Q6. Explain the concepts of the short run and the long run.
Ans:
Short Run,
In short run, a firm cannot change all the inputs, which means that the output can be increased (decreased) only by employing more (less) of the variable factor (labour). It is generally assumed that in short run a firm does not have sufficient or enough time to vary its fixed factors such as, installing a new machine, etc. Hence, the output levels vary only because of varying employment levels of the variable factor.
Algebraically, the short run production function is expressed as

$Q_x = f(L,K)$

Where,
Q_x= units of output x produced
L = labour input
K= constant units of capital
Long Run,
In long run, a firm can change all its inputs, which means that the output can be increased (decreased) by employing more (less) of both the inputs – variable and fixed factors. In the long run, all inputs (including capital) are variable and can be changed according to the required levels of output. The law that explains this long run concept is called return to scale. The long run production function is expressed as

$Q_x = f(L,K)$
Both L and K are variable and can be varied.

Q7. What is the law of diminishing marginal product?
Ans: Law of Diminishing Marginal Product:
According to this law, if the units of the variable factor keep on increasing keeping the level of the fixed factor constant, then initially the marginal product will rise but finally a point will be reached after which the marginal product of the variable factor will start falling. After this point the marginal product of any additional variable factor will be zero, and can even be negative.

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