THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

PART B: MICRO

Chapter 6 : Cost of production, revenue & producer equilibrium

Q. NO	QUESTION	MARKS
1	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): Normal profit is a part of implicit cost. Reason (R): Normal profit is the imputed value of entrepreneurial services provided by the owner. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	1
2	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): TFC curve is a vertical straight line parallel to the Y-axis. Reason (R): TFC remains same at all levels of output, even if the output is zero. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	1
3	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): When price remains same at all levels of output, then Total Revenue (TR) curve is a positively sloped straight line. Reason (R): In case of constant prices, MR is constant, i.e. TR increases at a constant rate. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	1

4	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): Total Revenue is at its maximum point when marginal revenue is zero. Reason (R): When every additional unit is sold at the same price, Marginal Revenue = Average Revenue. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).	**1**
	(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	
5	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): When price remains same at all levels of output, then Price=MC at the equilibrium level. Reason (R): When MC is greater than MR after equilibrium, it means producing more will lead to decline in profits. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	**1**
6	Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below: Assertion (A): The state of Producer's Equilibrium either reflects maximum profits or minimum losses. Reason (R): When MC > MR after equilibrium, it means producing more will lead to rise in profits. Alternatives: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is True but Reason (R) is False. Assertion (A) is False but Reason (R) is True.	**1**
7	Read the following statements carefully and choose the correct alternatives from the following: Statement 1: The sum of explicit cost and implicit cost is the total cost of production of a commodity. Statement 2: Explicit cost is in the nature of contractual payment, while no contractual obligation for payment is required in case of implicit cost. Alternatives: (a) Both the statements are true. (b) Both the statements are false. (c) Statement 1 is true and Statement 2 is false. Statement 2 is true and Statement 1 is false.	**1**

8	Read the following statements carefully and choose the correct alternatives from the following: Statement 1: Fixed Cost is also known as Supplementary Cost. Statement 2: Total Fixed Cost (TFC) is vertical straight line parallel to the Y-axis because TFC remains same at all levels of output, even if the output is zero. Alternatives:	**1**
	(a) Both the statements are true. (b) Both the statements are false. (c) Statement 1 is true and Statement 2 is false. Statement 2 is true and Statement 1 is false.	
9	Read the following statements carefully and choose the correct alternatives from the following: Statement 1: Price and Average Revenue are one and same thing. Statement 2: Slope Total Revenue curve is represented by Marginal Revenue. Alternatives: (a) Both the statements are true. (b) Both the statements are false. (c) Statement 1 is true and Statement 2 is false. Statement 2 is true and Statement 1 is false.	**1**
10	Read the following statements carefully and choose the correct alternatives from the following: Statement 1: A producer is said to be in equilibrium when he wishes to expand the output. Statement 2: The difference between revenue and cost is termed as profit. Alternatives: (a) Both the statements are true. (b) Both the statements are false. (c) Statement 1 is true and Statement 2 is false. Statement 2 is true and Statement 1 is false.	**1**
11	TVC can be calculated as : (a) AVC/Q (b)∑MC (c) TC- TFC (d) Both (b) & (c)	**1**
12	The costs which vary as the level of output varies are called : (a) Prime cost (c) Real cost Indirect cost (d) None of these	**1**
13	The average cost is Rs 20 & it is minimum when 04 units are produced. The marginal cost of producing 04 units is : Rs 20 (b)Rs 80 (c) Rs 24 (d) Rs 05	**1**
14	Which of the following is not true about the relationship between Tr and MR ? (a) When TR increases at a constant rate, MR should be constant (b) When TGr is increasing at a decreasing rate , MR should be decreasing rate (c) Both (a) and (b) None of these	**1**
15	Select the correct equation : (a) TR = ∑AR (b) MR= ΔTR/ΔQ (c)TR = AR/Total output (d) AR= Total output	**1**

16	What is the shape of the average revenue curve under perfect competition ? Horozontal straight line (b) vertical straight line (c) Rectangular hyperbola (d) downward to the right	**1**
17	The long run equilibrium of a competitive firm is struck at a point where : MC=MR=AC=AR (b) MC=MR (c) AC=AR (d)None of these	**1**
18	Under perfect competition, for the producer to be in equilibrium (a) AR= MR=AC & AC must be rising (b)AR=MR=MC and MC must be falling (c)AR =MR=MC and MC must be rising (d)AR=MR=TC and TC must be rising	**1**
19	A break-even point ,a firm makes: (a)Normal profits (b)Extra- Normal profits (c) Extra- Normal losses (d) None of these	**1**
20	If TR=Rs25 and TC=Rs37, it is a case of (a)Abnormal profits (b) Normal profits (c) Sub-normal profits (d) break-even point	**1**
21	Why is short run average cost curve U- shaped ?	**3**
22	What changes in total revenue will result when : (i) Marginal revenue is constant ? Marginal revenue is decreasing ?	**3**
23	Explain producer's equilibrium with the help of a table	**3**
24	A firm is producing 20 units .At this level of output, ATC and AVC are respectively equal to ₹40 and ₹37.Find out the total fixed cost of the firm.	**3**
25	TC rises from ₹30 to ₹55 when the output increases from 5 units to 6 units. Find out the MC of 6th unit.	**3**
26	Complete the following table	**3**

Price(₹)	12	10	8	6
Output(units)	1	2	3	4
TR(₹)	-	-	-	-
MR(₹)	-	-	-	-

27	Complete the following table		**4**

Output (Units)	Price(₹)	Total Revenue(₹)	Marginal Revenue(₹)
4	9	36	-
5	-	-	4
6	-	42	-
7	6	-	-
8	-	40	-

28	Calculate the weekly TC and AVC from the following particulars:		**4**

Particulars	
No of workers employed	50
No of units produced per week	100
Weekly wage of each worker	₹200
Weekly rent of shed	₹400
Raw materials used	₹1600
Power	₹300

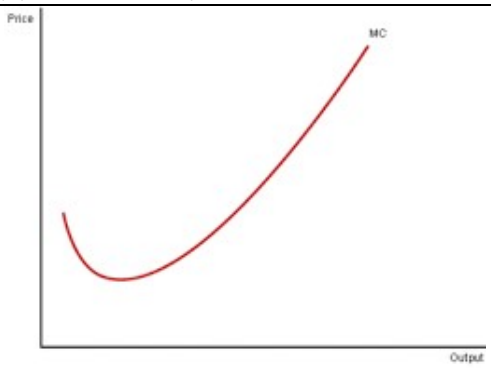
29	The total cost curve makes an intercept of ₹50on the Y-axis. Calculate total fixed cost and total variable cost.				**4**

Output(units)	1	2	3	4

	TC(₹) 65 90 120 160	
30	The distance between AVc & AFC curves tend to reduce as output increases . Is it true ?	**4**
31	Expalin the relationship between MR & TR.	**4**
32	Expalin the conditions leading to maximization of profits by a producer. Use marginal cost and marginal revenue approach.(with the help of diagram)	**4**
33	What is total cost , average cost and Marginal cost ? Explain the relationship between average cost and marginal cost with the help of table and diagram.	**6**
34	Derive average revenue and marginal revenue from total revenue with the help of a table .	**6**
35	Expalin the conditions of producer's equilibrium with the help of a diagram.	**6**
36	Calculate TR, AR and MR from the following data: Price(₹) 1 2 3 4 5 6 7 Units sold 100 90 80 70 60 50 40	**6**
37	Determine producer's equilibrium from the following data through MC-MR approach. Give reasons for your answer. Output(Q) in units 1 2 3 4 5 AR(₹) 12 11 10 9 8 AC(₹) 4 5 6 7 9	**6**
38	From the following information about a firm, find the firm's equilibrium output in terms of marginal cost and marginal revenue. Give reasons. Also find profit at this point. Output(Q) in units 1 2 3 4 5 TR(₹) 7 14 21 28 35 TC(₹) 8 15 21 28 36	**6**

ANSWER

1	(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
2	(d) Assertion (A) is False but Reason (R) is True.
3	(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
4	(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
5	(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
6	(c) Assertion (A) is True but Reason (R) is False.
7	(a) Both the statements are true.
8	(c) Statement 1 is true and Statement 2 is false.
9	(a) Both the statements are true.
10	(d) Statement 2 is true and Statement 1 is false.

<table>
<tr><td>11</td><td>(d) Both (b) & (c)</td></tr>
<tr><td>12</td><td>(a) Prime cost</td></tr>
<tr><td>13</td><td>(a)Rs 20</td></tr>
<tr><td>14</td><td>When TGr is increasing at a decreasing rate , MR should be decreasing rate</td></tr>
<tr><td>15</td><td>(b) MR= ΔTR/ΔQ</td></tr>
<tr><td>16</td><td>Horozontal straight line</td></tr>
<tr><td>17</td><td>MC=MR=AC=AR</td></tr>
<tr><td>18</td><td>(c)AR =MR=MC and MC must be rising</td></tr>
<tr><td>19</td><td>Normal profit</td></tr>
<tr><td>20</td><td>(c) Sub-normal profits</td></tr>
<tr><td>21</td><td> 

MC is u-shaped in accordance with the law of variable proportions. Initially, MC is falling. It is because MP tends to rise when there are increasing returns to a factor. Subsequently, MC tends to rise. It is because MP tends to fall when there are diminishing returns to a factor.</td></tr>
<tr><td>22</td><td>TR refers to money receipts of a firm from the sale of its total output .It is estimated as this

TR =PRICE X OUTPUT
(i) MR:- MR is the change in total revenue when one more unit of a commodity is sold .
If MR is constant, TR increases at a constant rate.
If MR is decreasing, TR increasing at decreasing rate.</td></tr>
<tr><td>23</td><td>Producer’s equilibrium refers to a situation of profit maximisation.
<table>
<tr><th>Q(units of output)</th><th>MR (RS)</th><th>MC (RS)</th></tr>
<tr><td>1</td><td>12</td><td>15</td></tr>
<tr><td>2</td><td>12</td><td>12</td></tr>
<tr><td>3</td><td>12</td><td>10</td></tr>
<tr><td>4</td><td>12</td><td>9</td></tr>
<tr><td>5</td><td>12</td><td>8</td></tr>
<tr><td>6</td><td>12</td><td>7</td></tr>
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<tr><td>11</td><td>12</td><td>15</td></tr>
</table></td></tr>
</table>

24

Given: Units = 20; ATC = ₹40; AVC = ₹37
We know, AFC=ATC – AVC. So, AFC = ₹3
Also, TFC = AFC X Units
So, TFC = ₹3 X 20 = ₹60

25

$MC_{n} = TC_{n} - TC_{n-1}$
$MC_{6} = TC_{6} - TC_{5}$
MC_{6} = ₹55 - ₹30
MC_{6} = ₹25

26

Price(P) in ₹	Output(Q) in Units	TR(₹):PXQ=TR	MR(₹):TRn-TRn-1=MRn
12	1	12	12
10	2	20	8
8	3	24	4
6	4	24	0

27

Output: Q in Units	Price: P in (₹)	Total Revenue (₹):TR=PXQ	Marginal Revenue (₹): MRn =TRn-1 –TRn-1
4	9	36	-
5	**8**	**40**	4
6	**7**	42	**2**
7	6	**42**	**0**
8	**5**	40	**-2**

28

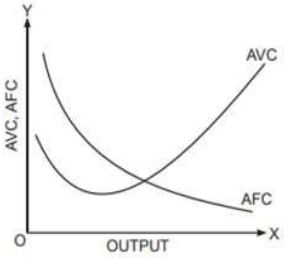
TC=TVC+TFC
TVC= Raw materials used + Power + (No of workers x Weekly wage)
TVC = 1600 + 300 +(50 X 200) = ₹11,900
TFC = Weekly rent of shed = ₹400
TC = ₹11,900 +₹ 400 = ₹12,300
AVC = TVC / Units produced = 11,900 / 100 = ₹119
Thus,TC= ₹12,300 and AVC = ₹119

29

Output(Units)	TC(₹)	TFC(₹)	TVC(₹):TC-TFC=TVC
0	50	50	50 - 50 =0
1	65	50	65 – 50 =15
2	90	50	90 – 50 =40
3	120	50	120 – 50 =70
4	160	50	160 – 50 =110

Note: The intercept of ₹50 on Y-axis indicates that TC is equal to ₹50 at zero output. It means ,TFC = ₹50 as TC = TFC at zero output.

30

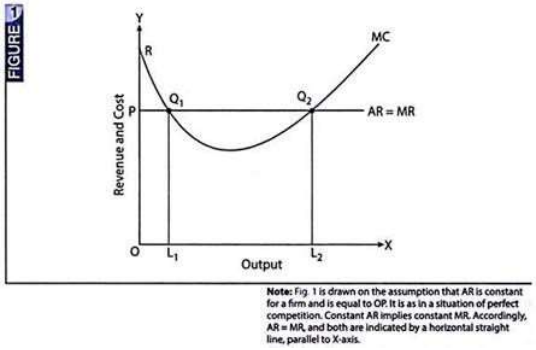


No, it is not true, initially as output is increasing, the distance between AVC curves may tend to reduce but once the two curves cross each other, the difference between the two tends to increases. Because, while AVC tends to rise after a certain level of output, AFC continuously falls.

31

(i) When Total Revenue is increasing at constant rate, Marginal Revenue should be constant.
(ii) When TR is increasing at diminishing rate , MR should be diminishing.
(ii) When TR is maximum, MR is zero.
When TR is diminishing , MR is negative.

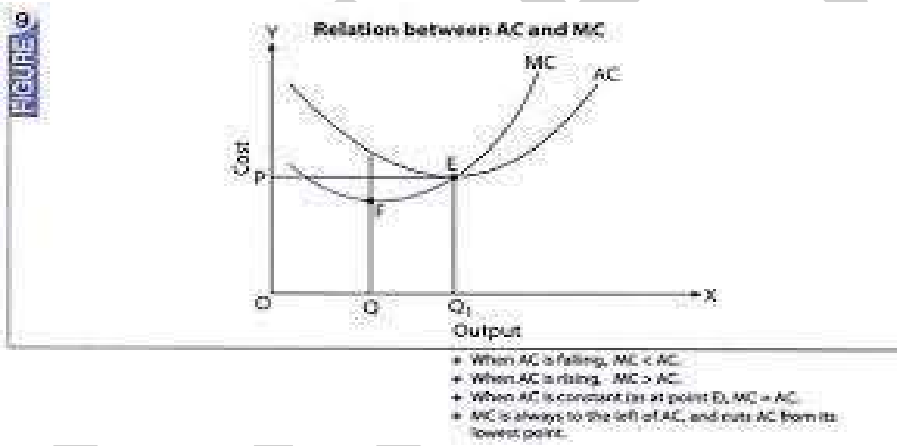
32



(i) AR is assumed to be constant as under perfect competition. Constant AR implies constant MR. Thus both AR & MR are indicated by a horizontal straight line parallel to X- axis . MC curve is shown to be U-shaped as usual.

MR is equal to MC in two situations.(a) at point Q1 when output=OL1 and (b) at point Q2 when output=OL2

33



TC= TC is the sum total of fixed cost and variable cost. Corresponding to a given level of output.
TC=TFC+ TVC

AC= AC is the cost per unit of output produced. AC=TC/Q=TFC/Q+ TVc/Q MC= MC is additional cost owing to the production of an additional unit of output			
MCn= TCn- TCn-1			
Output units	TC (Rs)	AV	MC
		AC=TC/Q (Rs)	
0	10	∞	---
1	20	20	10
2	28	14	8
3	34	11.3	6
4	38	9.5	4
5	42	8.4	4
6	48	8	6
7	56	8	8
8	72	9	16

34

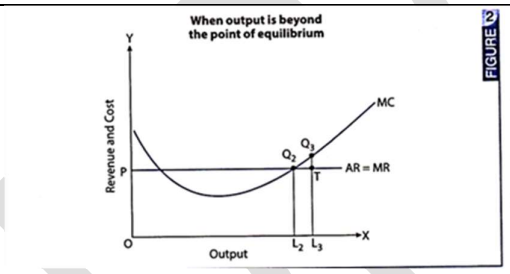
Output (Q) Units	Price P=AR (Rs)	T.R TR = AR XQ (Rs)	MR TR=TRn-Tn-1
1	10	10	10-0=10
2	10	20	20-10=10
3	10	30	30-20=10
4	10	40	40-30=10
5	10	50	50-40=10

(i) TR=ARXQ = Rs 10X 5 =Rs 50
Or, TR= ∑MR
=(10+10+10+10+10)=Rs50

(ii) AR=TR/Q= 50/5=Rs10=Price

(iii) MR= TRn- TRn-1
= Rs50- Rs40 = Rs 10
=[TR of units]- [TR of 4 units]

35



TR reduces by the area L1 L2 Q2 Q1
TVC reduces by the area L1 L2 Q2 T
Thus , reduction in TVC is less than the reduction in TR . Or, the loss of TR is greater than the gain of TVC.
Accordingly , TR-TVC will tend to shrink.
Thus , any departure from the state of equilibrium (when Mr=MC and MC is rising) would only mean that the difference between TR and TVC will tend to shrink , or, that the profits will not be maximized.

36

Price(P): (₹)	Units sold	TR=PXQ	AR=TR/Q	MR= ΔTR/ΔQ
1	100	100	1	- 8
2	90	180	2	- 6
3	80	240	3	- 4
4	70	280	4	- 2
5	60	300	5	0
6	50	300	6	2
7	40	280	7	-

Note: MR has been calculated in the reverse order, i.e. from bottom to top
MR is calculated after dividing change in TR by 10units as units sold are given at the gap of 10 units.

37

Output(Q) in units	AR (₹)	AC (₹)	TR (₹)	TC (₹)	MC (₹) MCn = TCn – TCn - 1	MR (₹) MRn = TRn – TRn - 1
1	12	4	12	4	4	12
2	11	5	22	10	6	10
3	**10**	**6**	**30**	**18**	**8**	**8**
4	9	7	36	28	10	6
5	8	8	40	45	17	4

The producer achieves equilibrium at 3 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.

38

Output(Q) in units	TR(₹)	TC(₹)	MR (₹)MRn = TRn – TRn - 1	MC (₹) MCn = TCn – TCn - 1
1	7	8	7	8
2	14	15	7	7
3	21	21	7	6
4	**28**	**28**	**7**	**7**
5	35	36	7	8

The producer achieves equilibrium at 4 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.
Profit = TR – TC = 28 – 28 = 0