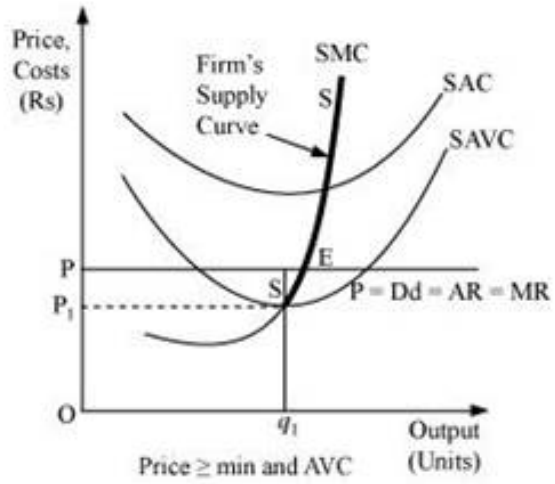
12. What is the supply curve of a firm in the short run?

Ans: The short run supply curve of perfect competitive firm is the summation of the upward sloping portion of SMC (above the minimum point of SAVC), when price ≥ min SAVC, and vertical portion of price-axis, when price < min SAVC.

Stage 1

When the price is greater than or equal to minimum of SAVC, i.e., P≥ min SAVC.

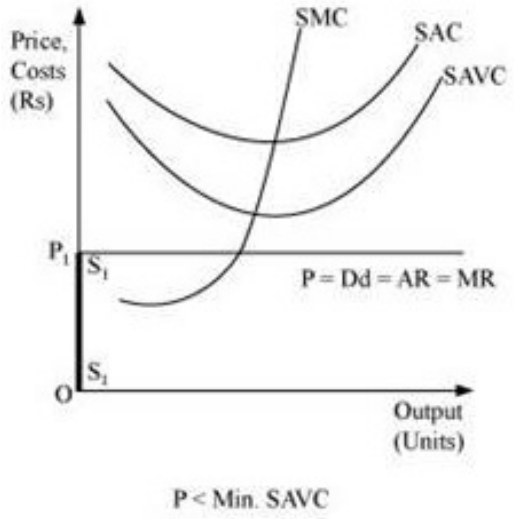


At the market price OP, the three following conditions for equilibrium are fulfilled:
MC = MR
MC is upward sloping
Price exceeds the minimum of SAVC
At this market price the firm is producing profit maximizing output Oq_1.

In this case, the supply curve of the firm is regarded as the upward sloping part of SMC (above the minimum point of SAVC), i.e. SS.
When the price is greater than or equal to minimum of SAVC, the supply curve is indicated by SS.

Stage 2

When the price is less than the minimum of SAVC



P < Min. SAVC

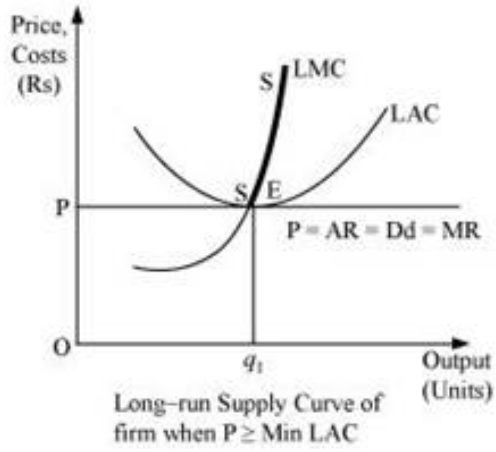
Let us suppose that the firm is facing price OP_1 that is lesser than the minimum of SAVC. At this price, the firm cannot continue production as it cannot even cover up its variable costs and thereby incurs losses, which implies that the firm would produce nothing. Thus, it will incur loss that will be equivalent to its fixed costs. It will be lesser compared to the losses associated with producing any positive output level. Thus, the firm will not produce anything at this price and thereby the quantity supplied will be zero. The firm's supply curve is indicated by the darkened vertical line S_1S_1.

Therefore, the short run supply curve of perfect competitive firm is (SS + S_1S_1).

Q13. What is the supply curve of a firm in the long run?

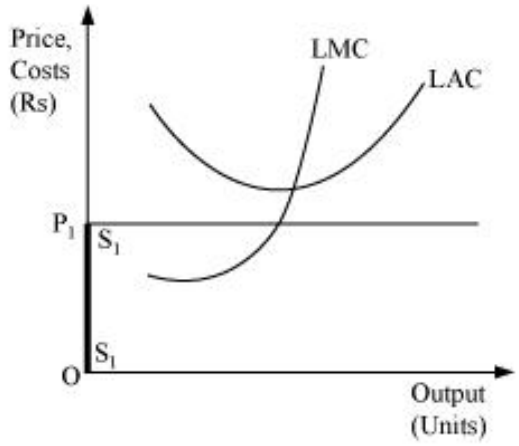
Ans: In the long run, as there is no fixed cost, the perfectly competitive firm's supply curve will be the summation of the upward sloping portion of SMC above the minimum point of LAC (when price ≥ minimum LAC), and the vertical portion of the price axis (when price < minimum of LAC). The long run supply curve of a perfect competitive firm is derived in two stages.

i. When price is equal to the minimum of LAC: Let us suppose that the firm is facing market price OP that exceeds the minimum of LAC. MC is equal to MR (at point E) and MC is positively sloped at this point of intersection. Also, the price is greater than the minimum of LAC. Thus, the firm is at long run equilibrium, facing the price OP and producing Oq_1 units of output. The supply curve is 'SS', represented by the upward portion of LMC above the minimum of LAC.

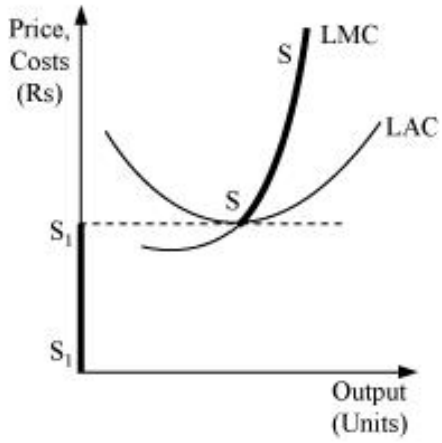


Long-run Supply Curve of firm when P ≥ Min LAC

ii. When the price is less than the minimum of LAC: Let us suppose that the market price faced by a firm is OP_1, which is less than the minimum of LAC. At this price, the firm would not produce any output because producing any output will lead the firm to incur losses. Therefore, the firm would not produce anything. So, the supply curve of the firm in the long run for the price less than the minimum of LAC is given by S_1S_1 and is represented by the darkened vertical part of the price axis.



Combining 1st and 2nd stages, the firm's long run supply curve under perfect competition is given by (S_1S_1 + SS).



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