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B.A Economics, Part - 1
Paper-I

Perfect Competition

Introduction

Perfect Competition is a market structure characterised by a complete absence of rivalry among the individual firms. Thus perfect Competition in economic theory has a meaning diametrically opposite to the everyday use of this term. In practice businessmen use the word competition as synonymous to rivalry. In theory, perfect Competition implies no rivalry among firms.

Assumptions

The model of perfect Competition is based on the following assumptions:

- **Large number of buyers and sellers**
- **Product homogeneity**
- **Free entry and exit of firms**
- **Profit maximisation**
- **No government regulations**
- **Perfect mobility of factors of production**
- **Perfect knowledge**

Short - Run Equilibrium

In order to determine the equilibrium of the industry we need to derive the market supply. This requires the determination of the supply of the individual firms, since the market supply is the sum of all the firms in the industry.

Equilibrium of the firm in the short Run

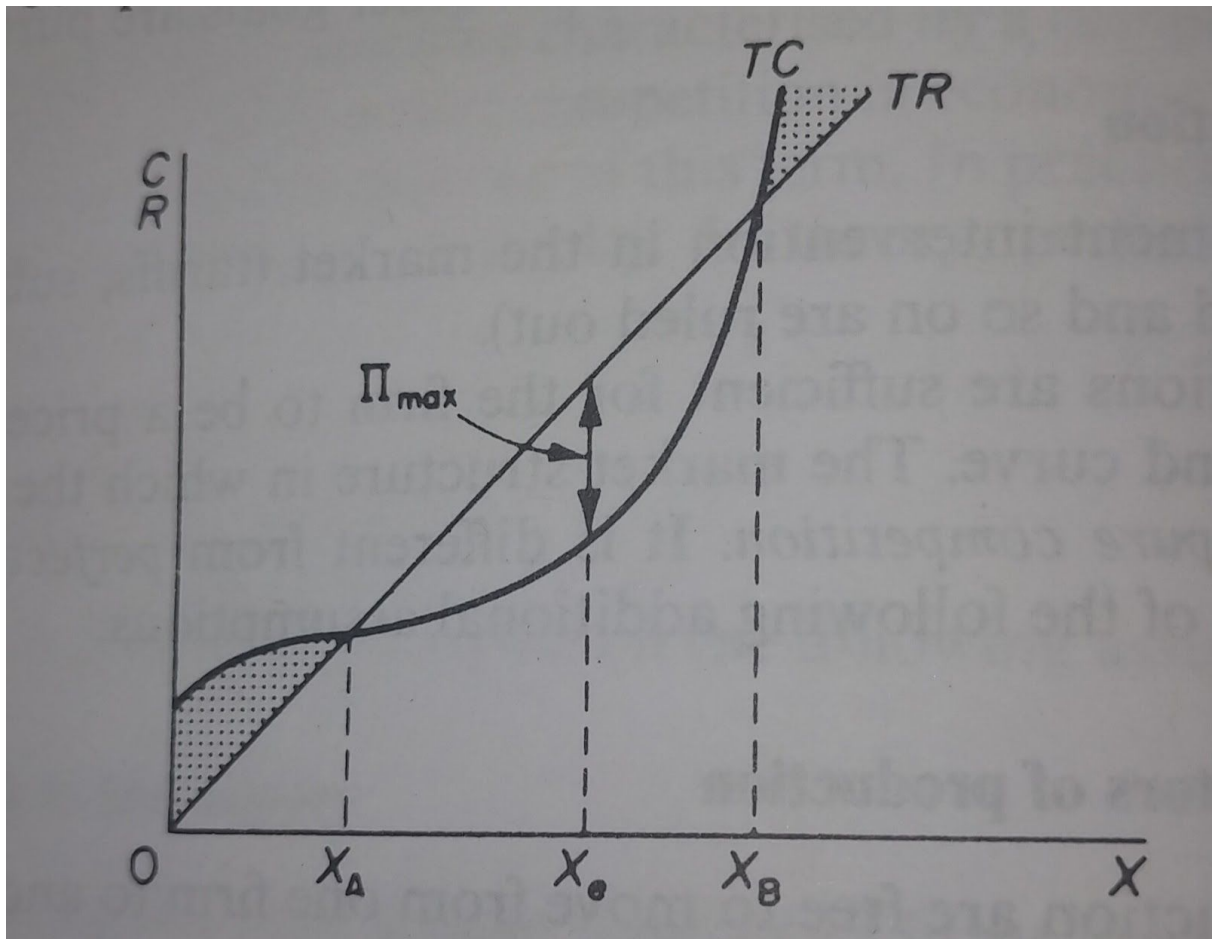
The firm is in equilibrium when it maximises its profit(π), defined as the difference between total cost and total revenue :

$$\pi = TR - TC$$

Given that the normal rate of profit is included in the cost items of the firm , π is the profit above the normal rate of return on Capital and the remuneration for the risk - bearing Function of the entrepreneur. The firm is in equilibrium when it produces the output that maximises the difference between TR and TC.

The Equilibrium of the firm may be shown graphically in two ways :

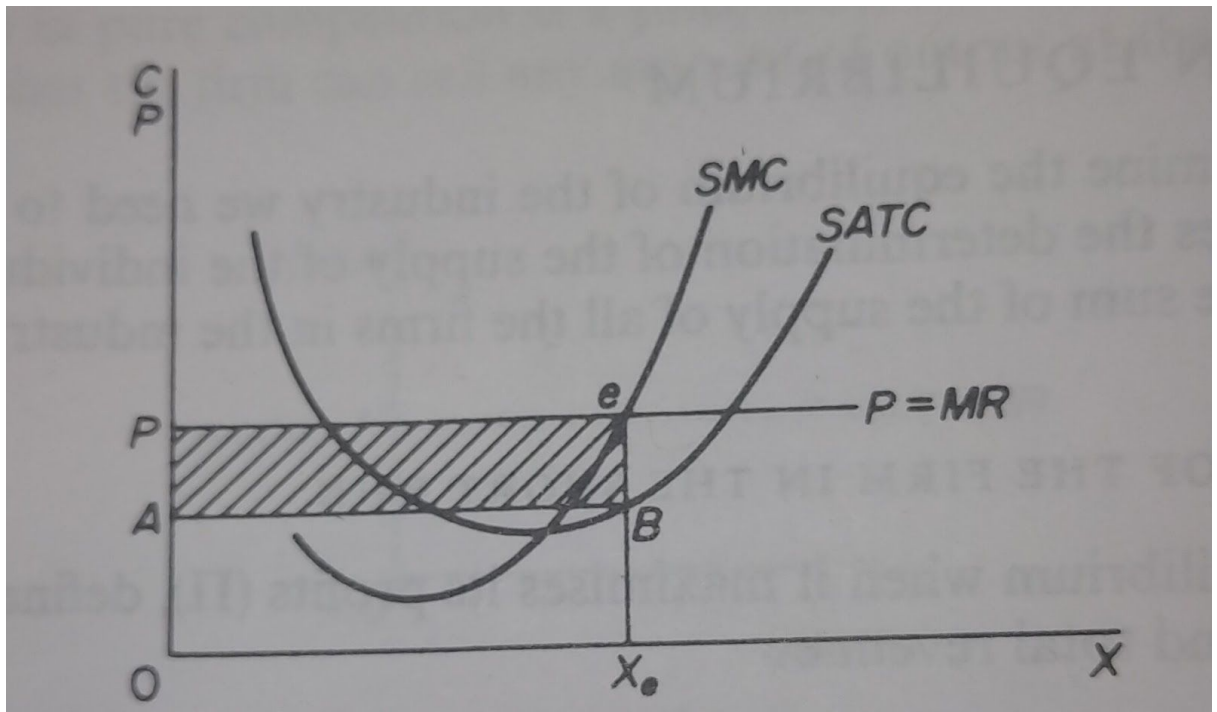
- *Either by using TR and TC curves*
- *Or , the MR and MC curves*



In the above given graph; The total revenue curve is a straight line through the origin, showing that price is constant at all levels of output. The firm is a price taker and can sell any amount of output at the going market price, with its TR increasing proportionately with its sales. The slope of the TR curve is the marginal revenue. It is constant and equal to the prevailing market price, since all units are sold at the same price. Thus in pure competition $MR = AR = P$

The shape of the total cost curve reflects the U shape of the average cost curve, that is the law of variable proportions. The firm maximises its profit at the output X_e , where the distance between TR and TC curves is the greatest. At lower and higher levels of output total profit is not maximised: at levels smaller than X_A and larger than X_B the firm has losses.

The total - Revenue and total - cost approach is awkward to use when firms are combined together in the study of the industry. The alternative approach, which is based on marginal cost and marginal revenue, uses price as an explicit variable, and shows clearly the behavioural rule that leads to profit maximisation.



In the above given graph , the demand curve is also the average revenue curve and the marginal revenue curve of the firm is a perfectly competitive market. The marginal cost cuts the SATC at its minimum point. Both curves are U shaped , reflecting the law of variable proportions which is operative in the short run during which the plant is constant. The firm is in equilibrium (maximises its profit) at the level of output defined by the intersection of the MC and the MR curves(At point e) . To the left of e, profit has not reached its maximum level because each unit of output to the left of X_e brings to the firm a revenue which is greater than its MC. To the right of X_e each additional unit of output cost more than the revenue earned by its sales, so that a loss is made and total profit is reduced. In summary:

- If $MC < MR$ total profit has not been maximised and it pays the firm to expand its output.
- If $MC > MR$ the level of total profit is being reduced and it pays the firm to cut its production.
- If $MC = MR$ short- run profits are maximised.

Thus , conditions of for Equilibrium:

1. $MC = MR$
2. Slope of $MC >$ Slope of MR

Equilibrium of the firm :

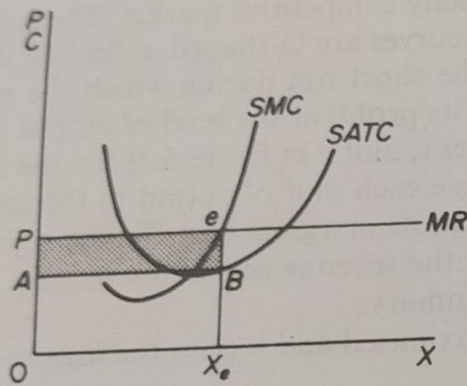


Figure 5.5

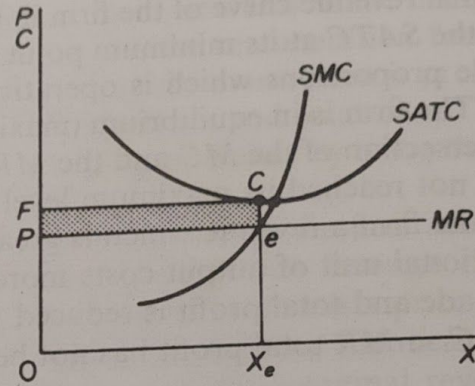
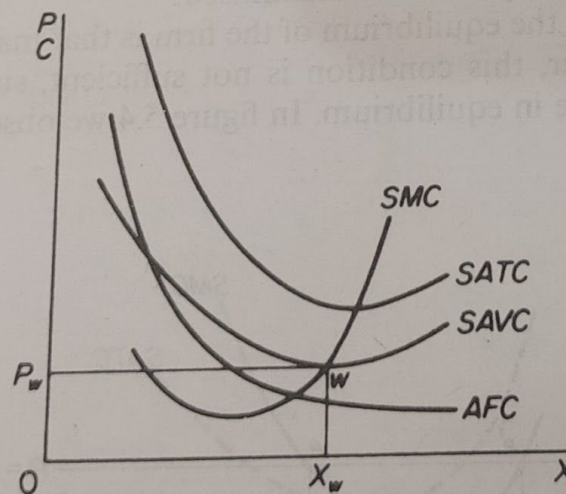
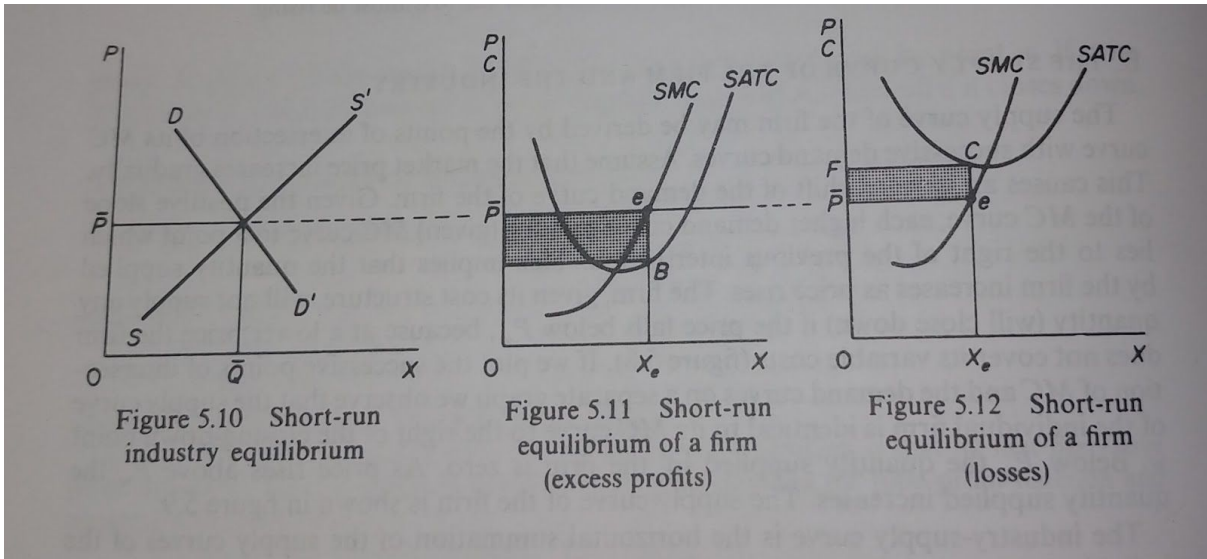


Figure 5.6



The fact that a firm is in short run equilibrium does not necessarily mean that it makes excess profits. whether the following makes Axis profits or losses depends on the label of the average total cost at the short run equilibrium. If the ATC is below the price at equilibrium (figure 5.5) the firm earns excess profits b(equal to the area PABe). If , however, the ATC is above the price (figure 5.6) the firm makes a loss (equal to the area FPeC). In the latter case the firm will continue to produce only if it covers it's variable costs. Otherwise it will close down , since by discontinuing it's operation the firm is better off : it minimises its losses .The point at which the firm covers its variable costs is called " **the closing - down or shut down point**" . In the given figure , the closing down point of the firm is debited by point w . If price falls below P_w the firm does not cover its variable costs and is better off if it close down.

Equilibrium of the Industry :



Explanation of the graph :

Given the Market demand and the market supply in the industry is in equilibrium at that price which clears the markets, that is at the price at which the quantity demanded is equal to the quantity supplied.

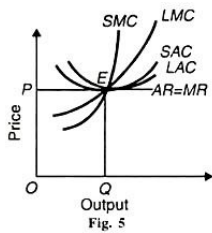
In fig 5.10 ; the industry is in equilibrium at price P , at which the quantity demanded and supplied is Q^{\wedge} . However, this will be a short run equilibrium, if at the prevailing price firms are making excess profits (In fig 5.11) or losses (In fig 5.12) In the long run, firms that make losses and can not readjust their plant will close down. Those that made excess profits will expand their capacity while excess profits will also attract new firms into the industry. Entry exit and readjustment of the remaining firms in the industry will lead to the the long run equilibrium in which firms will just be earning normal profits and there will be no entry or exit from the industry.

Long Run Equilibrium :

The long run is a period of time in which the firm can change its plant and scale of operations. Thus in the long-run all costs are variable and there are no fixed costs. The firm is in the long-run equilibrium under perfect competition when it does not want to change its equilibrium output.

It is earning normal profits. If some firms are earning supernormal profits, new firms will enter the industry and supernormal profits will be competed away. If some firms are incurring losses, some of the firms will leave the industry till all earn normal profits.

Thus there is no tendency for firms to enter or leave the industry because every firm must earn normal profits. "In the long-run, firms are in equilibrium when they have adjusted their plant so as to produce at the minimum point of their long-run AC curve, which is tangent (at this point) to the demand (AR) curve defined by the market price" so that they earn normal profits.



(1) In equilibrium, its short-run marginal cost (SMC) must equal to its long-run marginal cost (LMC) as well as its short-run average cost (SAC) and its long-run average cost (LAC) and both should equal $MR=AR=P$.

Thus the first equilibrium condition is:

$SMC = LMC = MR = AR = P = SAC = LAC$ at its minimum point, and

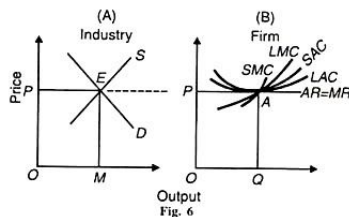
(2) LMC curve must cut MR curve from below: Both these conditions of equilibrium are satisfied at point E in Figure 5 where SMC and LMC curves cut from below SAC and LAC curves at their minimum point E and SMC and LMC curves cut AR = MR curve from below. All curves meet at this point E and the firm produces OQ optimum output and sells it at OP price.

Since we assume equal costs of all the firms of industry, all firms will be in equilibrium in the long-run. At OP price a firm will have neither a tendency to neither leave nor enter the industry and all firms will earn normal profits.

Long Run Equilibrium of the Industry

The industry is in equilibrium in the long-run when all firms earn normal profits. There is no incentive for firms to leave the industry or for new firms to enter it. With all factors homogeneous and given their prices and the same technology, each firm and industry as a whole are in full equilibrium where $LMC = MR = AR (-P) = LAC$ at its minimum.

Such an equilibrium position is attained when the long-run price for the industry is determined by the equality of total demand and supply of the industry.



The long-run equilibrium of the industry is illustrated in Figure 6 (A) where the long-run price OP is determined by the intersection of the demand curve D and the supply curve S at point E and the industry is producing OM output. At this price OP, the firms are in equilibrium at point A in Panel (B) at OQ level of output where $LMC = SMC = MR = P (= AR) = SAC = LAC$ at its minimum.

At this level, the firms are earning normal profits and have no incentive to enter or leave the industry. It follows that when the industry is in long-run equilibrium, each firm in the industry is also in long-run equilibrium. If both the industry and the firms are in long-run equilibrium, they are also in short-run equilibrium.
