# **The Theory of the Firm under Perfect Competition**

## **Multiple Choice Type Questions**

- 1. perfect competition is an industry with
- a. A few firms producing identical goods.
- b. Many firms producing goods that differ somewhat.
- c. A few firms producing goods that differ somewhat in quality.
- d. Many firms producing identical goods.
- 2. Firms use marketing to
- a. influence a consumer's buying decision.
- b. convince customers that their product is worth its price.
- c. persuade buyers that their product is superior to others.
- d. All of the above answers are correct
- 3. In perfect competition the elasticity of demand for the product of a single firm is
  a. infinite, because many other firms produce identical products.
  b. zero, because many other firms produce identical products.
  c. zero, because the firm produces a unique product.
  d. infinite, because the firm produces a unique product.
- 4. Total economic profit is
- a. total revenue minus total opportunity cost.
- b. marginal revenue minus marginal cost
- c. total revenue divided by total cost
- d. marginal revenue divided by marginal cost
- 5. If you have found the percentage of the value of sales accounted for by the four largest firms in an industry, you have found the
  - a. elasticity of supply value
  - b. herfindahi- Hirschman index.
  - c. elasticity of demand value
  - d. four- firm concentration ratio.

# <u>ANSWER</u>

1. (d) 2. (d) 3. (a) 4. (a) 5. (d)

# SHORT ANSWER QUESTIONS

1. Describe the Nature of Prices Prevailing in a Competitive Market.

<u>Answer:</u> In a competitive market, the prices are decided by the market forces of demand and supply. It means that no individual buyer or seller can control the cost of the commodity. The units can be sold only at a price fixed by the industry. In other words, the firm is a price taker, and the industry is a price maker. In essence, there are uniform prices in a competitive market for a commodity. 2. What is a Market?

<u>Answer:</u> A market can be seen as a place where the producers and consumers of a commodity come in contact with each other. Buyers and sellers don't need to assemble at a particular home and make transactions happen. The most important condition is that producers and consumers should be able to communicate with each other. Market refers to the whole region where buyers and sellers of a commodity are in contact with each other to affect the purchase and sale of the entity.

3. How are the total revenue of a firm, market price, and the quantity sold by the firm related to each other?

<u>Answer:</u> The total revenue of a firm is the sum of all revenue earned by the firm. The market price is the price under which the product is sold in the market. In an ideal scenario, the company can control the market price by determining the amount of output that gets sold. And thereby, the company dictates its own scale of revenue.

3. What is the 'price line'?

<u>Answer</u>: A price line or a budget line represents the various combinations and possible quantities of two goods that can be purchased with a given income and assumed prices.

4. Why is the total revenue curve of a price-taking firm an upward-sloping straight line? Why does the curve pass through the origin?

<u>Answer:</u> For a price-taking firm, the Average Revenue (AR) is always constant. When AR is constant, Marginal Revenue (MR) is also constant. This means that the Total Revenue (TR) of the firm increases in the same proportion when the price is also constant. Therefore, we see a TR curve that slopes upward as a straight line. When the output level is zero, the TR curve passes through the origin.

#### LONG ANSWER QUESTION

1. What are the characteristics of a perfectly competitive market?

<u>Answer:</u> A perfectly competitive market exhibits the following characteristics.

i) There are many sellers and buyers in every category.

ii) Multiple choices for similar products.

iii) Sellers or buyers are well-informed and are free to make decisions based on their knowledge of the market.

iv) All the products are homogeneous. Because every product has the same properties, a uniform price can be achieved.

v) There is no price control and the producers can set the prices as per the market demands and supply chains available.

vi) There is no extra cost due to marketing or advertising.

vii) All companies have access to the market without any transport cost.

2. What are the characteristics of a perfectly competitive market?

#### **Answer: Perfect Competition**

This type of market structure refers to the market that consists of a large number of buyers and also a large number of sellers. No individual seller is able to influence the price of an existing product in the market. All sellers in a perfect competition produce homogenous outputs, i.e. the outputs of all the sellers are similar to each other and the products are uniformly priced.

#### Features of Perfectly Competitive Market

#### 1) A large number of buyers and sellers

There exist a large number of buyers and sellers in a perfectly competitive market. The number of sellers is so large that no individual firm owns the control over the market price of a commodity.

Due to the large number of sellers in the market, there exists a perfect and free competition. A firm acts as a price taker while the price is determined by the *'invisible hands of market'*, i.e. by 'demand for' and 'supply of' goods. Thus, we can conclude that under perfectly competitive market, an individual firm is a price taker and not a price maker.

#### 2) Homogenous products

All the firms in a perfectly competitive market produce homogeneous products. This implies that the output of each firm is perfect substitute to others' output in terms of quantity, quality, colour, size, features, etc. This indicates that the buyers are indifferent to the output of different firms. Due to the homogenous nature of products, existence of uniform price is guaranteed.

#### 3) Free exit and entry of firms

In the long run there is free entry and exit of firms. However, in the short run some fixed factors obstruct the free entry and exit of firms. This ensures that all the firms in the long-run earn normal profit or zero economic profit that measures the opportunity cost of the firms either to continue production or to shut down. If there are abnormal profits, new firms will enter the market and if there are abnormal losses, a few existing firms will exit the market.

#### 4) Perfect knowledge among buyers and sellers

Both buyers and sellers are fully aware of the market conditions, such as price of a product at different places. The sellers are also aware of the prices at which the buyers are willing to buy the product. The implication of this feature is that if any individual firm is charging higher (or lower) price for a homogeneous product, the buyers will shift their purchase to other firms (or shift their purchase from the firm to other firms selling at lower price).

#### 5) No transport costs

This feature means that all the firms have equal access to the market. The goods are produced and sold locally. Therefore, there is no cost of transporting the product from one part of the market to other.

## 6) Perfect mobility of factors of production

There exists geographically and occupationally perfect mobility of factors of production. This implies that the factors of production can move from one place to other and can move from one job to another.

#### 7) No promotional and selling costs

There are no advertisements and promotional costs incurred by the firms. The selling costs under perfectly competitive market are zero.

3. Will a profit-maximising firm in a competitive market ever produce a positive level of output in the range where the marginal cost is falling? Give an explanation.

<u>Answer:</u> It is not possible for any perfect competitive firm to produce a positive level of output in a range where MC is falling. This is because, according to one of the conditions of profit-maximisation, MC curve should be upward sloping or the slope of MC curve should be positive at the equilibrium level of output.

#### Let us take an example:

At point Z price is equal to MC, but MC is falling and is negatively sloped. For any level of output more than  $Oq_0$ , the firm is facing price > MC, which implies that the profit can be maximised by increasing the output level further.



Hence, the point 'E' is the equilibrium point, where a profit maximising firm would operate and produce  $Oq_1$  units of output and its profit will be maximised.

4. Will a profit-maximising firm in a competitive market produce a positive level of output in the short run if the market price is less than the minimum of *AVC*? Give an explanation.

<u>Answer:</u> It is not possible for a firm to produce positive level of output in the short run if the price is less than the minimum of AVC. This is because as soon as the market price falls below the minimum of SAVC, which implies that the firm is not able to cover its fixed as well as variable costs, and thus it will stop production.

## Let us understand this concept by taking an example:



At the point K, price charged by the firm is ON and output sold is Oq<sub>1</sub>, and the firm generates TR.

 $TR = P \times Q$ 

 $= OP \times Oq_1$ 

= area (rectangle Oq<sub>1</sub>LP)

And incurs the variable cost of TVC

TVC = SAVC × Quantity of output

 $= ON \times Oq_1$ 

= area (rectangle Oq<sub>1</sub>KN)

Profit earned by the firm = TR - TC = TR - (TVC + TFC)

= TR - TVC - TFC

If the firm is not producing anything then at zero level of output, the firm's TR and TVC will be zero. However, the firm has to bear TFC. Thus at zero level of output, the profit earned by the firm is

Profit =  $\pi_1$  = TR - TVC - TFC

 $\pi_1 = -TFC$ 

Now if it produces Oq<sub>1</sub> level of output, then the profit earned will be

 $\pi_2 = TR - TVC - TFC$ 

= area (rectangle Oq<sub>1</sub>LP) – area (rectangle Oq<sub>1</sub>KN) – TFC

Or,  $\pi_2$  = -area (rectangle PLKN) - *TFC* 

This implies that  $\pi_1$  is greater than  $\pi_2$ . The firm incurs more loss if it produces  $Oq_1$  level of output than the loss associated with zero level of output. Thus the firm will stop production whenever P <

SAVC and therefore at profit maximising level of output, the price must be greater than or equal to SAVC in the short run.

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

<u>Answer</u>: 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  $\geq$  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.

#### 1. 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.



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

