Producers Equilibrium

3 Marks Questions

1. In the following table, find out the level of output, at which the producer will be in equilibrium. Give reason for your answer.(All India 2013**)**

Output (units)	1	2	3	4	5
Marginal Revenue (Rs)	8	8	8	8	8
Marginal Cost (Rs)	10	8	7	8	9

Ans.

Output (Q) (units)	**Marginal Revenue (MR) (Rs)**	**Marginal Cost (MC) (Rs)**
1	8	10
2	8	8
3	8	7
4	8	8
5	8	9

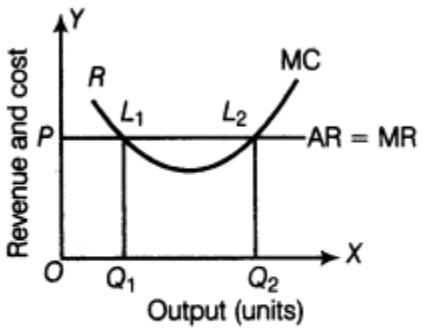
Prod- r is in equilibrium at 4th unit of output.

Reason At an output level, 2nd and 4th, the MR and MC is equal. But the producer is in equilibrium at 4th unit only where MR = MC, i.e. 8 as per the schedule and MC is rising, afterwards.

2. Explain producer's equilibrium with the help of a diagram. (Delhi 2007)

Ans. Producer's equilibrium refers to a situation of profit maximisation. A producer strikes his equilibrium at that level of output, where profit is maximised. It is only when (a) MR = MC, and (b) MC is rising, these two conditions are satisfied, then a producer will reach the point of his equilibrium and maximising his profit.

In the below figure will be the point of equilibrium as if producer produces more, its profit will increase. Hence, he will be in equilibrium only at Q_2 level of output.



Producer's equilibrium in terms of MR and MC approach

4 Marks Questions

3. Explain the conditions of producer's equilibrium with the help of a numerical example.(Delhi 2013)

Ans. Producer's equilibrium refers to a situation, where a producer is producing that level of output, at which its profits are maximum. In other words, it is a situation of profit maximisation.

Following are the two conditions of producer's equilibrium:
(i) MR = MC (Marginal Revenue = Marginal Cost)
(ii) MC must be rising at the point of equilibrium or MC curve must cut MR curve from below.

Following schedule explains the producer's equilibrium:

Output (Q) (units)	Marginal Revenue (MR in Rs)	Marginal Cost (MC in Rs)
1	12	15
2	12	12
3	12	10
4	12	9
5	12	8
6	12	7
7	12	8
8	12	9
9	12	10
10	12	12 (Producer equilibrium)
11	12	15

Reason At 2nd level of output MR and MC are equal but at 3rd level of output MR > MC (12 > 10). Hence, firms will continue production as its profits are not yet maximised. Producer will be in equilibrium at 10th level of output.

4. A producer can sell more of a good at the same price. Prepare a Total Revenue and Marginal Revenue schedule. Take four output levels.(All India 2010)

Units of Output (Q)	W Price	Marginal Revenue (MR in Rs)	Total Revenue (TR in Rs)
1	12	12	12
2	12	12	24
3	12	12	36
4	12	12	42

5. From the following schedule, find out the level of output, at which the producer is in equilibrium. Give reason for your answer.(Delhi 2009)

Output (units)	Price(Rs)	Total Cost (TC in Rs)
1	24	26
2	24	50
3	24	72
4	24	92
5	24	115
6	24	139
7	24	165

Ans.

Output (Q) (units)	Price (P)	Total Cost (TC in Rs)	Total Revenue (TR in Rs) (AR x Q)	Profit (?) (TR-TC)	Marginal Revenue (MR in Rs) (P = MR)	Marginal Cost (MC in Rs) MC MC=TCn-TCn_1
1	24	26	24	-2	24	26
2	24	50	48	– 2	24	24
3	24	72	72	0	24	22
4	24	92	96	4	24	20
5	24	115	120	5	24	23
6	24	139	144	5	24	24
7	24	165	168	3	24	26

Producer is in equilibrium at 6th unit of output.

Reason At an output level 5th and 6th unit, the difference between TR and TC, i.e. profit is maximum, which is equal to 5. But the producer is in equilibrium at 6th unit only, where MR = MC (24) and MC is rising, thereafter, i.e. there is no further possibility of increasing profit after this level of output.

6. From the following table, find out the level of output, at which the producer is in equilibrium Give reason for your answer.(Delhi 2009)

Output (units)	Average Revenue (AR in Rs.)	Total Cost (TC in Rs)
1	12	14
2	12	26
3	12	35
4	12	52
5	12	64
6	12 .	70

Ans.

Output (Q)(units)	Average Revenue (AR in Rs)	Total Cost (TC in Rs	Total Revenue (TR in (ARxQ)	Profit (?) (TR – TC)
1	12	14	12	-2
2	12	26	24	-2
3	12	35	36	1
4	12	52	48	-4
5	12	64	60	-4
6	12	70	72	2

Producer is in equilibrium at 6th unit of output.

Reason The producer, is at equilibrium, when the difference between Total Revenue and Total Cost (i.e. profit) is maximum. At the 6th unit of output, producer gets maximum profit, which is equal to 2 in this case.

7. Given below is a cost and revenue schedule of a producer. At what level of output is the producer in equilibrium. Give reason for your answer.(All India 2009)

Output (units)	Price (₹)	Total Cost (TC in ₹)
1	10	13
2	10	22
3	10	30
4	10	38
5	10	47
6	10	57
7	10	71

Ans.

Output (units)	Price (₹)	Total Cost (TC in ₹)	Total Revenue (TR in ₹) (AR × Q)	Profit (₹) (TR–TC)	Marginal Revenue (MR in ₹) (P = MR)	Marginal Cost (MC in ₹) ($TC_n - TC_{n-1}$)
1	10	13	10	– 3	10	13
2	10	22	20	– 2	10	9
3	10	30	30	0	10	8
4	10	38	40	2	10	8
5	10	47	50	3	10	9
6	10	57	60	3	10	10
7	10	71	70	–1	10	14

Producer is in equilibrium at 6th unit of output.
Reason At 5th and 6th unit of output the difference between Iota! Revenue and Total Cost (i.e. profit) is maximum, which is equal to 3 in both the cases. But, producer is at equilibrium at 6th unit only where MR = MC (= 10), and MC is rising afterwards.

6 Marks Questions

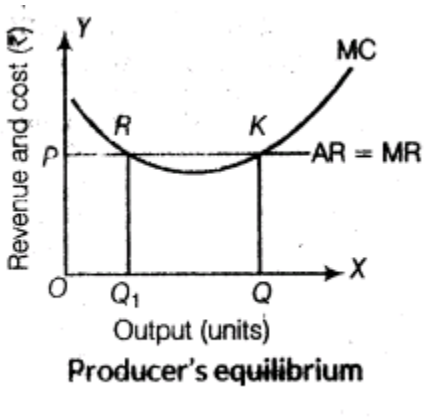
8. Explain the conditions of a producer's equilibrium in terms of Marginal Cost and Marginal Revenue. Use diagram. (Delhi 2012)
or
What is producer's equilibrium? Explain Marginal Cost and Marginal Revenue approach. Use diagram.(Ail India 2011)

Ans. Producer's equilibrium refers to the state in which a producer earns his maximum profit or minimise its losses. According to MR-MC approach, the producer is at equilibrium,, when the Marginal Revenue (MR) is equal to the Marginal Cost (MC) and Marginal Cost curve must cut the Marginal Revenue curve from below.

Two conditions under this approach are:
(i) MR = MC
(ii) MC curve should cut the MR curve from below, or MC should be rising.

MR is the addition to TR from the sale of one more unit of output and MC is the addition to TC for increasing the production by one unit. In order to maximise .profits, firms compare its MR with its MC

As long as the addition to revenue is greater than the addition to cost. It is profitable for a firm to continue producing more units of output.In the diagram, output is shown on the X-axis and revenue and cost on the Y-axis.The Marginal Cost (MC) curve is U-shaped and P ~ MR = AR, is a horizontal line parallel to X-axis.



Producer's equilibrium

MC = MR at two points Rand K in the diagram, but profits are maximised at point K, corresponding to O Q level of output. Between O Q, and O Q levels of output, MR exceeds MC. Therefore, firm will not stop at point R but will continue to produce to take advantage of additional profit. Thus, equilibrium will be at point K, where both the conditions are satisfied.

Situation beyond O Q level:

MR < MC When output level is more than O Q, MR < MC, which implies that firm is making a loss on its last unit of output. Hence, in order to maximise profit, a rational producer decreases output as long as MC > MR. Thus, the firm moves towards producing O Q units of output.

9. Explain producer's equilibrium with the help of Marginal Cost and Marginal Revenue schedule. (Delhi 2011)

Ans.

Output (units)	Marginal Revenue (MR in Rs)	Marginal Cost (MC in Rs)
1	12	15
2	12	12
3	12	10
4	12	9
5	12	8
6	12	7
7	12	8
8	12	9
9	12	10
10	12	12
11	12	15

In the above schedule, MR= MC in two situations
(i) When 2 units of output are produced.
(ii) When 10 units of output are produced.

However, while in situation (i), MC is falling, while in situation (ii), MC is rising. A producer will strike his equilibrium only, when MC is rising, i.e. at 10 units of output.

Note Producer's equilibrium refers to the state in which a producer earns his maximum profit or minimise its losses. According to MR-MC approach, the producer is at equilibrium,, when the Marginal Revenue (MR) is equal to the Marginal Cost (MC) and Marginal Cost curve must cut the Marginal Revenue curve from below.

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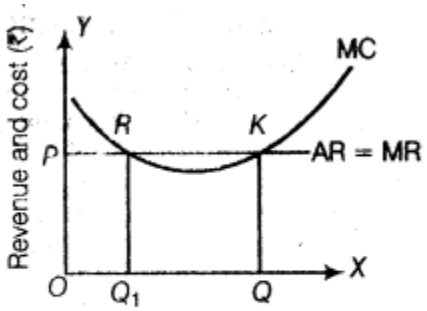

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10.From the following schedule, find out the level of output, at which the producer is at equilibrium, using Marginal Cost and Marginal Revenue approach. Give reasons for your answer.(An India 2010)

Price Per Unit (Rs)	Output (units)	Total Cost (TC in Rs)
8	1	6
7	2	11
6	3	15
5	4	18
4	5	23

Ans.

Price (Rs)	Output (units)	Total Cost (TC in Rs)	Total Revenue (TR in Rs) (AR x Q)	Marginal Revenue (MR in Rs) (TRn –TRn-1)	Marginal Cost (MC in Rs) (TCn-TCn-1)
8	1	6	8	8	–
7	2	11	14	6	5
6	3	15	18	4	4
5	4	18	20	2	3
4	5	23	20	0	5

The producer's equilibrium is at 3 rd unit of output because here, MR= MC and after this MC is rising.

11. Is a producer at equilibrium under the following situations?
(i) When Marginal Revenue is greater than Marginal Cost.
(ii) When Marginal Revenue is equal to Marginal Cost.
Give reasons for your answer.(Delhi 2010 C)

Ans. (i) No, because when MR>MC at that point, producer will not get maximum profit as due to law of variable proportion, if he increases his production level, his cost will further decrease.

(ii) Yes, a producer will be at equilibrium, where MR= MC and MC should be rising at this point. He will get maximum profit here.