Calculation (1) – Basic

1. 2010.MC.Q19

The input-output relationship of a firm is as follows:

Machine (unit)	Labour (unit)	Average Product of labour (unit)
3	1	20
3	2	12
3	3	11
3	4	10

According to the above table, diminishing marginal returns set in after _____ unit(s) of labour is/are employed.

A. 1

B. 2

C. 3

D. 4

2. 2014.MC.Q5

The following table shows a production plan for a firm which employs two factors only, namely labour and machinery.

Labour (unit)	Machinery (unit)	Total product (unit)
1	4	100
2	4	120
3	4	150
4	4	170
5	4	165

The marginal product of labour will start to diminish when the _____ unit of labour is put to work.

A. second

B. third

C. fourth

D. fifth

Calculation (2) – involving unknowns

3. PP.MC.Q5

The following table shows the monthly production of a firm with two inputs, machines and labour.

Machines (Units)	Labour (Units)	Total product (Units)
2	5	10
3	5	20
4	5	32
5	5	42
6	5	X

If the law of diminishing marginal returns applies to the firm, X

A. must be smaller than 42.

B. must be greater than 42.

C. can be equal to 42.

D. is equal to 52.

4. 2015.MC.Q9

The table below shows the total product of Firm A, which employs only capital and labour in production.

Labour (units)	Capital (units)	Total Product (units)
12	2	110
12	3	130
12	4	160
12	5	X

Which of the following statements about Firm A is correct?

A. If the above data illustrate the law of diminishing marginal return, the value of X can be equal to 180.

B. If the above data illustrate the law of diminishing marginal return, the value of X can be equal to 190.

C. If the above data illustrate the law of diminishing marginal return, the value of X can be larger than 200.

D. The law of diminishing marginal return does not apply to Firm A because capital is not a fixed factor.

Principles / Integrated

5. 2009.MC.Q19

Refer to the following information about the inputs, outputs and average cost of a firm. The only inputs required for production are capital and labour.

Capital (units)	Labour (units)	Total output (units)	Average costs ($)
500	5	3000	3
1000	10	4500	4
1500	15	5500	5

Within the above range of output, we can conclude that

A. The firm is producing at the optimal scale of production.

B. The law of diminishing marginal returns applies to the firm.

C. The firm does not have a comparative advantage in the production of this good.

D. The firm suffers from diseconomies of scale.

6. 2011.MC.Q20

During the busy season before Christmas, a factory increases the number of workers to increase output.   This can be shown in the following table:

No. of workers	Average output (units)
5	100
6	105
7	108
8	109

The change in output can be explained by _____.

A. The law of diminishing marginal returns

B. Diseconomies of scale

C. Economies of scale

D. The principle of comparative advantage

7. SP.MC.Q7

A firm increases all its inputs to double its output. The following table shows the change in total cost after a change in output.

Total Output (Units)	Total Cost ($)
10 000	60 000
20 000	140 000

Based on the above information, we can conclude that

A.   the firm enjoys economies of scale.

B.   the firm suffers from diseconomies of scale.

C.   the firm cannot cover its cost after doubling the output.

D.   the optimal scale of production is 10 000 units of output.

8. 2013.MC.Q4

Machines (units)	Labour (units)	Average Product (units)
2	3	30
2	4	40
2	5	50
2	6	55

A.   Short run … the law of diminishing returns does not apply

B.   Short run …the law of diminishing returns applies

C.   Long run … economies of scale exists

D.   Long run … diseconomies of scale exists

Answer

1.	C
2.	C (79%)
3.	C
4.	D
5.	A
6.	A
7.	B
8.	B
9.	
10.	