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CLASS – 12

ECONOMICS

Introductory Microeconomics

CH-3 : Production and Costs

Part – 5

Exercise

Vaishnavi Agrawal

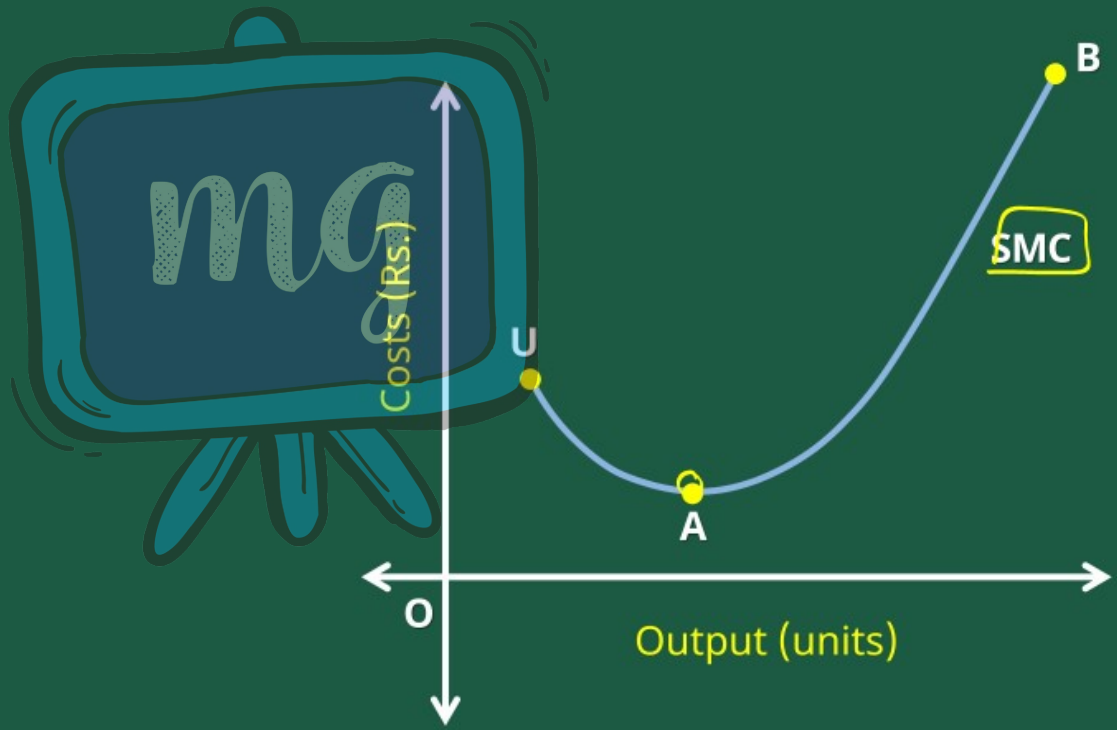


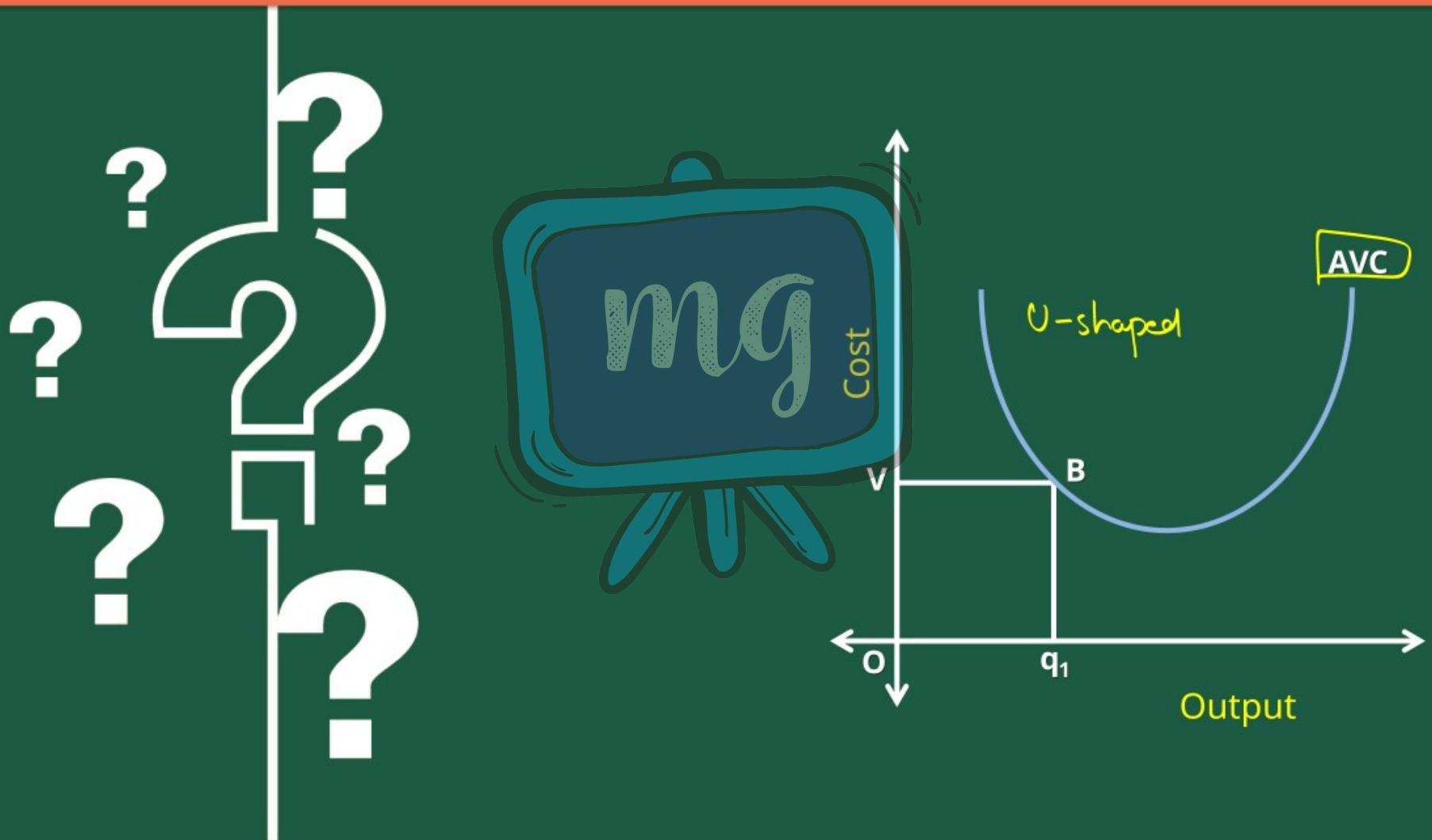
17 What do the Short Run Marginal Cost, Average Variable Cost and Short Run Average Cost curves look like?





Ans :




mg
Cost
AVC
U-shaped
V
B
O
q_1
Output



18 Why does the SMC curve cut the AVC curve at the minimum point of the AVC curve?







18 Why does the SMC curve cut the AVC curve at the minimum point of the AVC curve?

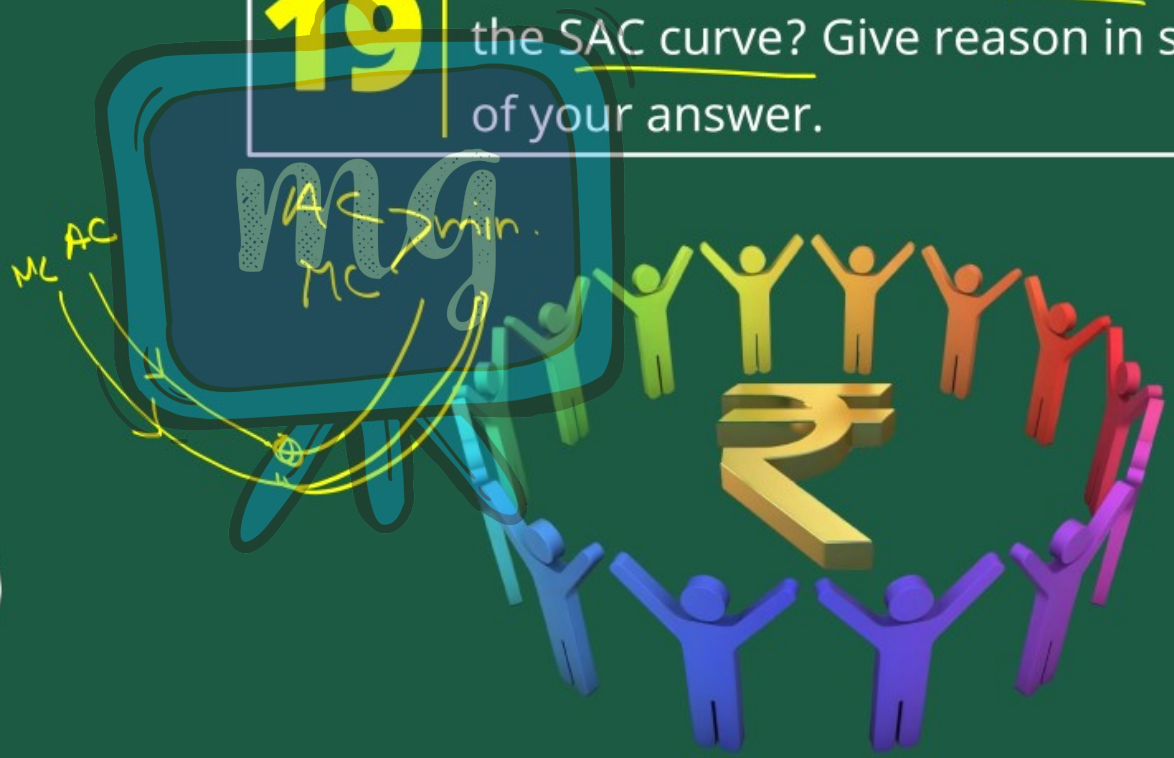
Ans :

- SMC curve represents the additional cost of producing one more unit, while AVC is the total variable cost per unit.
- When SMC is less than AVC, AVC is falling, and when SMC is greater than AVC, AVC is rising.



- Therefore, the only point where they are equal is at the AVC's minimum where it's neither rising nor falling.

19 At which point does the SMC curve cut the SAC curve? Give reason in support of your answer.



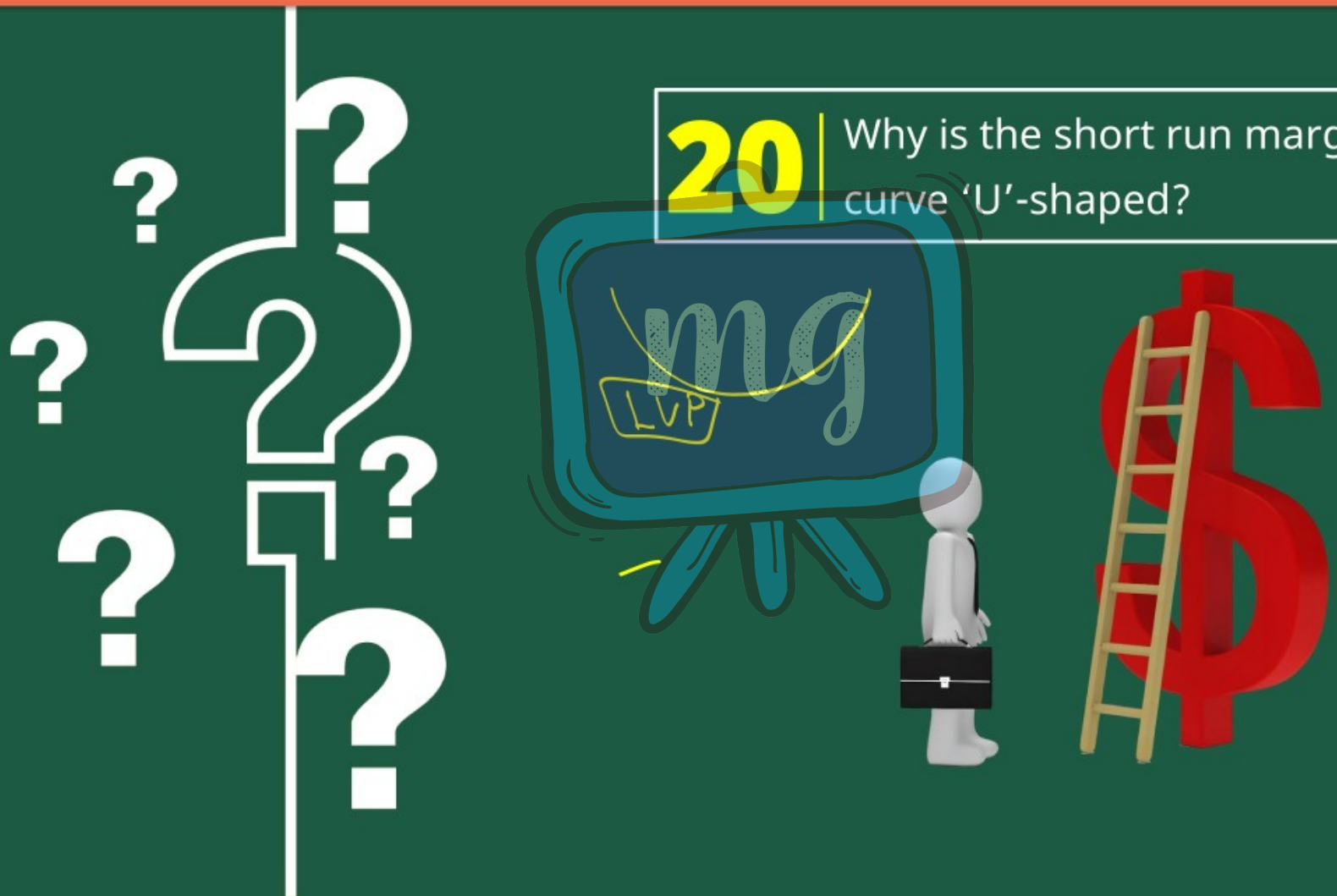


19 At which point does the SMC curve cut the SAC curve? Give reason in support of your answer.

Ans :

- When SMC is less than SAC, SAC is falling, and when SMC is greater than SAC, SAC is rising.
- Therefore, the only point where they are equal is at the SAC's minimum, where it's neither rising nor falling.

20 Why is the short run marginal cost curve 'U'-shaped?





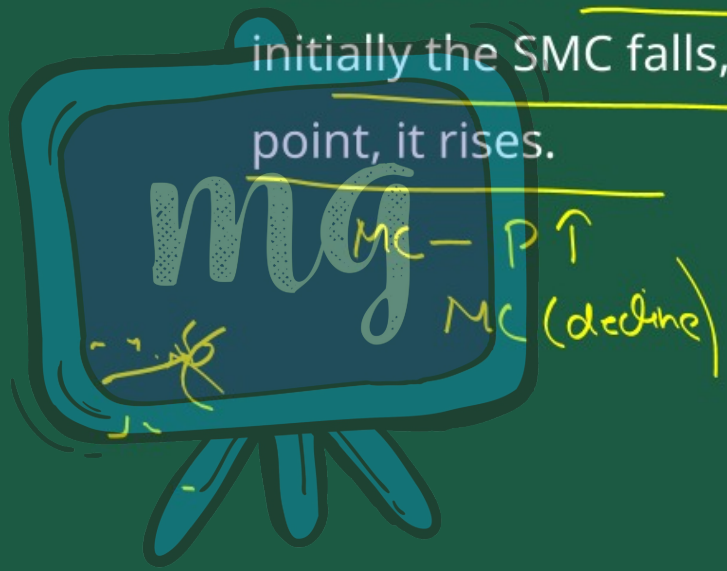
20 Why is the short run marginal cost curve 'U'-shaped?

Ans :

- According to the Law of Variable Proportions, initially, MP of a factor increases as employment increases, and then after a certain point, it decreases.



- As a result, with the factor price given, initially the SMC falls, and then after a certain point, it rises.



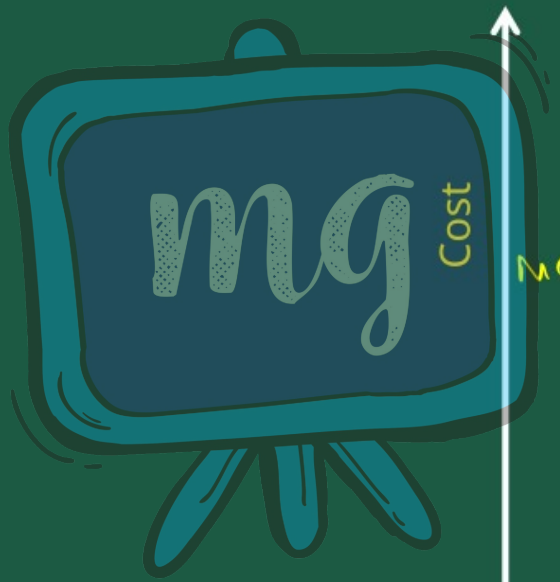


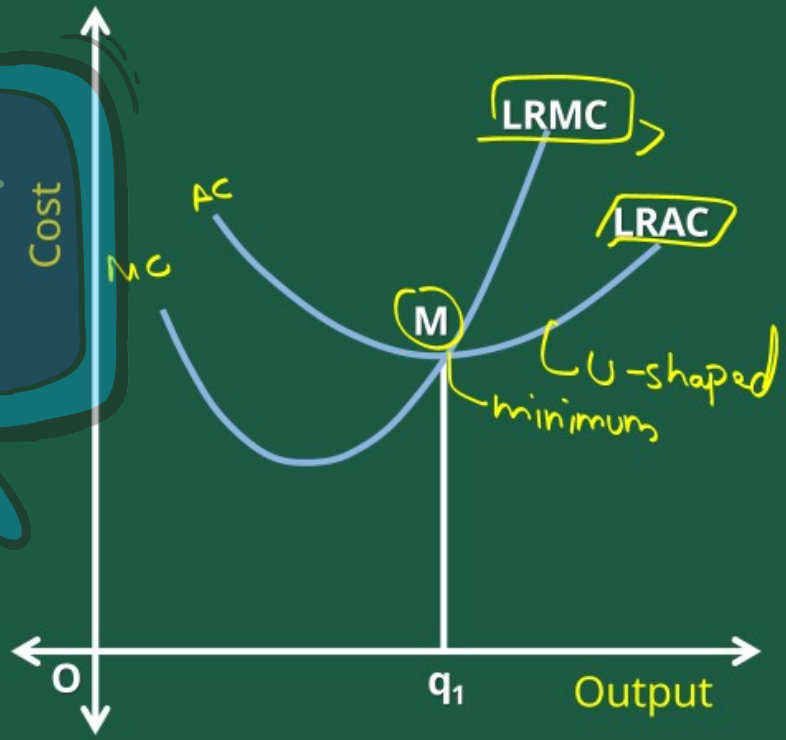
21 What do the long run marginal cost and the average cost curves look like?





Ans :







22 The following table gives the total product schedule of labour. Find the corresponding average product and marginal product schedules of labour.

L	0	1	2	3	4	5
TP_L	0	15	35	50	40	48

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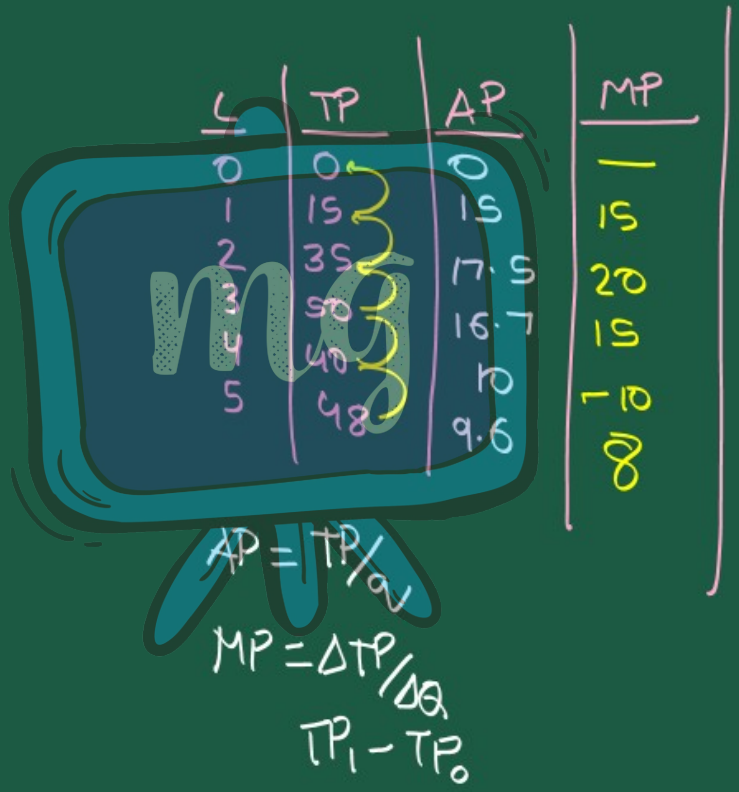



23 The following table gives the average product schedule of labour. Find the total product and marginal product schedules. It is given that the total product is zero at zero level of labour employment.

L	1	2	3	4	5	6
AP_L	2	3	4	4.25	4	3.5

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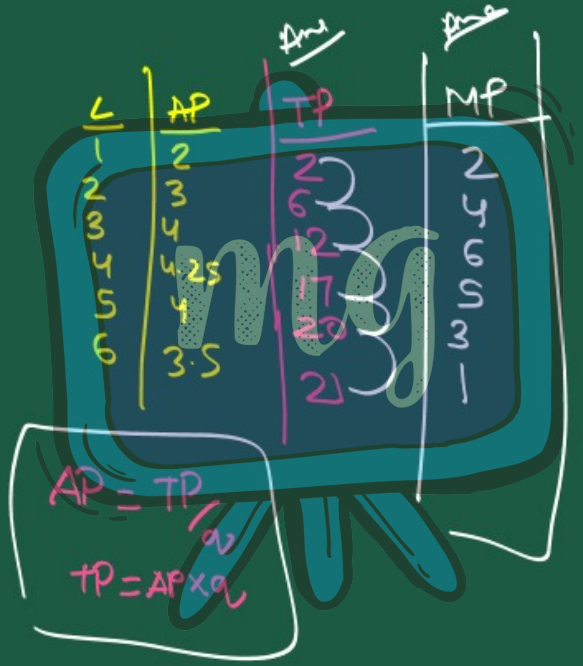



24 The following table gives the marginal product schedule of labour. It is also given that total product of labour is zero at zero level of employment. Calculate the total and average product schedules of labour.

L	1	2	3	4	5	6
MP_L	3	5	7	5	3	1

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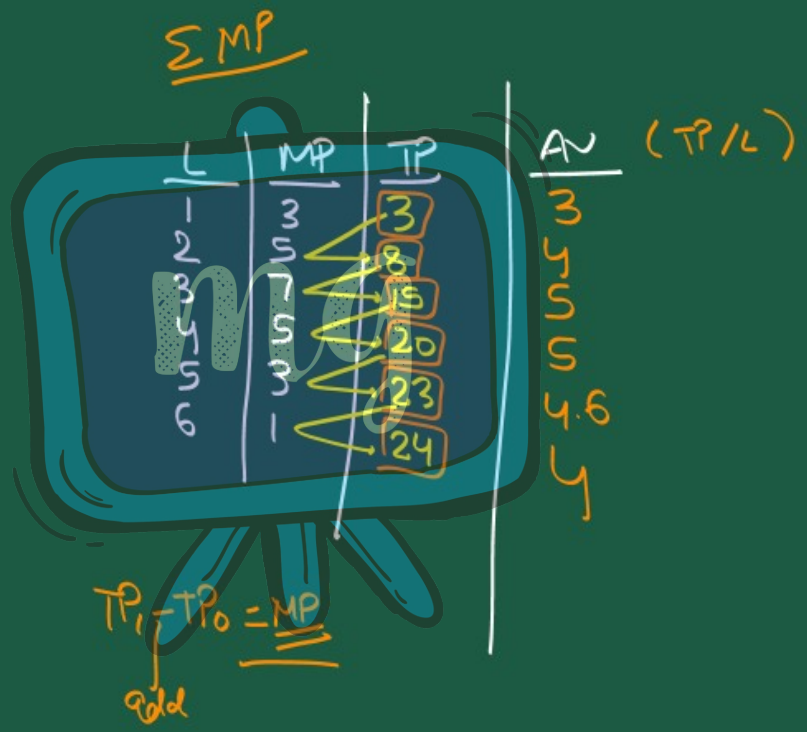



25 The following table shows the total cost schedule of a firm. What is the total fixed cost schedule of this firm? Calculate the TVC, AFC, AVC, SAC and SMC schedules of the firm.

Q	0	1	2	3	4	5	6
TC	10	30	45	55	70	90	120

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Answer

Q	TC	TFC	(TC-TFC) TVC	TFC/Q AFC	TVC/Q AVC	TC/Q AC	ΔTC/ΔQ MC	$TC_1 - TC_0$
0	10	10	0	—	—	—	—	
1	30	10	20	10	20	30	20	
2	45	10	35	5	17.5	22.5	15	
3	55	10	45	3.33	15	18.3	10	
4	70	10	60	2.5	15	17.5	15	
5	90	10	80	2	16	18	20	
6	120	10	110	1.67	18.3	20	30	

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EXERCISE

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26 The following table gives the total cost schedule of a firm. It is also given that the average fixed cost at 4 units of output is Rs 5. Find the TVC, TFC, AVC, AFC, SAC and SMC schedules of the firm for the corresponding values of output.

Q	1	2	3	4	5	6
TC	50	65	75	95	130	185

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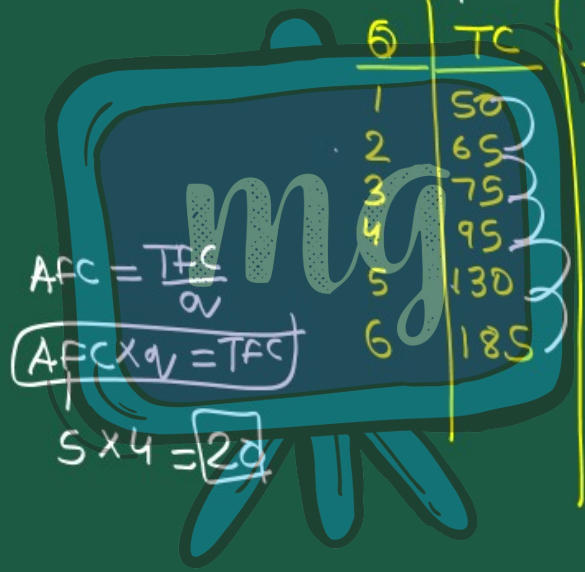

$AFC = \frac{TFC}{Q}$

$AFC \times Q = TFC$

$5 \times 4 = 20$

AC = TVC/Q

TFC = TC − TVC

TVC = TC − TFC

Q	TC	AFC	TVC	TFC	MC	AVC	AC
1	50	20	30	20	—	30	50
2	65	10	45	20	15	22.5	32.5
3	75	6.7	55	20	10	18.3	25
4	95	5	75	20	20	18.75	23
5	130	4	110	20	45	22	26
6	185	3.33	165	20	55	27.5	30.8
..							



27 A firm's SMC schedule is shown in the following table. The total fixed cost of the firm is Rs 100. Find the TVC, TC, AVC and SAC schedules of the firm.

Q	0	1	2	3	4	5	6
MC	–	500	300	200	300	500	800

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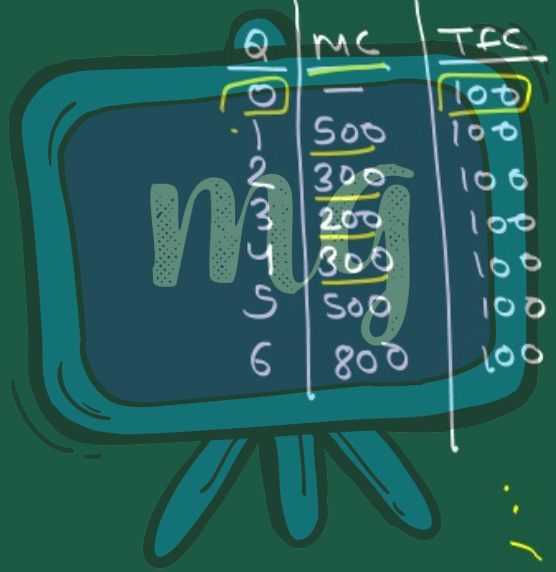

Q	MC	TFC	TVC	TC	AVC	AC
0	—	100	0	100	—	—
1	500	100	500	600	500	600
2	300	100	800	900	400	450
3	200	100	1000	1100	333.3	366.7
4	300	100	1400	1500	350	375
5	500	100	1900	2000	380	400
6	800	100	2700	2800	450	466.7



28

Let the production function of a firm be

$$Q = 5L^{\frac{1}{2}}K^{\frac{1}{2}}$$

find out the maximum possible output that the firm can produce with 100 units of L and 100 units of K.





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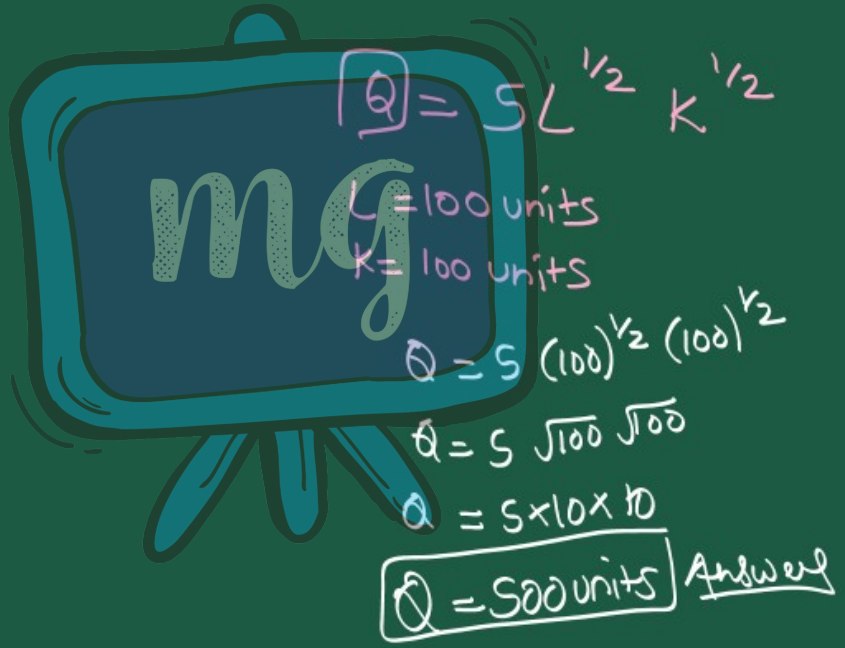



29

Let the production function of a firm be

$$Q = 2L^2K^2$$

find out the maximum possible output that the firm can produce with 5 units of L and 2 units of K. What is the maximum possible output that the firm can produce with zero unit of L and 10 units of K?

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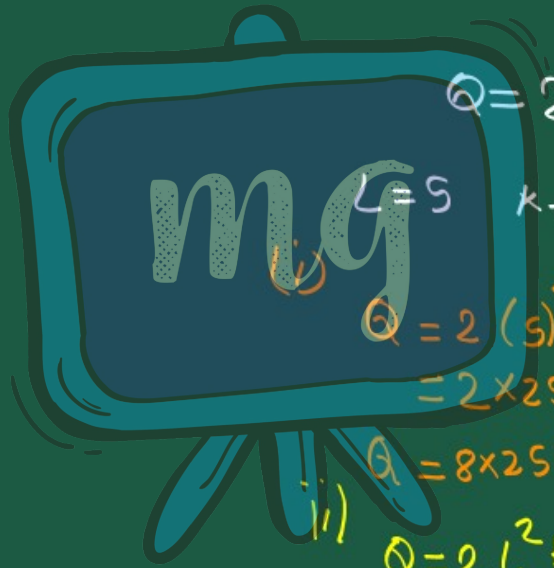

$Q = 2L^2K^2$

$L = 5 \quad K = 2$

(i)

$Q = 2(5)^2(2)^2$

$= 2 \times 25 \times 4$

$Q = 8 \times 25 = \boxed{200 \text{ units}}$ Ans. (i)

(ii)

$Q = 2L^2K^2$

$= 2(0)^2(10)^2$

$= 2 \times 0 \times 100$

$= 0$ Ans



30 mg

Find out the maximum possible output for a firm with zero unit of L and 10 units of K when its production function is :

$$Q = 5L + 2K$$





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