and (ii) MC becomes greater than MR after this level of output.

Q. Giving reasons identify the equilibrium level of output and find profit at this output using 'Marginal cost and Marginal Revenue' approach from the following?

Output (units)	1	2	3	4	5
Total Revenue (₹)	8	15	21	26	30
Total cost (₹)	8	13	19	27	36

Ans.

Output (units)	TR (₹)	TC (₹)	MR (₹) $TR_n - TR_{n-1}$	MC (₹) $TC_n - TC_{n-1}$	Profit
1	8	8	8	—	0
2	15	13	7	5	2
3	21	19	6	6	2
4	26	27	5	8	-1
5	30	36	4	9	-6

The producer will be at equilibrium at 3 units of output which satisfy both the conditions of producer's equilibrium, (i) MC=MR (ii) MC must be rising.