Price Determination - HOTS & Applications

Q.1. Why is a firm under perfect competition a price taker?

Ans. An individual firm under perfect competition is a price taker owing to the following reasons:

(i) An individual firm under perfect competition makes such a small contribution to the market supply, that total supply schedule (or industry's supply curve) virtually remains unaffected by any change in the firm's supply. Accordingly, market price remains unaffected.

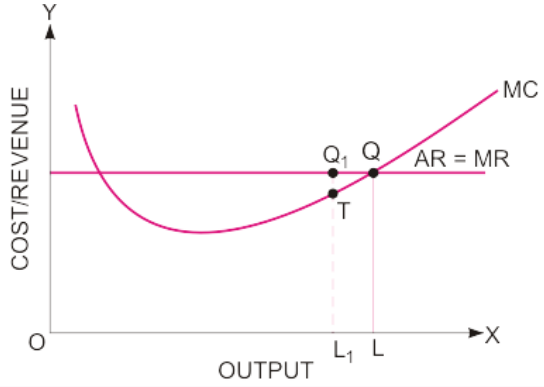
(ii) All firms in the market are selling homogeneous product. Accordingly, even partial control over price is not possible (through product differentiation).

(iii) If any firm tries to fix its own price it would not succeed. Higher price (than the market price) would drive the buyers to a large number of other sellers. Lower price would be an irrational decision when any amount of the commodity can be sold by a firm at the existing price.

Q.2. In a state of equilibrium, price greater than MC is ruled out for a perfectly competitive firm. Show diagrammatically.

Ans. Fig. 5 illustrates how price greater than MC is ruled out for a perfectly competitive firm in a state of equilibrium.

FIGURE 5



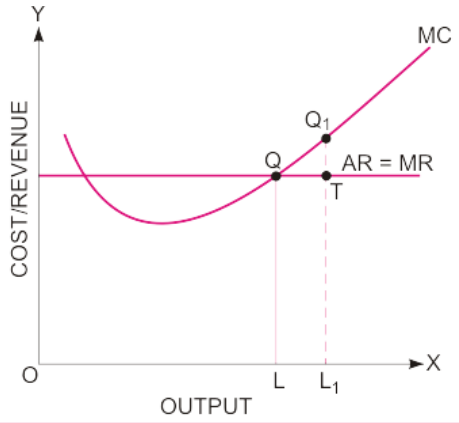
Equality between price (AR) and MC is struck at point Q where all the conditions of equilibrium are satisfied. OL is the equilibrium level of output. Suppose the firm decides to produce OL_1 output where AR (= L_1Q_1) > MC (= L_1T). As a consequence of shifting from Q to Q_1 ; loss of TR = Q_1L_1LQ, while the TC is saved to the tune of Q_1TQ. Evidently, reduction in TC (=Q_1TQ) is only a part of reduction in TR (= Q_1L_1LQ). Implying that the differential

between TR and TC (*i.e.*, profit) would reduce in case the firm shifts from point Q to Q_1 . Thus, profit is maximised only at point Q where price = MC.

Q.3. In a state of equilibrium, price lesser than MC is ruled out for a perfectly competitive firm. Show diagrammatically.

Ans. Fig. 6 illustrates how price (AR) lesser than MC is ruled out for a perfectly competitive firm in a state of equilibrium.

FIGURE 6

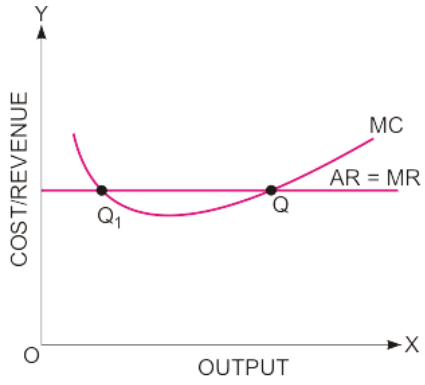


Equality between AR and MC is struck at point Q where all the conditions of equilibrium are satisfied. Suppose the firm decides to produce OL_1 output where AR (= L_1T) < MC (= L_1Q_1). As a consequence of shifting from Q to Q1 , incremental revenue (= LL_1TQ) < incremental cost (= LL_1Q_1Q). Incremental cost is greater than incremental revenue by the area QTQ_1 . Implying that the differential between TR and TC will reduce in case the firm shifts from point Q to Q_1 . Or, profit is maximised only at point Q where price = MC, not at any point where price (AR) > MC.

Q.4. MC curve cannot slope downward at the profit maximising output level. Show diagrammatically.

Ans. Fig. 7 illustrates how MC curve cannot slope downward at the profit maximising output level.

FIGURE 7

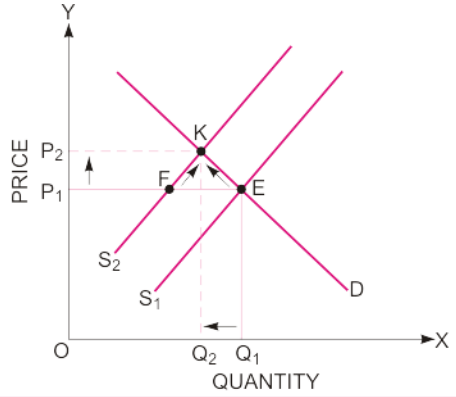


Equilibrium cannot be struck at a point like Q_1 where MC is falling. Simply because, when price is constant (as indicated by a horizontal straight line), falling MC would mean, TC should be increasing at a decreasing rate (we know MC is the rate at which TC increases, when output is expanded). Constant MR, on the other hand, would mean TR increases at a constant rate as output is expanded (we know MR is the rate of TR). Implying that, in a situation of falling MC, with the expansion of output, while TR would increase at a constant rate, TC would increase at a decreasing rate. Accordingly, so long as MC is falling (other things remaining constant), the difference between TR and TC would continue to enhance, or profit would continue to rise, or that profit will not be maximised. Profit will be maximised only when MC is not falling.

Q.5. "Erratic rainfall leads to hike in tomato prices."Use a diagram and economic theory to analyse the statement.

Ans. Erratic rainfall damages the tomato crop significantly, as a result, supply of tomato will fall. Reduction in supply of tomato leads to a shift in supply curve to the left, as in **Fig. 8**. Thus, supply curve shifts from S_1 to S_2 . Now a process sets in for a new equilibrium price as under:

FIGURE 8



In **Fig. 8**, D and S_1 are the initial demand curve and supply curve respectively. E is the initial equilibrium where supply and demand curves intersect each other. OQ_1 is the equilibrium quantity and OP_1 is the equilibrium price. Due to a decrease in supply, supply curve shifts to the left, from S_1 to S_2 . As an immediate impact of decrease in supply, there is excess demand, equal to EF (at the existing price). Because of this excess demand, price of the commodity tends to be higher than the equilibrium price. The rise in price leads to extension of supply and contraction of demand. Extension of supply occurs from point F towards point K. Contraction of demand occurs from point E towards point K. The process of extension of supply and contraction of demand continues till the excess demand is fully eliminated. K is the point of new equilibrium where the market clears itself once again. Equilibrium quantity reduces from OQ_1 to OQ_2 . The new equilibrium price is OP_2 which is higher than the old price OP_1 . Briefly, erratic

rainfall leads to a cut in supplies of tomato, along with a rise in equilibrium price.