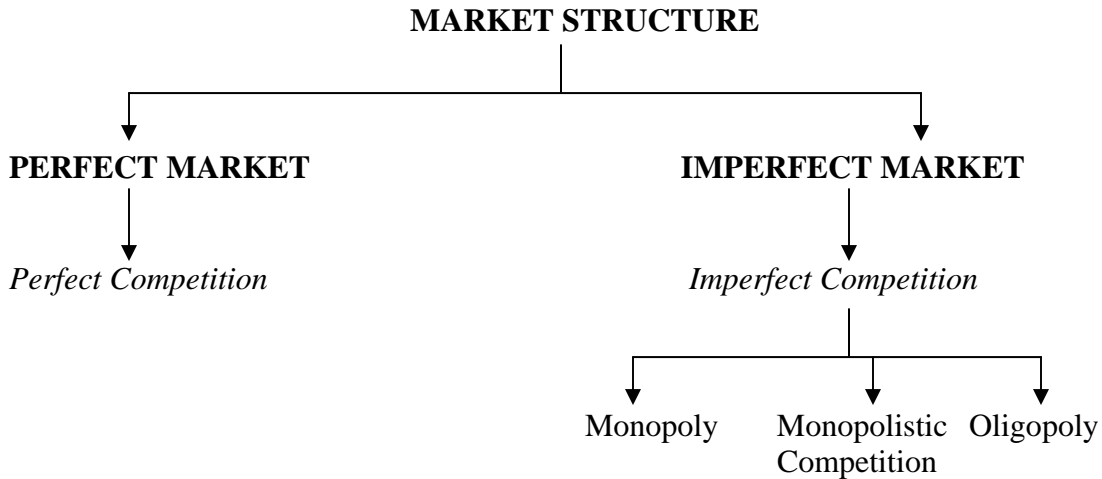


WEEK 4: PERFECT COMPETITION**PERFECT COMPETITION**

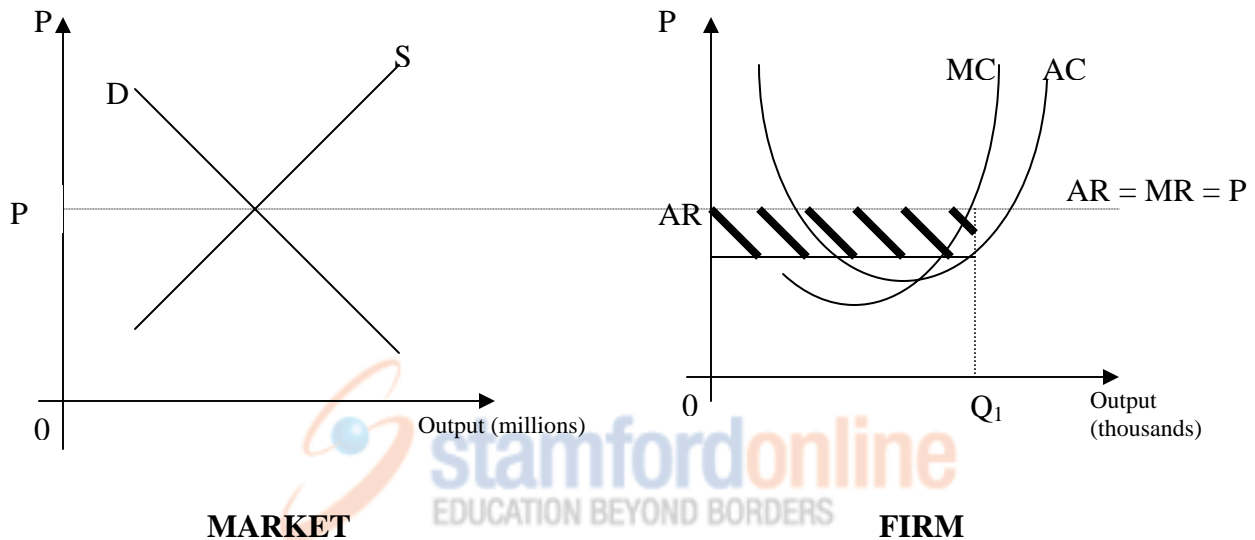
Under perfect competition, the firms in it are price takers.

The model of a perfect competition is built on the following assumptions:

- a) *There is a large number of buyers and sellers of the commodity*
- b) *Homogeneity of product*
- c) *Perfect knowledge*
- d) *Perfect mobility of factors*
- e) *Freedom of entry to and exit from the market*
- f) *It must be possible to buy or sell any amount of the commodity at the market price.*
- g) *No transportation charges or costs.*
- h) *No government intervention, 0% government involvement.*

Short run equilibrium

The short-run refers to a period in which the number of firms in the market is temporarily fixed (the period during which there is too little time for new firms to enter the industry). Depending on its costs and revenue, a firm may be earning large profits (abnormal / supernormal profits), small profits, no profits (normal profits or a loss/sub-normal profits); and in the short-run it may continue to do so.

Supernormal profits*Price*

The figures above show a short run equilibrium for both market and a firm under perfect competition. The diagram on the right shows the cost and demand curves of a firm in the short run making supernormal profit. The price is determined in the industry by the intersection of demand and supply. The firm faces a horizontal demand (or average revenue) curve at this price. The demand curve is a horizontal line indicating that the firm may not influence the price of the goods and has to accept the price that the market as a whole fixes. In other words, the firm under perfect market (competition) is a **price taker**. If the firm were to charge a higher price, it would lose all its sales and there is no point charging a lower price as it can sell all its output at the given price.

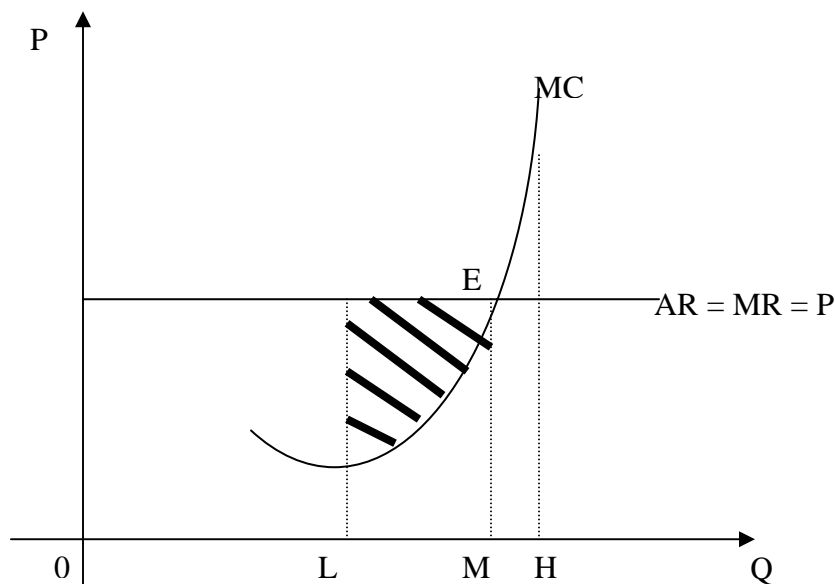
Output

The firm will maximize profit where marginal cost equals marginal revenue, at an output of Q_1 . Note that, since the price is not affected by the firm's output, marginal revenue will be equal to price. The reason is that the firm does not have to reduce its price in order to sell more. Thus, the demand curve (AR) and marginal revenue curve are the same horizontal straight line; every unit sold at price P increases total revenue by an amount P .

Profit

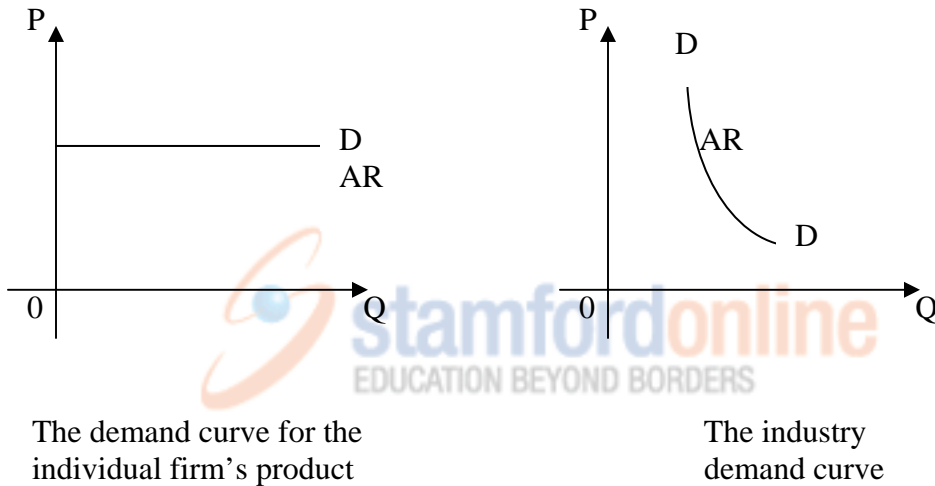
If the average cost (AC) curve dips below the average revenue (AR) curve, the firm will earn supernormal profit. Supernormal profit per unit at Q_1 is the vertical difference between the AR and AC at Q_1 . Total supernormal profit is the shaded rectangle in the figure **FIRM**.

Under perfect competition, the firms are price takers and their only decision is on how much to produce. In trying to maximize its profit, it can only choose the output that it thinks most advantageous. The best position for any business would be where **MR = MC**. If the cost of producing one more unit of output (MC) is less than the revenue the producers obtains for selling it, then profit can be increased by producing and selling that unit. Even when MC is rising, so long as MC is less than MR, the firm will go on producing because it is gaining extra profit. It does not matter if the extra profit is small; nevertheless it is an addition to profit.



From the figure above, the most profitable output is OM. If the business produces a smaller output OL, the cost of producing a unit (MC) is less than the revenue from selling it (P). The business could, therefore, increase its profits by expanding output. The shaded area represents the extra profit available to the producer as output expands. At point E (output OM), there is no more extra profit to be gained. If the firm were to produce a larger output (OH), then the cost of producing that unit (MC) would be greater than the revenue from selling it (P) and the firm will make losses if it continues to produce (OH).

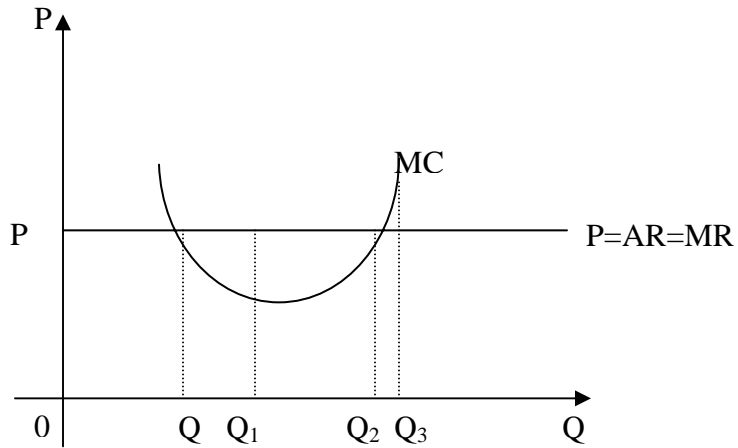
The demand curve under perfect competition



In the theory of the firm, the demand curve is usually labelled as AR (average revenue). In perfect competition market, **P = AR = MR**

PROFIT MAXIMIZATION

Profit maximization is achieved when **MC = MR**



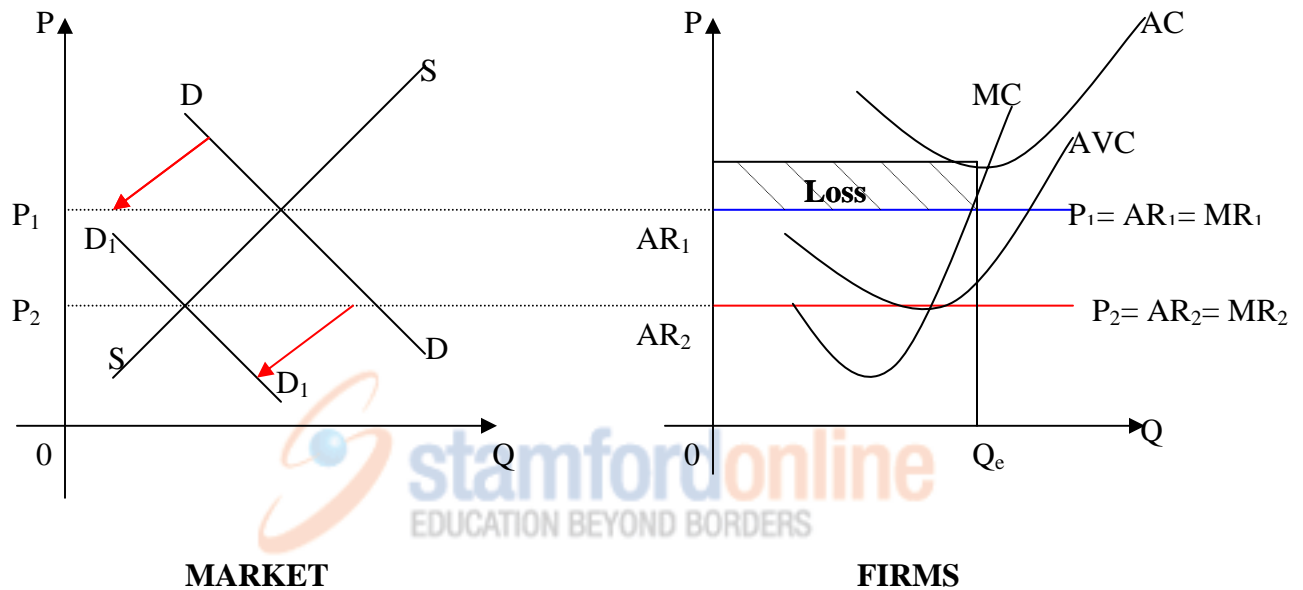
$Q_1 > Q = MC > MR \Rightarrow$ continue to produce because the firm is gaining profit

$Q_2 \Rightarrow MC = MR \Rightarrow$ profit maximized = output

$Q_3 \Rightarrow MR < MC \Rightarrow$ loss \Rightarrow not to produce

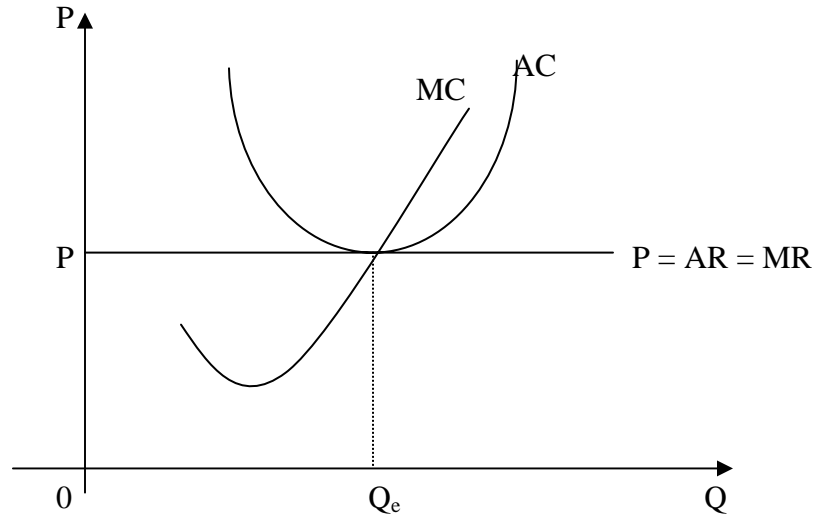
Sub-normal profit /Loss (AC > AR)

In the short run, the firm making sub-normal profit is able to continue as long as its average revenue (AR) is higher than its average variable cost (AVC). Eventually, the firm will shut down in the long run. It is better for the firm to continue its business if the AVC can be covered because it will make a smaller loss compared to the loss it would suffer if it were to shut down its business immediately.



This situation would occur if the AC curve lies above AR curve at all points. This is illustrated in the figures above, where the market price is P_1 . In this case, the point where $MC = MR$ represents the *loss minimizing point* (loss is defined as anything less than normal profit). The amount of the loss is represented by the shaded rectangle. In the short run, whether the firm is prepared to continue its business or whether to close down immediately depends on whether it can cover its *variable costs*. From the figure of **FIRMS**, price is above the average variable cost (AVC). The firm will continue producing because it will make a smaller loss compared to the loss it would suffer if it were to close down the business immediately. It will only close down in the short run if the market price is at or below P_2 .

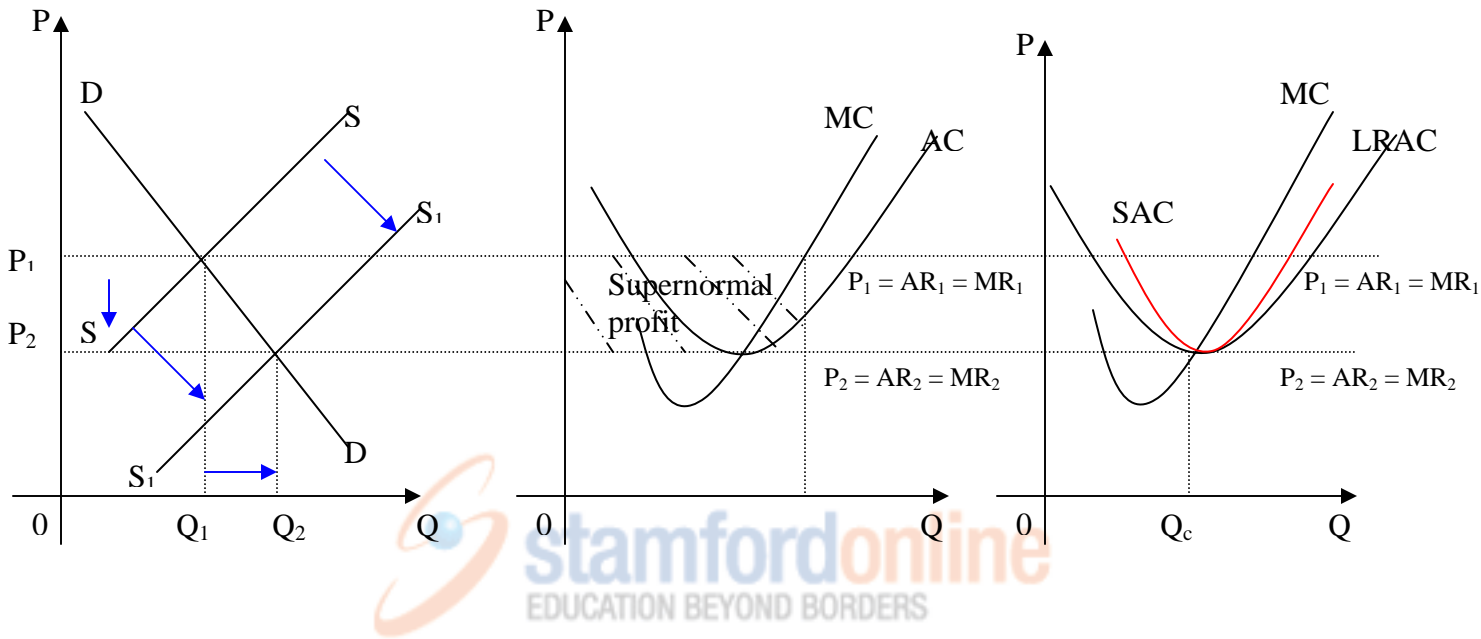
Normal profits ($AC = AR$)



This situation occurs when the $MR = MC = AR = AC = P$ where the firm is not earning any profit or making any loss. It just covers the total costs. This is the minimum amount of profit the firm must make so that they can stay in the industry (market). Normal profits can be defined as the opportunity cost to the owners of the firm of being in the industry. This is the minimum amount of returns the owners must make on their capital in order to prevent them from eventually deciding to close down or make into some alternative business. In other words, normal profit is the minimum amount of profit that is necessary to keep the firm in the industry.

LONG RUN EQUILIBRIUM

In the long run, 'the level of profits will affect entry and exit from the market'. If profits are high, new firms will be attracted into the industry or the existing firms may expand their scale of production, whereas if losses are made, firms will leave or reduce their scale of production. *The long run under perfect competition may be defined as the period of time which is long enough for new firms to enter or existing firms to leave the market.*



(a) MARKET

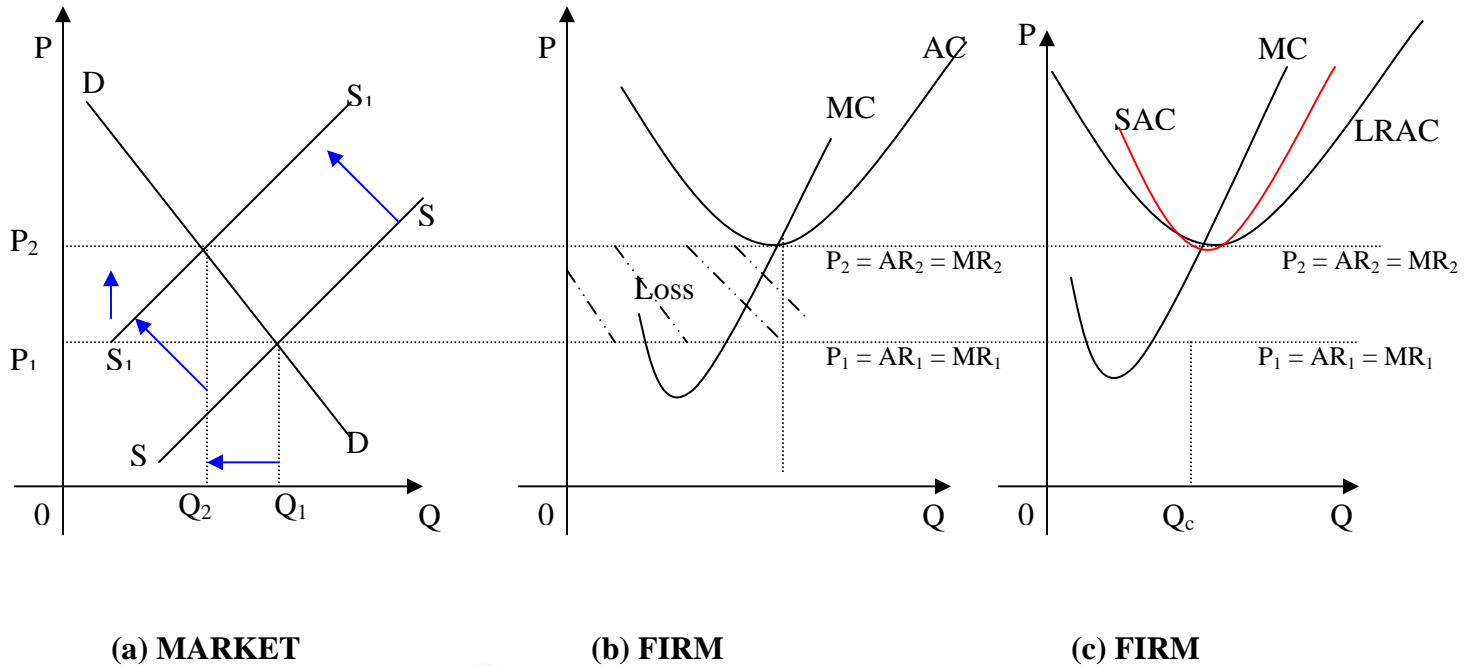
(b) FIRM

(c) FIRM

In the long run, if typical firms are making supernormal profits, new firms will be attracted into the market. (Note: *under perfect competition, firms have the freedom to enter and exit the market*). If existing firms can make supernormal profits by increasing the scale of production, they will do so, since all the factors of production are variable in the long run. The effect of the entry of new firms or the expansion of existing firms is to increase market supply. This is illustrated in figure (a). When more firms enter the market or existing firms expand the scale of production, *ceteris paribus*, the supply of product will increase and this will cause the supply curve to move from SS to S₁S₁. Thus, this in turn leads to a fall in price. **Supply will go on increasing and price falling until firms are making only normal profit. This will be when price has fallen to the point where the demand curve (AR) for the firm just touches the bottom of its long run average costs curve (LRAC). Q_c is thus the long run equilibrium output of the firm, with P₂ the long run equilibrium price.**

LONG RUN EQUILIBRIUM IS WHERE:-

$$\mathbf{LRAC = AC = MC = MR = AR = P}$$



If the firms are making subnormal profits (loss) in the short run, they are able to continue producing as long as the variable costs can be covered but in the long run they will leave the market. The effect of the leaving of existing firms is that the supply in the market will be lesser. This can be illustrated in figure (a). When the firms leave the market it will cause the supply curve to shift from SS to S_1S_1 . Thus, this in turn leads to a rise in price. **Supply will go on decreasing and price will rise until firms are making only normal profit. This is when price has risen to the point where the average revenue (AR) curve just touches the bottom of the long run average cost (LRAC) curve. Q_c is thus the long run equilibrium output of the firm, with P_2 the long run equilibrium price.**

The conclusion that can be made from the information is that:-

Long term equilibrium will exist when supernormal profits and subnormal profits are ELIMINATED. There is no incentive for firms to enter or leave the industry and the price will remain the same with the firms making normal profit only. Long run equilibrium will, then, occur in the industry when there are no more firms entering or leaving the industry because no new firm can think it could earn higher profits by entering and no existing firm thinks it could do better by leaving. In the long run, then all firms in the industry will have $LRAC = AC = MC = MR = AR = P = (DEMAND)$ as in figure (c).

Learning Outcomes:

Students should be able to:

- Identify and demonstrate perfect competition
- Examine short run and long run equilibrium

Main Reference

Case, K. E., & Fair, R. C. (2007). *Principles of Economics* (8th ed.). Prentice Hall, Chapter 12.

Other Reference

Slooman, J. (1999). *Essentials of Economics* (3rd ed.). Prentice Hall, Chapter 6.

Review Questions

1. What are the characteristics of perfect competition?
2. When is the firm in short run equilibrium?

