

MICRO ECONOMICS - II

II SEMESTER

Core course

For

B A ECONOMICS

(CUCBCSS)

(2014 Admission onwards)



UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

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UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

STUDY MATERIAL

CORE COURSE

For

B.A. ECONOMICS

MICRO ECONOMICS-II

II Semester

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Module I: Theory of Costs

Explicit and implicit costs, opportunity cost, private cost, social cost, economic cost, accounting cost, sunk cost, fixed and variable cost, marginal and average cost -Short run and Long run cost curves - Modern theory of costs - Short- run costs - AFC, AVC, ATC – Longrun L shaped cost curves.

Basic concepts

1. Explicit costs

Explicit costs are the actual out- of –pocket expenditure of the firm to purchase or hire the inputs it requires in production. These expenditures include the wages to hire labor, interest on borrowed capital, rent on land and buildings, and the expenditures on raw and semi finished materials.

2. Implicit costs

Implicit costs refer to the value of the inputs owned and used by the firm in its own production processes. The value of these owned inputs must be imputed or estimated from what these inputs could earn in their best alternative use.

3. The opportunity cost.(Economic Cost)

The opportunity cost of producing a particular good is the cost in terms of other goods which might have been produced using the same resource.

4. private costs

Private costs are the opportunity costs incurred by individuals and firms in the process of producing goods and services.

5. Social costs are the costs incurred by society as a whole in the process of producing goods and services.

6. Accounting cost:

Monetary value of economic resources used in performing an activity.

7. Sunk cost

In economics and business decision-making, a sunk cost is a cost that has already been incurred and cannot be recovered. The cost is "sunk" because it was a one-time expense and cannot be recovered once spent.

8. Total fixed costs

Total obligations of the firm per time period for all fixed inputs. These include payments for renting the plant and equipment , most kinds of insurance, property taxes, and salaries of administrative staff etc.

9. Total variable costs

Total obligation of the firm per period for all the variable inputs of the firm. These include payments for raw materials, fuels, most types of labor, excise taxes and so on.

10. Average fixed cost

Average Fixed cost equals total fixed costs divided by output.

11. Average variable cost

Average variable cost equals total variable costs divided by output.

12. Average total cost

Average total cost is obtained by total cost divided by output. It is also defined as the sum total of average variable cost and average fixed cost. $ATC=AFC+AVC$.

13. Marginal Cost

The marginal Cost is defined as the change in total cost which results from a unit change in output. Graphically, the MC is the slope of the TC curve.

14. The planning curve

The long run cost curve is the planning in the sense that it is a guide to the entrepreneur in his decision to plan the future expansion of his output.

15. Envelop curve

In the traditional theory of the firm, the long run cost curve is called envelop curve, because it envelops the short run curves.

16. Excess capacity

A situation in which actual production is less than what is achievable or optimal for a firm. Excess capacity is shown with the help of short run average variable cost curve i.e. if the actual production is to the left of the minimum point of SAVC, the firm producing below capacity or operating with excess capacity.

17. Reserve capacity

In the modern theory of the cost the business men will choose the size of the plant which allow him to produce his anticipated output more efficiently and with maximum flexibility when factors like demand changes cyclically and seasonally. In such situation the plant will have capacity larger than expected average level of sales. Such capacity is called reserve capacity.

18. Load factor

The level of utilization of the plant which firms consider as normal is called the load factor of the plant.

Multiple choice questions

1. Cost functions are derived from(demand functions, production functions, supply functions)
2. The U shape of the average total cost curve reflects(LDMU,The Law Of Variable Proportions, Consumer's Surplus)
3. The total fixed cost is a (horizontal straight line, vertical, hyperbola)
4. The shape of average fixed cost is (horizontal straight line, vertical, rectangular hyperbola)
5. The shape of TVC and TC are (rectangular hyperbola, inverse 'S' shape, horizontal straight line)
6. The inverse 'S' shape of the TVC and TC are due to (LDMU, Law of Variable Proportions, MRS)
7. The MC curve cuts the AC curve at(The maximum point, The initial Point, The minimum Point)
8. The minimum point of ATC is at position of the minimum point of AVC(right, left, same)
9. If the long run cost curve shifts down wards it is an indication of (technological progress, lower factor prices, both of these)
10. The U shape of the LAC reflects(Law of Variable proportions, Laws of returns to scale, none of these)
11. The long run cost curve in the traditional theory is (Envelops curve , Planning curve, Both of these)
12. In the modern theory of cost, the short run average variable cost is (saucer shaped, U shaped , none of these)
13. The short run average variable cost is saucer shaped because of the presence of (excess capacity, reserve capacity, none of these)
14. In the modern theory of cost, the long run cost curve is roughly (U shaped, L shaped , None of these)

Short essay type questions

1. **Explain the various short run cost concepts in the traditional theory of cost and point out the reasons for the respective shapes.**

In the traditional theory of the firm total costs are split into two groups: total fixed costs and total variable costs:

$$TC=TFC+TVC$$

The fixed costs include:

- a)salaries of administrative staff

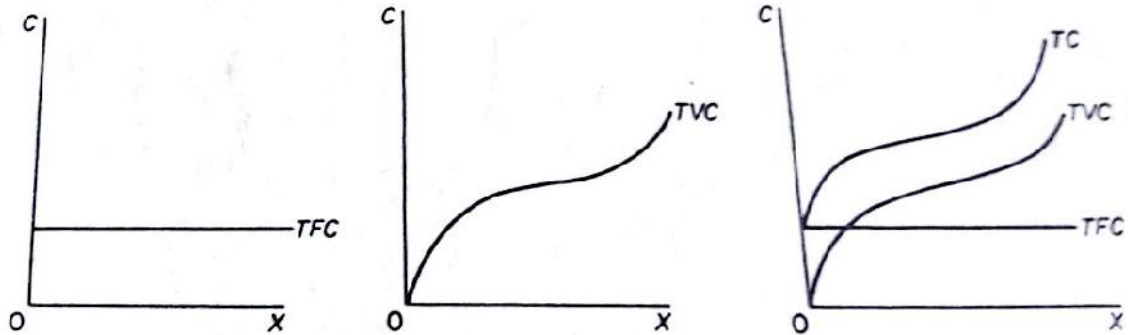
- b)depreciation of machinery
- c)expenses of building depreciation and repairs
- d) expenses for land maintenance and depreciation

Another element that may be treated in the same way as fixed costs is the normal profit, which is lump sum including a percentage return on fixed capital and allowance for risk.

The variable cost include

- a)the raw materials,
- b)the costs of direct labour
- c) the running expenses of fixed capital, such as fuel, ordinary repairs, and routine maintenance.

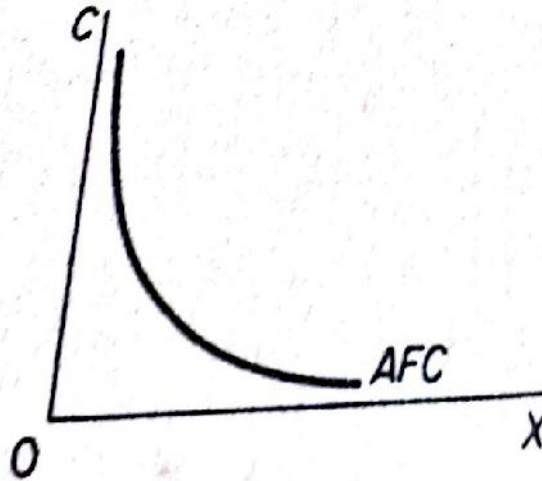
The total fixed cost is denoted by a straight line parallel to the output axis. The total variable cost in the traditional theory of the firm has broadly an inverse – S shape which reflects the law of variable proportions. According to this law, at the initial stages of production with a given plant, as more of the variable factor is employed, its productivity increases and average variable cost falls.



This continues until the optimal combination of the fixed and variable factors is reached, beyond this point as increased quantities of the variable factors are combined with the fixed factors productivity of the variable factors declines. By adding the TFC and TVC we obtain the TC of the firm.

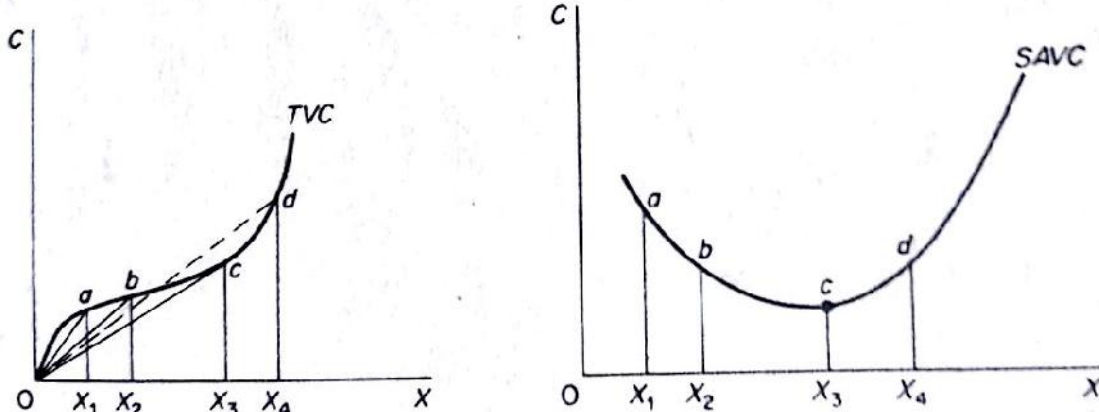
From the total cost curves we obtain average cost curves. The average fixed cost is found by

dividing TFC by the level of output. $AFC = \frac{TFC}{X}$



Graphically, the AFC is a rectangular hyperbola, showing at all its points the same magnitude, that is, the level of TFC. The average variable cost is similarly obtained by dividing TVC with the corresponding level of output.

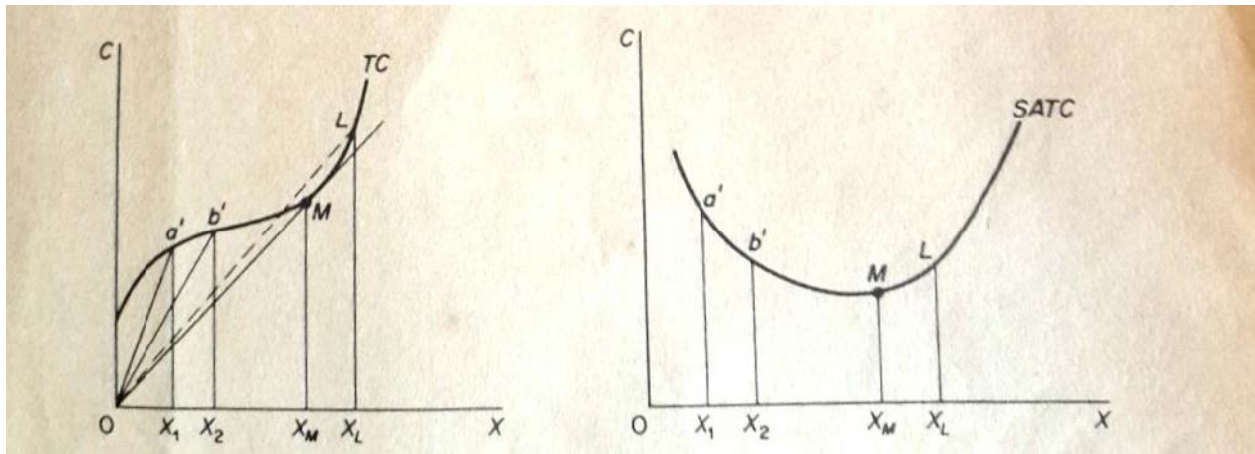
$$AVC = \frac{TVC}{X}$$



Graphically, the AVC at each level of output is derived from the slope of a line drawn from the origin to the point on the TVC curve corresponding to the particular level of output. For example in the figure, the AVC at X_1 is the slope of the line Oa , the AVC at X_2 is the slope of the ray Ob , and so on. It is clear from figure that the slope of a ray through the origin declines continuously until the ray becomes tangent to the TVC curve at c . To the right of this point the slope of the rays through the origin starts increasing. Thus the SAVC curve falls initially as the productivity of the variable factor increases, reaches a minimum when the plant is operated optimally, and rises beyond that point.

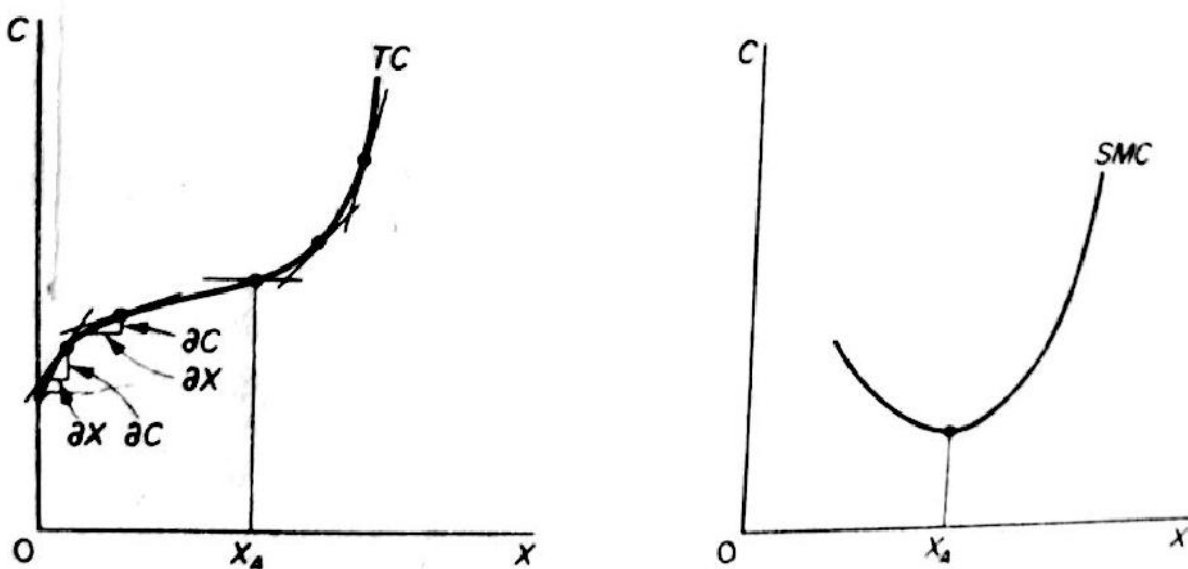
The ATC is obtained by dividing TC by the corresponding level of output:

$$ATC = \frac{TC}{X} = \frac{TFC + TVC}{X} = AFC + AVC$$



Graphically ATC curve is derived in the same way as the SAVC . The ATC at any level of output is the slope of the straight line from the origin to the point on the TC curve corresponding to that particular level of output. The shape of the ATC is similar to that of AVC. Initially the ATC declines, It reaches a minimum at the level of optimal operation of the plant (X_m) and subsequently rises again. The U shape of both AVC and ATC reflects the law of variable proportions. The marginal cost is defined as the change in TC which results from a unit change in output. Mathematically, the marginal cost is the first derivative of the TC function. Denoting the total cost by C and output by X we have

$$MC = \frac{\partial C}{\partial X}$$

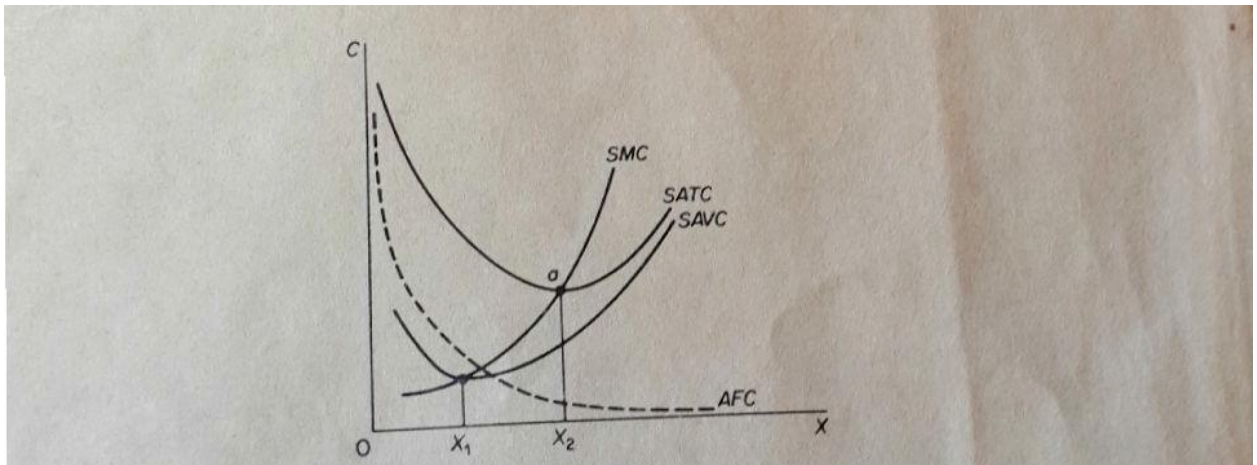


Graphically the MC is the slope of the TC curve. The slope of a curve at any points is the slope of the tangent at that point. With the inverse S shape of the TC the MC curve will be U shaped. In the figure we observe that the slope of the tangent to the total cost curve declines gradually, until it becomes parallel to the X –axis, and then starts rising. Accordingly we picture the MC curve as U shaped.

In summary: the traditional theory of costs postulates that in the short run, the cost curves (AVC, ATC, and MC) are U shaped, reflecting the law of variable proportions. In the short run with a fixed plant there is a phase of increasing productivity (falling unit costs) and a phase of decreasing productivity (increasing unit costs) of the variable factors. Between these two phases of plant operation there is a single point at which unit costs are at a minimum. When this point on the SATC is reached the plant is utilized optimally, that is, with the optimal combination of fixed and variable factors.

2. Explain the relationship between ATC and AVC in the traditional theory of costs.

The AVC is a part of the ATC, given $ATC = AFC + AVC$. Both AVC and ATC are U shaped, reflecting the law of variable proportions. However, the minimum point of the ATC occurs to the right of the minimum point of the AVC. This is due to the fact that ATC includes AFC, and the latter falls continuously with increase in output. After the AVC has reached its lowest point and starts rising, its rise is over a certain range offset by the fall in the AFC, so that the ATC continues to fall despite the increase in AVC. However, the rise in AVC eventually becomes greater than the fall in the AFC so that ATC starts increasing. The AVC approaches the ATC asymptotically as X increases.



In the figure, the minimum AVC is reached at X_1 , while the ATC is at its minimum at X_2 . Between X_1 and X_2 the fall in AFC more than offsets the rise in AVC so that the ATC continues to fall. Beyond X_2 the increase in AVC is not offset by the fall in AFC, so that ATC rises.

The relationship between MC and ATC

The MC cuts the ATC and the AVC at the lowest points. The MC is the change in the TC for producing an extra unit of output. Assume that we start from a level n units of output. If we

increase the output by one unit the MC is the change in total cost resulting from the production of the $(n+1)^{\text{th}}$ unit.

The AC at each level of output is found by dividing TC by X. Thus the AC at the level of X_n is

$$AC_n = \frac{TC_n}{X_n} \quad \text{and the AC at the level of } X_{n+1} \text{ is } AC_{n+1} = \frac{TC_{n+1}}{X_{n+1}}$$

Clearly $TC_{n+1} = TC_n + MC$

Thus,

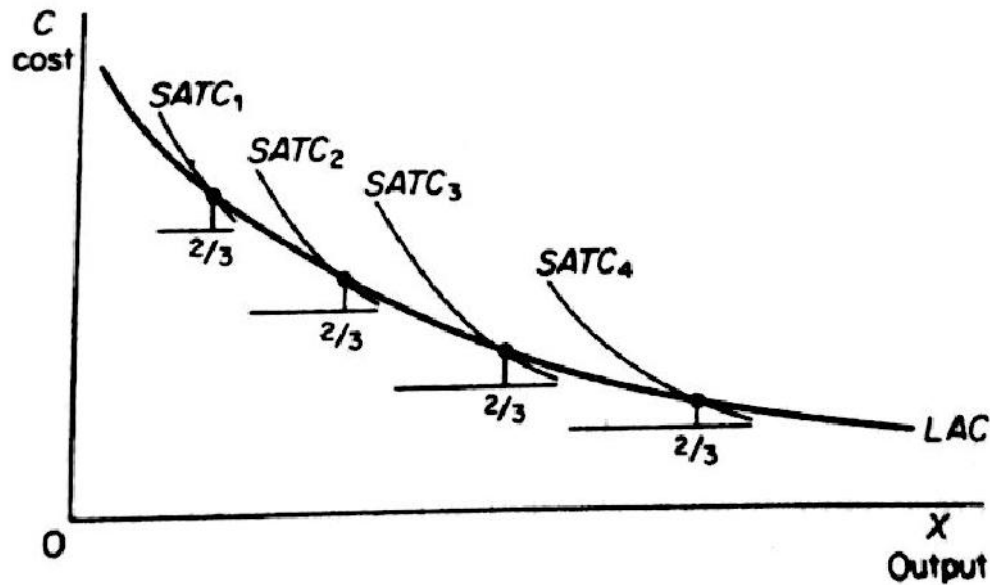
- a) If the MC of the $(n+1)^{\text{th}}$ unit is less than the AC_n , the AC_{n+1} will be smaller than the AC_n .
- b) If the MC of the $(n+1)^{\text{th}}$ unit is higher than AC_n , the AC_{n+1} will be higher than the AC_n .

So long as the MC lies below the AC curve, it pulls the latter downwards, when the MC rises above the AC, it pulls the latter upwards. In figure to the left of 'a' the MC lies below the AC curve, and hence the latter falls downwards. To the right of 'a' the MC curve lie above the AC curve, so that AC rises. It follows that at point 'a', where the intersection of the MC and AC occurs, the AC has reached its minimum level.

3.Explain the concept of the L shaped scale curve in the modern theory of costs

In the long run all costs are variable and can be distinguished into production costs and managerial costs. The production costs fall continuously with increase in output. At very large scales of output managerial costs may rise. But the fall in production costs more than offsets the increase in managerial costs, so that LAC falls with increases in scale. These give rise to a long run cost curve which is roughly L-shaped.

We may draw the LAC implied by the modern theory of costs as follows. For each short run period we obtain the SRAC which includes production costs, administration costs, other fixed costs and an allowances for normal profit. Assume that we have a technology with four plant sizes, with costs falling as size increases. We said that in business practice it is customary to consider that a plant is used normally when it operates at a level between two- thirds and three- quarters of capacity.



Following this procedure, and assuming that the typical load factor of each plant is two thirds of its full capacity, we may draw the LAC curve by joining the points on the SATC curves corresponding to the two thirds of the full capacity of each plant size. If we assume that there is a very large number of available plant sizes the LAC curve will be continuous. The characteristic of this LAC curve is that (a) it does not turn up at very large scales of output; b) It is not the envelope of the SATC curves, but rather intersects them. If the LAC falls continuously, the LMC will lie below the LAC at all scales. If there is a minimum optimal scale of plant at which all possible scale economics are reaped, beyond that scale the LAC remains constant. In this case the LMC lies below the LAC until the minimum optimal scale is reached, and coincides with the LAC beyond the level of output. These shapes of costs are more realistic than the U shaped costs of traditional theory.

Essay Type Questions

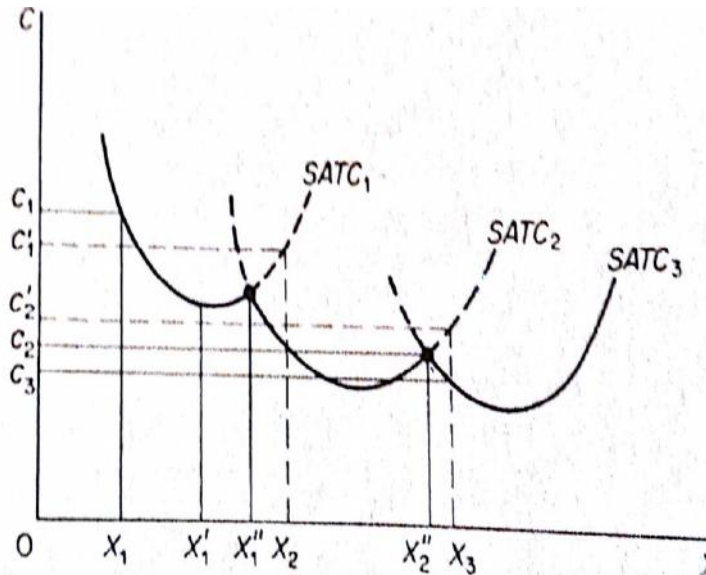
1. Derive the long run Envelope curve in the traditional theory of costs

In the long run all factors are assumed to become variable. We said that the long run cost curve is a planning curve, in the sense that it is a guide to the entrepreneur in his decision to plan the future expansion of his output.

The long run average cost is derived from the short run cost curves. Each point on the LAC corresponds to a point on a short run cost curve, which is tangent to the LAC at that point. Let us examine in detail how the LAC is derived from the SRC curves.

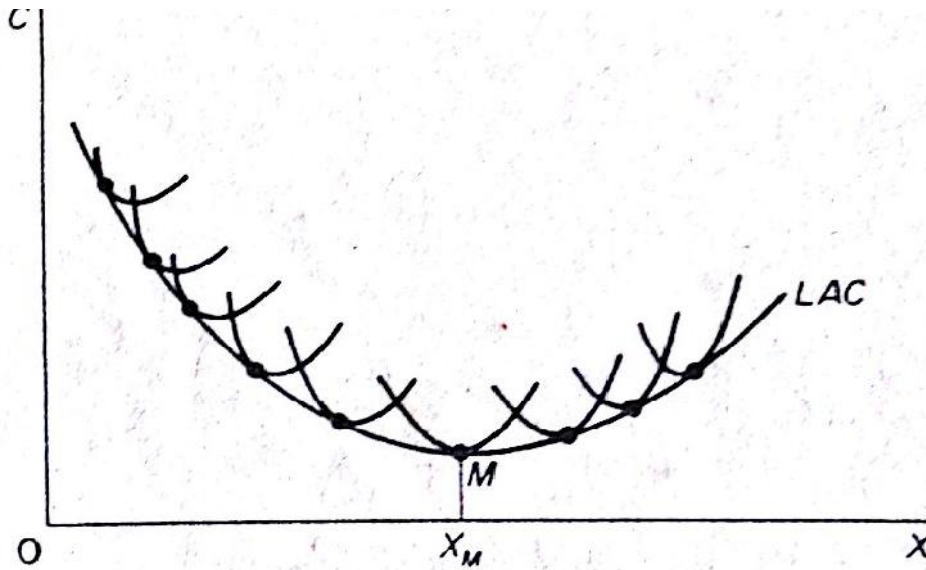
Assume, as a first approximation, that the available technology of the firm at a particular point of time includes three methods of production, each with a different plant size: a small plant, medium plant and large plant. The small plant operates with costs denoted by the curve SAC_1 , the medium size plant operates with the costs on SAC_2 and the large size plant give rise to the costs shown on SAC_3 . If the firm plans to produce output X_1 it will choose the small plant. If it plans to produce X_2 it will choose the medium plant. If it wishes to produce X_3 it will choose the large size plant. If the

firm starts with the small plant and its demand gradually increases, it will produce at lower costs up to the level X'_1 . Beyond that point costs starts increasing. If its demand reaches the level X''_1 the firm can either continue to produce with the small plant or it can install the medium size plant. The decision at this point depends not on costs but on the firm's expectations about its future demand. If the firm expects that the demand will expand further than X''_1 it will install the medium plant, because with the plant outputs larger than X''_1 are produced with a lower cost. Similar considerations are hold for the decision of the firm for the use other plants also .



Now if we relax the assumption of the existence of only three plants and assume that the available technology includes many plant sizes, each available for a certain level of output, the points of intersection of consecutive plants are more numerous. In the limit, if we assume that there are a very large number of plants, we obtain a continuous curve, which is the planning LAC curve of the firm. Each point of this curve shows the minimum cost for producing the corresponding level of output. The LAC curve is the locus of points denoting the least cost of producing the corresponding output. It is a planning curve because on the basis of this curve the firm decides what plant to set up in order to produce optimally the expected level of output. the firm chooses the short run plant which allows it to produce the anticipated output at the least possible cost. In the traditional theory of the firm the LAC curve is U shaped and it is often called the envelop curve because it envelops the SRC curves.

Let us examine the U shape of the LAC. This shape reflects the laws of return to scale. According to these laws the unit costs of production decreases as plant size increases, due to economies of scale which the larger plant size makes possible. The traditional theory of the firm assumes that economies of scale exist only up to a certain size of the plant, which is known as optimum plant size, because with this plant size all possible economies of scale are fully exploited. If the plant increases further than this optimum size there are diseconomies of scale, arising from managerial inefficiencies. It is argued that management becomes highly complex, managers are overworked and the decision making processes becomes less efficient.



A serious implicit assumption of the traditional U shaped cost curve is that each plant size is designed to produce optimally a single level of output. Any departure from that X , no matter how small leads to increased costs. The plant is completely inflexible. There is no reserve capacity, not even to meet seasonal variations in demand. As a consequences of this assumption the LAC curve envelopes the SRAC . Each point of the LAC is a point of tangency with the corresponding SRAC curve. the point of tangency occurs to the falling part of the SRAC curves for points lying to the left of the minimum point of the LAC: since the slope of the LAC is negative up to M the slope of the SRAC curves must also be negative, since the point of their tangency the two curves have the same slope. The point of tangency for outputs larger than X_m occurs to the rising part of the SRAC curves: since the LAC rises, the SAC must rise at the point of their tangency with the LAC. Only at the minimum point M of the LAC, is the corresponding SAC also at a minimum. Thus at the falling part of the LAC the plants are not worked to full capacity; to the rising part of LAC the plants are overworked ; only at the minimum point M is the plant optimally employed.

we stress once more the optimality implied by the LAC planning curve: each point represents the least cost for producing the corresponding level of output. Any point above the LAC is inefficient in that it shows a higher cost for producing the corresponding level of output. Any point below the LAC is economically desirable because it implies a lower unit cost , but it is not attainable in the current state of technology and with the prevailing market prices of factors of production.

2.Explain the short run cost curves in the modern microeconomic theory

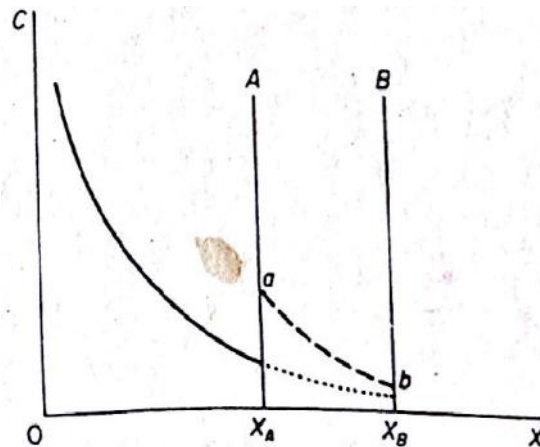
As in the traditional theory, short run costs are distinguished into average variable costs (AVC) and average Fixed costs (AFC)

The Average Fixed costs

This is the cost of indirect factors , that is, the cost of the physical and personal organization of the firm . the fixed cost include the cost for;

- a) The salaries and other expenses of administrative staff
- b) The salaries of staff involved directly in the production, but paid on a fixed term basis.
- c) The wear and tear of machinery
- d) The expenses for maintenance of buildings
- e) The expenses for the maintenance of land on which the plant is installed and operates.

The planning of the plant consists in deciding the size of these fixed indirect factors, which determine the size of the plant, because they set limits to its production. The businessman will start his planning with a figure for the level of output which he anticipates selling, and he will choose the size of the plant which will allow him to produce this level of output more efficiently and with maximum flexibility. The plant will have a capacity larger than the expected level of sales, because the businessman wants to have some reserve capacity for various reasons. Under these conditions the AFC curve will be as in the figure. The firm has some largest-capacity units of machinery which set an absolute limit to the short run expansion of output. (boundary B in figure). The firm has also small unit machinery, which sets a limit to expansion (boundary A in figure). This however is not an absolute boundary, because the firm can increase its output in the short run, either by paying overtime to direct labor for working longer hours (in this case the AFC is shown by the dotted line) or by buying some additional small unit-types of machinery (in this case AFC curve shifts upwards, and starts falling again, as shown by the line ab in the figure).



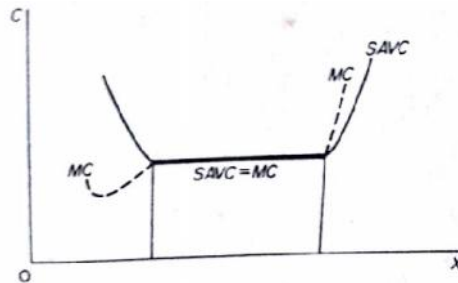
The average variable cost

As in the traditional theory, the average variable cost of modern microeconomics includes the cost of :

- a) Direct labor which varies with output.
- b) Raw materials
- c) Running expenses of machinery .

The SAVC in modern theory has a saucer-type shape, that is it is broadly U shaped but has a flat stretch over a range of output. The flat stretch corresponds to the built in the plant reserve capacity. Over this stretch the SAVC is equal to the MC, both being constant per

unit of output. To the left of the flat stretch, MC lies below the SAVC, while to the right of the flat stretch MC rises above the SAVC. The falling part of the SAVC shows the reduction in costs due to the better utilization of the fixed factor and the consequent increase in skills and productivity of the variable factor. With better skills the wastes in raw materials are also being reduced and a better utilization of the whole plant is reached.

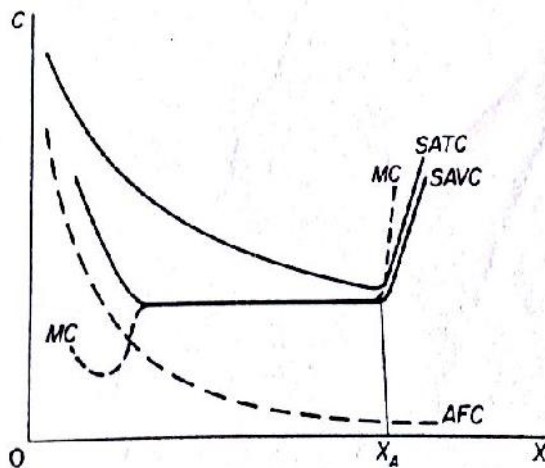


The increasing part of the SAVC reflects reduction in labor productivity due to the longer hours of work, the increase in cost of labor due to overtime payment, the wastes in materials and the more frequent breakdown of machinery as the firm operates with overtime or with more shifts.

The Innovation of modern microeconomics in this field is the theoretical establishment of a short run SAVC curve with a flat stretch over a certain range of output. The reserve capacity makes it possible to have constant SAVC within a certain range of output. It should be clear that this reserve capacity is planned in order to give the maximum flexibility in the operation of the firm.

The average total cost

The average total cost is obtained by adding the average fixed and the average variable costs at each level of output. The ATC is shown the figure. The ATC curve falls continuously up to the level of output (X_2) at which the reserve capacity is exhausted. Beyond that level ATC will start rising. The MC will intersect the average total cost curve at its minimum point (which occurs to the right of the level of output X_4 , at which the flat stretch of the AVC ends).



Module II: Market structure: Perfect Competition

Perfect competition –characteristics – Price determination in the market period – Short run Equilibrium – shut down point - Long run equilibrium of a firm and industry – Constant, increasing and decreasing cost industries – Welfare effects of government intervention – Impact of a tax or subsidy.

Objectives of the module

1. To develop basic understanding of various Market forms and their price determining strategies.
2. To develop capacity to compare and appreciate various market structures with the model market perfect competition.
3. To develop capacity to assess various practical situations of pricing strategies of a firm and to compare it with theoretical frame work of perfect competition.

Concepts discussed:

Perfect competition : Perfect competition a market structure characterized by a large number of small firms such that no single firm can affect the market price or quantity exchanged. Perfectly competitive firms are price takers. They set a production level based on the price determined in the market. If the market price changes, then the firm re-evaluates its production decision.

Characteristics of perfect competition: Large Number of Small Firms, Identical Products (Homogenous product), Perfect Mobility of Factors and products, Freedom to Entry and Exit of firms, Perfect Knowledge regarding market conditions, Normal profits in the long run, absence of externalities and existence of normal profit in the long run

Price taker : No single firm can influence the market price, or market conditions. The single firm is said to be a *price taker*, taking its price from the whole industry.

Short run Equilibrium: Two conditions are to be satisfied to identify equilibrium in the short run.

- a. MC should be equal to MR
- b. MC curve should cut MR curve from below.

Long run equilibrium of a firm and industry: Three conditions are to be satisfied for long run equilibrium under perfect competition.

1. Marginal Cost= Marginal Revenue (MC=MR)
2. MC should Cut MR curve from below
3. Average Revenue should be equal to Average Total cost (AR=ATC)

Shut down point: A perfectly competitive firm is presumed to shutdown production and produce no output in the short run, if price is less than average variable cost

Constant-Cost Industry: An industry with a horizontal long-run industry supply curve that results because expansion of the industry causes no change in production cost or resource prices.

Decreasing-Cost Industry: An industry with a negatively-sloped long-run industry supply curve that results because expansion of the industry causes lower production cost and resource prices.

Increasing-Cost Industry: An industry with a positively-sloped long-run industry supply curve that results because expansion of the industry causes higher production cost and resource prices.

QUESTION BANK

ESSAY QUESTIONS

1. What is perfect competition? What are the features of perfect competition? Explain short run and long run equilibrium of Perfect competition?

Perfect competition a market structure characterized by a large number of small firms such that no single firm can affect the market price or quantity exchanged. Perfectly competitive firms are price takers. They set a production level based on the price determined in the market. If the market price changes, then the firm re-evaluates its production decision. This means that the short-run marginal cost curve of the firm is its short-run supply curve.

Basic Characteristics of perfect competition

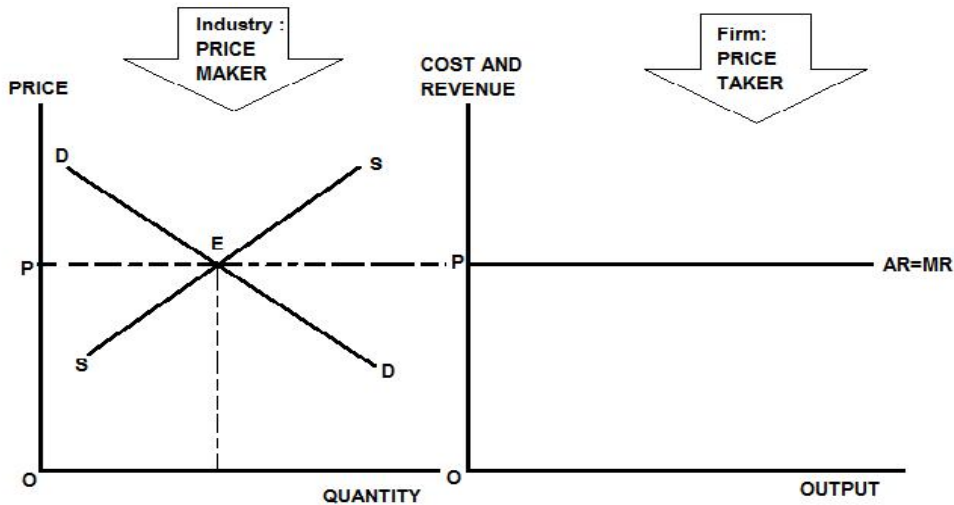
1. **Large Number of Small Firms:** A perfectly competitive industry contains a large number of small firms, each of which is relatively small compared to the overall size of the market. This ensures that no single firm can influence market price or quantity. If one firm decides to double its output or stop producing entirely, the market is unaffected. The price does not change and there is no remarkable change in the quantity exchanged in the market.
2. No single firm can influence the market price, or market conditions. The single firm is said to be a *price taker*, taking its price from the whole industry.
3. **Identical Products (Homogenous product) :** Each firm in a perfectly competitive market sells an identical product, what is often termed "homogeneous goods." The essential result of this feature is that the buyers are unable to identify any difference among them. There are no brand names or distinguishing features that differentiate products.

4. **Perfect Mobility of Factors and products:** Under perfect competition, products as well as resources are freely mobile within the market. It normally results in the existence of same price for same products throughout the market.
5. **Freedom to Entry and Exit of firms:** Perfectly competitive firms are free to enter and exit an industry. They are not restricted by government rules and regulations, start-up cost, or other entry. Likewise, a perfectly competitive firm is not prevented from leaving an industry as is the case for government-regulated public utilities. This ultimately results in the existence of normal profit in the long run.
6. **Perfect Knowledge:** There exist perfect knowledge in the market. Buyers are completely aware of sellers' prices, such that one firm cannot sell its good at a higher price than other firms. Each seller also has complete information about the prices charged by other sellers. Perfect knowledge also extends to technology. No firm can produce its good faster, better, or cheaper because of special knowledge of information
7. **No Externalities:** There are assumed to be no externalities that is no external costs or benefits.
8. **Normal profits in the long run:** Firms can only make normal profits in the long run, but they can make abnormal profits in the short run.

Derivation of Average Revenue curve (AR) and Marginal Revenue curve of a firm.

The single firm takes its price from the industry, and is, consequently, referred to as a *price taker*. The industry is composed of all firms in the industry and the market price is where market demand is equal to market supply. Each single firm must charge this price and cannot diverge from it.

It means that a firm is able to sell its entire quantity at the existing market price which is determined by the market through demand and supply. So Demand curve faced by a firm is parallel to quantity axis. The derivation of AR and MR is shown in the following figure.

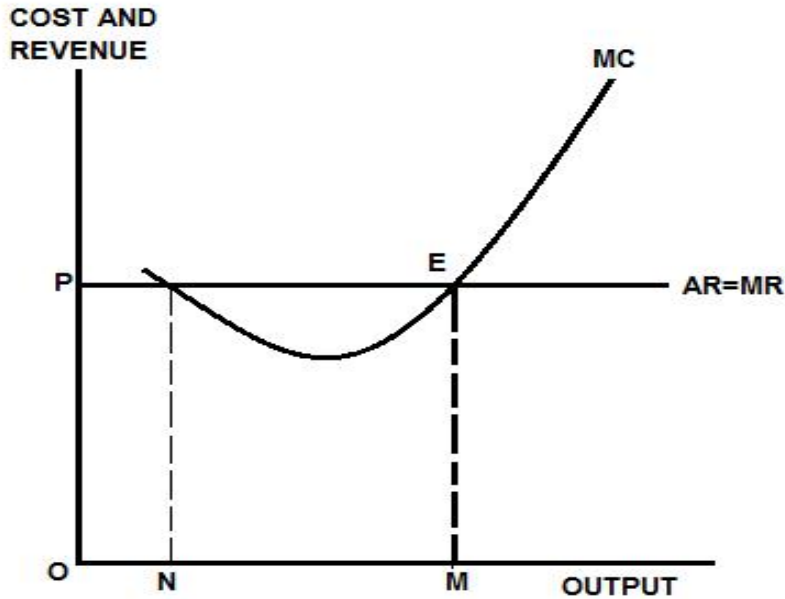


In the above figure, Segment 1 is shown the price determination of the market under perfect competition. It happens through the free interaction of demand and supply. The market determined price is OP. It is followed by the firm and the firm can sell their entire output at the existing market price OP. So their AR and MR curve are parallel to X axis. Here Industry fixes the price (price maker) and firm follows that Price is the (price taker).

Short run Equilibrium of a firm under perfect competition.

The key assumption of Perfect Competition is that a perfectly competitive firm, like any other firm, is motivated by [profit maximization](#). The firm chooses to produce the quantity of output that generates highest possible level of profit, based on price, market demand, cost conditions, production technology. It is possible to identify the short run equilibrium using TR and TC approach and MC and MR approach. Profit is maximised where the positive gap between Total Revenue and Total cost is the maximum.

The process of identifying short run equilibrium through MC and MR is shown in the diagram below.



In the figure, $MC = MR$ at two points. The first point is not the equilibrium point because at this stage the firm starts earning profit and the firm has not reached to its optimum output. So, two conditions are to be satisfied to identify equilibrium in the short run.

- c. MC should be equal to MR
- d. MC curve should cut MR curve from below.

Such a point is identified at point E and it is the equilibrium point where the firm is producing OM level of output.

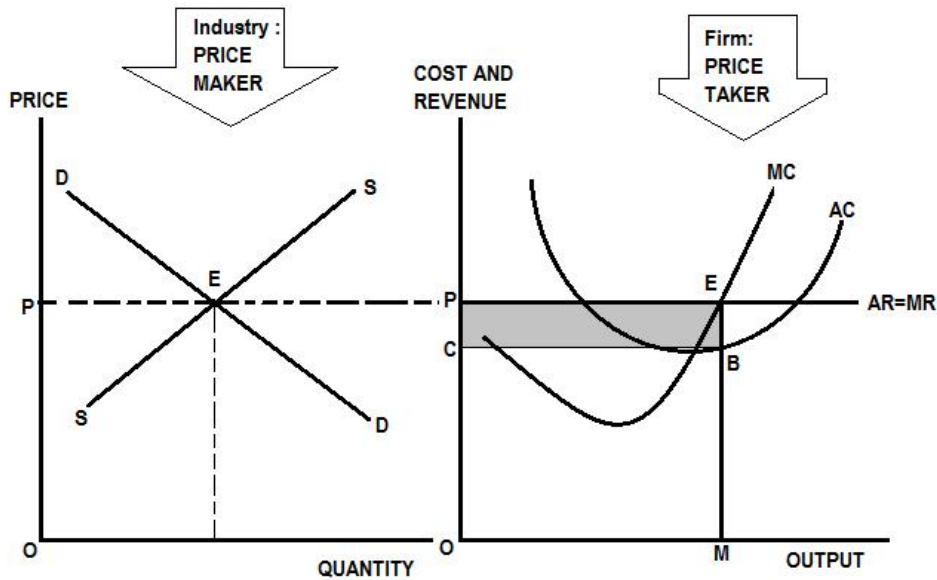
Abnormal profit and Loss positions of a firm under perfect competition in the short run.

There are chances to a firm to earn abnormal profit. In the short run supernormal profits are possible, but in the long run new firms are attracted into the industry, because of no barriers to entry, perfect knowledge and an opportunity to expand output.

Here also two important conditions are to be satisfied to attain short run equilibrium under perfectly competitive firms. they are:

1. Marginal Cost= Marginal Revenue ($MC=MR$)
2. MC should Cut MR curve from below

The condition of earning supernormal profit is explained in the following figure:



In the figure:

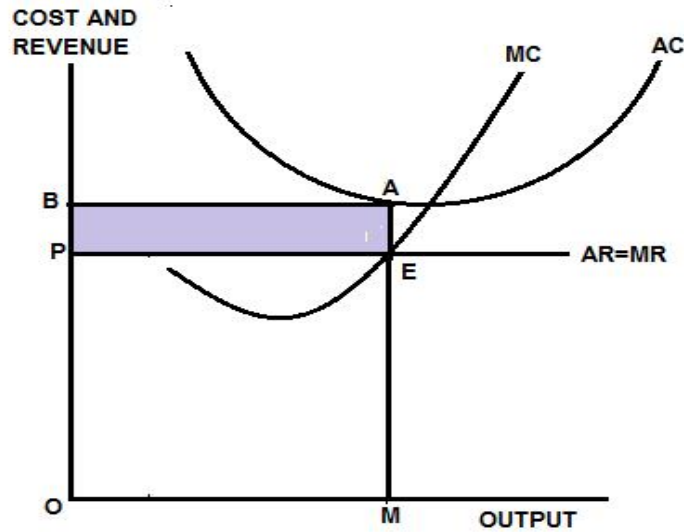
At profit maximisation, equilibrium point is attained at point E where, $MC = MR$, and the firm is producing output OM and price is OP . At this stage:

- $AR = ME$
- $AC = MB$
- Since $AR > AC$, the firm is gaining abnormal profit.
- Profit per unit = $ME - MB = EB$
- Total abnormal profit of the firm at OQ output = $OM \times AB = PEBC$ (Shaded area).

As new firms enter the market, demand for the existing firm's products becomes more elastic and the demand curve shifts to the left, driving down price. Eventually, all super-normal profits are eroded away.

Perfect competition in the short run: Loss Position

In the short run, there is a possibility of loss also to a firm under perfect competition. Such a case is demonstrated in the following figure.



In the figure:

The equilibrium point is attained at point E where, $MC = MR$, and the firm is producing output OM and price is OP . At this stage:

- $AR = ME$
- $AC = MA$
- Since $AR < AC$, the firm is suffering loss.
- Loss per unit = $MA - ME = AE$
- Total loss of the firm at OQ output = $OM \times AE = ABPE$. (the shaded area)

A loss suffering firm will try to reduce its cost condition and if they succeed in it, they will continue in the market. If not they will have to leave the industry in the long run. As loss suffering firms leave the market the long run supply will be affected and it will shift leftward which increases the price in the long run. So they will start earning normal profit in the long run. Eventually, all loss will be covered and the firm starts to earn normal profit in the long run.

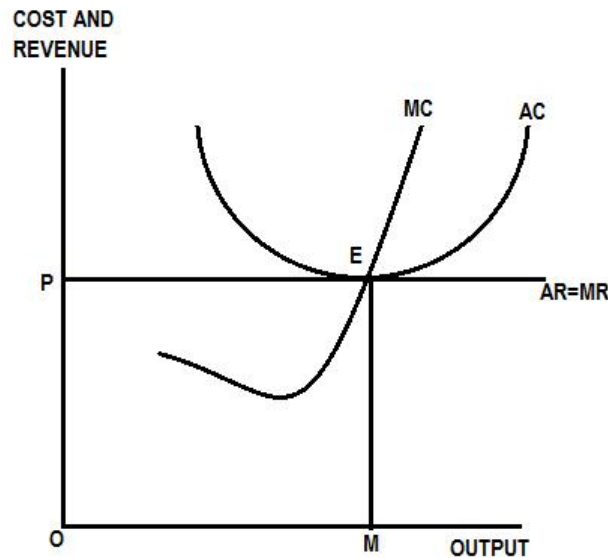
Perfect competition in the long run

The freedom to enter and to leave the industry in a perfectly competitive market will lead to changes in the supply of the products in the market. Abnormal profit of the existing firm in the short run will attract new firms to the industry. Similarly firms suffering with loss will leave the industry. Therefore, in the long run all the existing firms will earn only normal profit.

Three conditions are to be satisfied for long run equilibrium under perfect competition.

4. Marginal Cost = Marginal Revenue ($MC = MR$)
5. MC should Cut MR curve from below
6. Average Revenue should be equal to Average Total cost ($AR = ATC$)

The normal profit of firm in the long run is demonstrated in the figure below.



The equilibrium point is attained at point E where $MC = MR$, and the firm is producing output OM and price is OP . At this stage:

- $AR = MR$
- $AC = MC$
- Since $AR = AC$, the firm is earning only normal profit

Hence the three conditions of equilibrium for the long run are satisfied. Since the firm is earning normal profit, it has no tendency to change its scale of operation.

It is clear from the figure that In the long run, with all inputs variable, a perfectly competitive industry reaches equilibrium at the output that achieves the [minimum efficient scale](#), that is, the minimum of the long run average cost curve. This is achieved through a two-fold adjustment process.

- **The first** of the folds is entry and exit of firms into and out of the industry. This ensures that firms earn zero economic profit and that price is equal to average cost.
- **The second** of the folds is the pursuit of profit maximization by each firm in the industry. This ensures that firms produce the quantity of output that equates price (and marginal revenue) with short-run and long-run marginal cost.

The end result of this long-run adjustment is a multi-faceted equilibrium condition shown below which is possible only in perfect competition:

$$P = AR = MR = MC = LPMC = ATC = LRAC$$

This condition means that the market price (which is also equal to a firm's average revenue and marginal revenue) is equal to marginal cost (both short run and long run) and average cost (both short run and long run). With price equal to marginal cost, each firm is maximizing profit and has no reason to adjust the quantity of output or factory size. With price equal to average cost, each firm in the industry earns only a normal profit. Economic profit is zero and there are no economic losses, meaning no firm is inclined to enter or exit the industry.

Is it a real market condition?

Very few markets or industries in the real world are perfectly competitive. For example, how homogeneous is the output of real firms, given that even the smallest of firms working in manufacturing or services try to differentiate their product.

Although unrealistic, it is still a useful model in two respects.

- A. Many primary and commodity markets, such as coffee and tea, exhibit many of the characteristics of perfect competition, such as the number of individual producers that exist, and their inability to influence market price.
 - B. For other markets in manufacturing and services, the model is a useful yardstick by which economists and regulators can evaluate levels of competition that exist in real markets.
2. Why perfect competition is treated as the most efficient market? Support your answer by analysing the role of perfect competition in welfare economics?

Perfect competition a market structure characterized by a large number of small firms such that no single firm can affect the market price or quantity exchanged. Perfectly competitive firms are price takers. They set a production level based on the price determined in the market. If the market price changes, then the firm re-evaluates its production decision. This means that the short-run marginal cost curve of the firm is its short-run supply curve.

Basic Characteristics of perfect competition

1. There is perfect knowledge, with no information failure or time lags. Knowledge is freely available to all participants, which means that risk-taking is minimal and the role of the entrepreneur is limited.
2. There are no barriers to entry into or exit out of the market.
3. Firms produce homogeneous, identical, units of output that are not branded.
4. Each unit of input, such as units of labour, are also homogeneous.
5. No single firm can influence the market price, or market conditions. The single firm is said to be a *price taker*, taking its price from the whole industry.
6. There are a very large numbers of firms in the market.

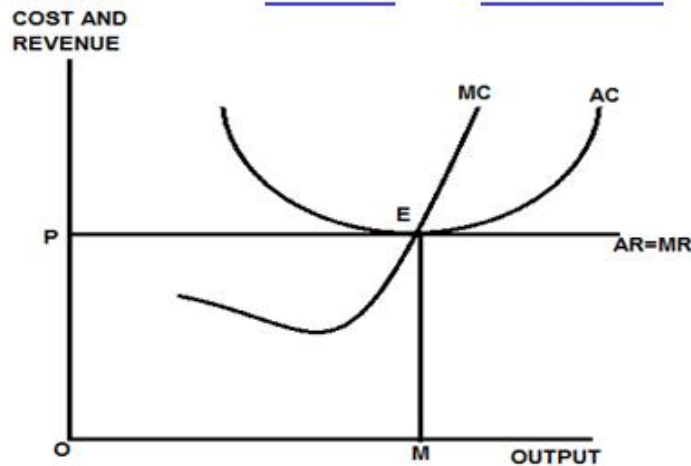
7. There is no need for government regulation, except to make markets more competitive.
8. There are assumed to be no externalities, that is no external costs or benefits.
9. Firms can only make *normal* profits in the long run, but they can make abnormal profits in the short run.

Long-Run Production

In the long run, with all inputs variable, a perfectly competitive industry reaches equilibrium at the output that achieves the minimum efficient scale, that is, the minimum of the long run average cost curve. This is achieved through a two-fold adjustment process.

- **The first** of the folds is entry and exit of firms into and out of the industry. This ensures that firms earn zero economic profit and that price is equal to average cost.
- **The second** of the folds is the pursuit of profit maximization by each firm in the industry. This ensures that firms produce the quantity of output that equates price (and marginal revenue) with short-run and long-run marginal cost.

Long run equilibrium under perfect competition is **ALLOCATIVELY** and **PRODUCTIVELY** efficient at point E where: **$P = MC$** and **$ATC = MC$**



The end result of this long-run adjustment is a multi-faceted equilibrium condition:

$$P = AR = MR = MC = LRMC = ATC = LRAC$$

This condition means that the market price (which is also equal to a firm's average revenue and marginal revenue) is equal to marginal cost (both short run and long run) and average cost (both short run and long run). With price equal to marginal cost, each firm is

maximizing profit and has no reason to adjust the quantity of output or factory size. With price equal to average cost, each firm in the industry earns only a normal profit. Economic profit is zero and there are no economic losses, meaning no firm is inclined to enter or exit the industry.

A Superior model to check Efficiency

Perfect competition is an idealized market structure that achieves an efficient allocation of resources. Although unrealistic, the characteristics of perfect competition ensure efficiency. In fact, a primary purpose of perfect competition is to illustrate perfection, to illustrate the best of all possible resource allocation worlds, and to provide a benchmark for comparison with real world market structures that inevitably fall short of this perfection.

Efficiency is achieved with perfect competition because the **price is equal to marginal cost**. Price indicates the value of the good produced and thus the satisfaction generated from production. Marginal cost indicates the opportunity cost of goods not produced and thus the satisfaction lost from foregone production.

Because the satisfaction obtained (price) is equal to satisfaction foregone (marginal cost) overall satisfaction cannot be increased by increasing or decreasing production. This is the basic principle of welfare economics. It is known as the Pareto Optimality condition of welfare economics. If price and marginal cost are not equal, then satisfaction can be increased by changing production.

Welfare Economics & the Efficiency of Perfectly Competitive Markets

From the analysis of perfect competition we know that **equilibrium price in a perfectly competitive market, occurs where the market demand and market supply curves intersect**. At this price, consumers want to buy and consume the same quantity of the good or service (Q_D) as producers want to produce and sell (Q_S). So total benefit of the consumer (Consumers surplus) and the total benefit of the producer (Producers Surplus) will be maximised at the point of intersection between Demand and Supply curve through its free interaction.. Thus the welfare of the society will be maximised.

Benefits of perfect Competition

It can be argued that perfect competition will yield the following benefits:

- Because there is perfect knowledge, there is no information failure and knowledge is shared evenly between all participants.
- There are no barriers to entry, so existing firms cannot derive any [monopoly power](#).
- Only normal profits made, so producers just cover their opportunity cost.
- Price of the product is lower than all other market conditions.

- There is no need to spend money on advertising, because there is perfect knowledge and firms can sell all they can produce. In addition, selling unbranded goods makes it hard to construct an effective advertising campaign.
- Welfare of the economy is maximised. There is maximum possible:
 - [Consumer surplus](#)
 - [Economic welfare](#)
- There is maximum allocative and productive [efficiency](#):
 - Equilibrium will occur where $P = MC$, hence allocative efficiency.
 - In the long run equilibrium will occur at output where $MC = ATC$, which is productive efficiency.

This is possible only under perfect competition.

- There is also maximum choice for consumers.

To conclude any market with productively and allocatively efficient will be a market with maximum social welfare.

SHORT ESSAY QUESTIONS

1. What are the features of perfect competition?
See Essay question 1
2. Explain the price determination of a firm under perfect competition in the short run?
See Essay question 1
3. What are the specialities of long run equilibrium under perfect competition?
See Essay question 2
4. What is the long run supply curve of the firm of a firm under perfect competition?

Long-Run Industry Supply Curve

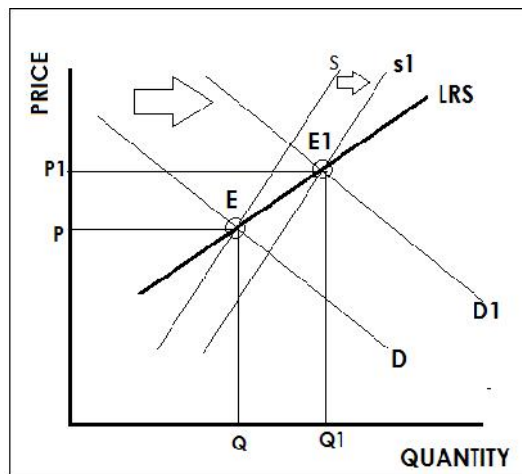
The long-run adjustment undertaken by a perfect competitive industry in response to demand shocks can result in increasing, decreasing, and constant costs, which then trace out long-run industry supply curves that are positively-sloped, negative-sloped, or horizontal, respectively.

The path taken by an industry depends on underlying changes in resource prices and production cost. If the expansion of an industry causes higher resource prices and production cost, then the result is an increasing-cost industry. If expansion causes lower resource prices and production cost, then the result is a decreasing-cost industry. If expansion has no effect on resource prices and production cost, then the result is a constant-cost industry.

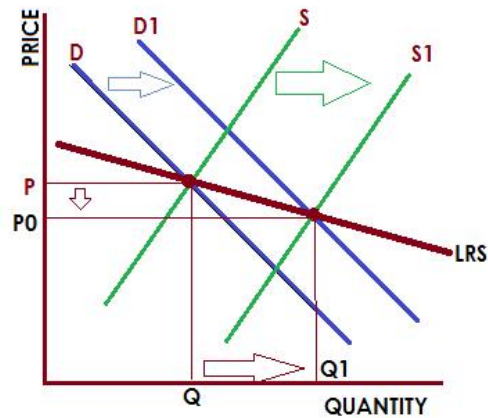
This exhibit below illustrates the hypothetical market, which is shocked by an increase in demand. The original market equilibrium, with the supply curve S and the demand curve D , is equilibrium price P and equilibrium quantity Q . The increase in demand causes the equilibrium price to increase to P_1 and the equilibrium quantity rises to Q_1 . The higher price and larger quantity is achieved as each existing firm in the industry responds to the demand shock.

However, the higher price leads to above-normal economic profit for existing firms. And with freedom of entry and exit, economic profit attracts other producers into this industry. An increase in the number of firms in the industry then causes the market supply curve to shift. How far this curve shifts and where it intersects the new demand curve, D' , determines if the market is an increasing-cost, decreasing-cost, or constant-cost industry.

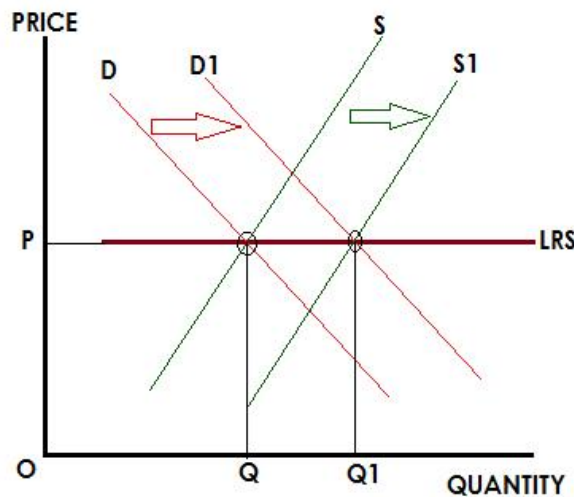
Increasing-Cost Industry: it is shown in the above figure. An industry with a positively-sloped long-run industry supply curve that results because expansion of the industry causes higher production cost and resource prices. An increasing-cost industry occurs because the entry of new firms, prompted by an increase in demand, causes the long-run average supply curve of each firm to shift upward, which increases the minimum efficient scale of production.



Decreasing-Cost Industry: An industry with a negatively-sloped long-run industry supply curve that results because expansion of the industry causes lower production cost and resource prices. A decreasing-cost industry occurs because the entry of new firms, prompted by an increase in demand, causes the long-run average cost curve of each firm to shift downward, which decreases the minimum efficient scale of production.



Constant-Cost Industry: An industry with a horizontal long-run industry supply curve that results because expansion of the industry causes no change in production cost or resource prices. A constant-cost industry occurs because the entry of new firms, prompted by an increase in demand, does not affect the long-run average cost curve of individual firms, which means the minimum efficient scale of production does not change.



5. Explain the shut down point under perfect competition?

PERFECT COMPETITION, SHUTDOWN:

A perfectly competitive firm is presumed to shutdown production and produce no output in the short run, if price is less than average variable cost. This is one of three short-run production alternatives facing a firm. The other two are profit maximization (if price exceeds average total cost) and loss minimization (if price is greater than average variable cost but less than average total cost).

A perfectly competitive firm guided by the pursuit of [profit](#) is inclined to produce no output if the quantity that equates [marginal revenue](#) and [marginal cost](#) in the short run incurs an economic loss greater than [total fixed cost](#). The key to this loss minimization production

decision is a comparison of the loss incurred from producing with the loss incurred from not producing. If price is less than [average variable cost](#), then the firm incurs a smaller loss by not producing than by producing.

PRODUCTION ALTERNATIVES	
Price and Cost	Result
$P > ATC$	Profit Maximization
$ATC > P > AVC$	Loss Minimization
$P < AVC$	Shutdown

One of Three Alternatives

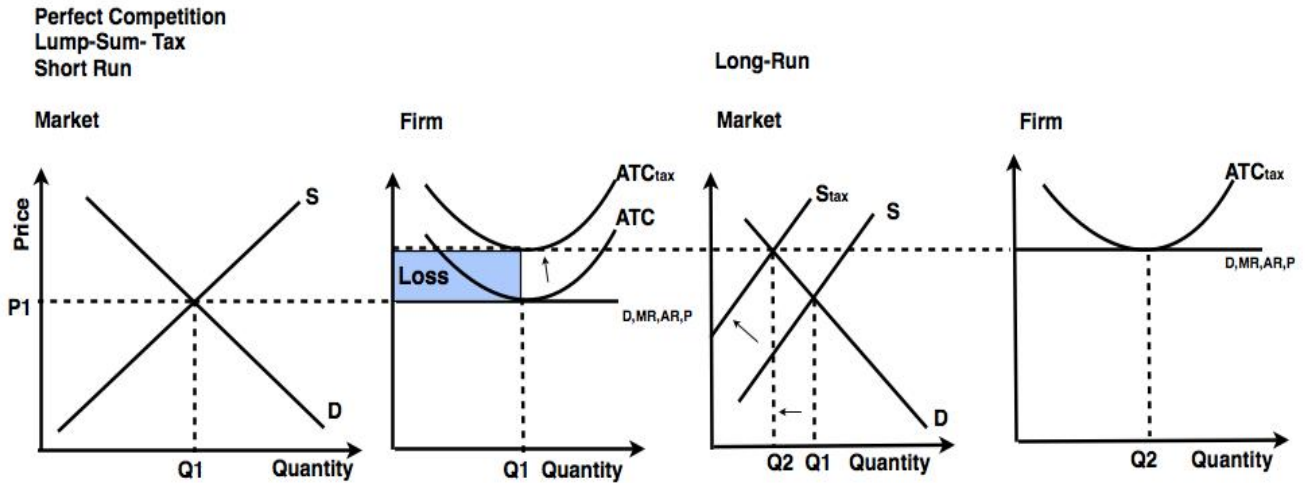
Shutting down is one of three [short-run production](#) alternatives facing a perfectly competitive firm. All three are displayed in the table to the right. The other two are [profit maximization](#) and loss minimization.

- With profit maximization, price exceeds [average total cost](#) at the quantity that equates marginal revenue and marginal cost. In this case, the firm generates an economic profit.
- With loss minimization, price is greater than average variable cost but is less than average total cost at the quantity that equates marginal revenue and marginal cost. In this case, the firm incurs a smaller loss by producing some output than by not producing any output.

6. What is the impact of tax and subsidy on perfect competition?

Lump Sum Tax : A lump sum tax is a tax of a fixed amount that has to be paid by everyone (every firm in the industry) regardless of the level of his or her (its) income (production). (So no matter how much you produce or don't produce, you still have to pay this tax).

STEP 1: start with the short-run. The market graph is drawn showing supply and demand in equilibrium. It is clear from the figure that ATC becomes ATC1 after the imposition of tax. Firms look at lump-sum taxes as if they are extra costs added to the firms fixed costs. Increases in fixed costs will not affect the variable costs and therefore will not shift the marginal cost curve.

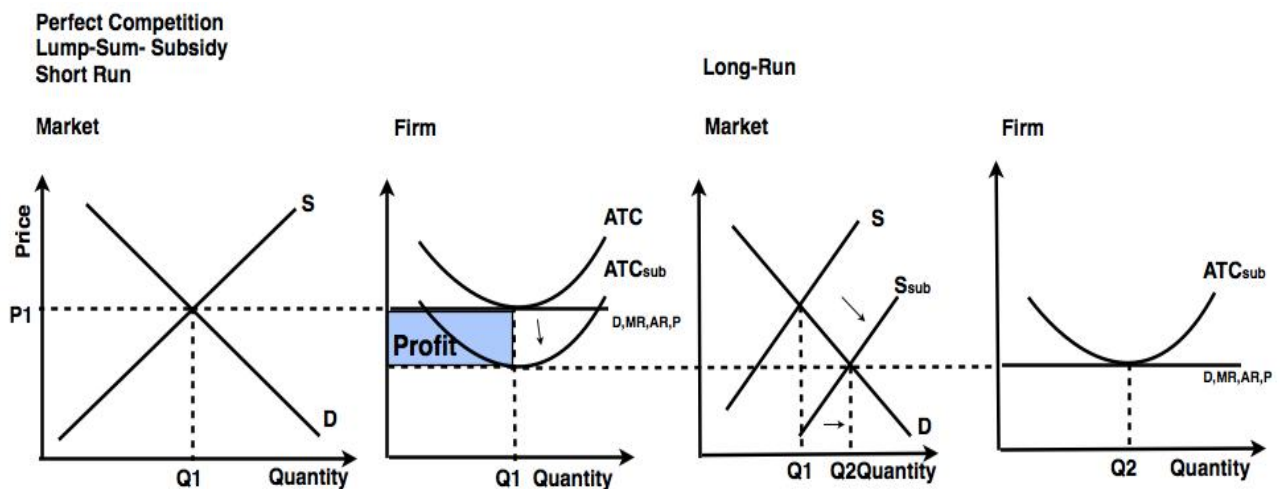


A lump sum tax will shift the ATC upward, in the short-run the firm will have a loss due to the tax. Remember - that in the short run other firms cannot enter the market.

STEP 2: In the long-run firms exit this industry. As more producing firms exit the market, supply decreases, pushing up the market price and decreasing the quantity produced. In the long run the the price will increase to the point that the firm is only making normal profit/zero economic profit.

Lump Sum Subsidy: A lump sum subsidy of a fixed amount that is given to everyone (every firm in the industry). Think of a subsidy like a gift or grant from the government for producing in the specified industry.

STEP 1 start with the short-run. The market graph is drawn showing supply and demand in equilibrium. Firms look at lump-sum subsidies as if they are monies added, decreasing the firms fixed costs. Additional decreases in fixed costs will not effect the variable costs and therefore won't effect marginal costs. Fixed cost increases will effect the ATC or (Average total costs curve) not the AVC or MC curves.



- A lump sum subsidy will shift the ATC downward, in the short-run the firm will earn positive (super/abnormal) economic profits due to the subsidy. Remember - that in the short run other firms cannot enter the market.

STEP 2 : In the long-run firms are attracted to this industry's abnormal profits and will enter the market. As more producing firms enter the market, supply increases, pushing down the market price and increasing the quantity produced. In the long run the the price will decrease to the point that the firm is only making normal profit/zero economic profit.

Per-Unit Tax - a tax imposed on the producer for each unit of good that is produced. Firms look at per-unit taxes as if they are extra costs added to the firms variable costs. Increases in variable costs will shift the marginal cost curve left. Variable cost increases will effect the ATC or Average total costs curve, the AVC and the MC curves.

- A per-unit tax will shift the ATC upward; in the short-run the firm will have a loss due to the tax. Remember - that in the short run other firms cannot enter the market. The firms marginal cost curve is affected and shifts left with an increase in variable costs. (Wages increase, production falls, tax increase, all cause the MC curve to shift left). Quantity will decrease.
- In the long-run firms exit this industry. As more producing firms exit the market, supply decreases, pushing up the market price and decreasing the quantity produced. In the long run the the price will increase to the point that the firm is only making normal profit/zero economic profit.

Per-Unit Subsidy - a sum given to the producer for each unit of good that is produced. The market graph is drawn showing supply and demand in equilibrium. Firms look at per-unit taxes as if they are extra costs added to the firms variable costs. Increases in variable costs will shift the marginal cost curve left. Variable cost increases will effect the ATC or Average total costs curve, the AVC and the MC curves.

- A per-unit tax will shift the ATC upward; in the short-run the firm will have a loss due to the tax. Remember - that in the short run other firms cannot enter the market. The firms marginal cost curve is affected and shifts left with an increase in variable costs. (Wages increase, production falls, tax increase, all cause the MC curve to shift left). Quantity will decrease.
- In the long-run firms exit this industry. As more producing firms exit the market, supply decreases, pushing up the market price and decreasing the quantity produced. In the long run the the price will increase to the point that the firm is only making normal profit/zero economic profit.

SHORT ANSWER QUESTIONS

1. Define perfect competition?

Perfect competition is a market structure characterized by a large number of small firms such that no single firm can affect the market price or quantity exchanged. Perfectly competitive firms are price takers. They set a production level based on the price determined in the market. If the market price changes, then the firm re-evaluates its production decision. This means that the short-run marginal cost curve of the firm is its short-run supply curve.

2. What are the features of perfect competition?

- There is perfect knowledge, with no information failure or time lags. Knowledge is freely available to all participants, which means that risk-taking is minimal and the role of the entrepreneur is limited.
- There are no barriers to entry into or exit out of the market.
- Firms produce homogeneous, identical, units of output that are not branded.
- Each unit of input, such as units of labour, are also homogeneous.
- No single firm can influence the market price, or market conditions. The single firm is said to be a *price taker*, taking its price from the whole industry.
- There are a very large numbers of firms in the market.
- There is no need for government regulation, except to make markets more competitive.
- There are assumed to be no externalities, that is no external costs or benefits.
- Firms can only make *normal* profits in the long run, but they can make abnormal profits in the short run.

3. What are the conditions of short run equilibrium under perfect competition?

The key assumption of Perfect Competition is that a perfectly competitive firm, is motivated by [profit maximization](#). The firm chooses to produce the quantity of output that generates highest possible level of profit, based on price, market demand, cost conditions, production technology.

Three conditions are to be satisfied for long run equilibrium under perfect competition.

1. Marginal Cost = Marginal Revenue (MC=MR)
2. MC should Cut MR curve from below
3. Average Revenue should be equal to Average Total cost (AR=ATC)

4. What are the conditions of short run equilibrium under perfect competition?

The key assumption of Perfect Competition is that a perfectly competitive firm, is motivated by [profit maximization](#). The firm chooses to produce the quantity of output that generates highest possible level of profit, based on price, market demand, cost conditions, production technology. It is possible to identify the short run equilibrium using TR and TC approach and

MC and MR approach. Profit is maximised where the positive gap between Total Revenue and Total cost is the maximum.

So, two conditions are to be satisfied to identify equilibrium in the short run.

- a. MC should be equal to MR
- b. MC curve should cut MR curve from below.

5. What is the nature of supply curve under perfect competition?

Perfect competition a market structure characterized by a large number of small firms such that no single firm can affect the market price or quantity exchanged. Perfectly

If the market price changes, then the firm re-evaluates its production decision. This means that the upper portion of the short-run marginal cost curve of the firm is its short-run supply curve.

Decreasing cost industry: An industry with a negatively-sloped long-run industry supply curve

Increasing-Cost Industry: An industry with a positively-sloped long-run industry supply curve

Constant-Cost Industry: An industry with a horizontal long-run industry supply curve

6. What is decreasing cost industries?

Decreasing-Cost Industry: An industry with a negatively-sloped long-run industry supply curve that results because expansion of the industry causes lower production cost and resource prices. A decreasing-cost industry occurs because the entry of new firms, prompted by an increase in demand, causes the long-run average cost curve of each firm to shift downward, which decreases the minimum efficient scale of production.

7. What is increasing cost industries?

Increasing-Cost Industry: An industry with a positively-sloped long-run industry supply curve that results because expansion of the industry causes higher production cost and resource prices. An increasing-cost industry occurs because the entry of new firms, prompted by an increase in demand, causes the long-run average supply curve of each firm to shift upward, which increases the minimum efficient scale of production.

8. What are constant cost industries?

Constant-Cost Industry: An industry with a horizontal long-run industry supply curve that results because expansion of the industry causes no change in production cost or resource prices. A constant-cost industry occurs because the entry of new firms, prompted by an increase in demand, does not affect the long-run average cost curve of individual firms, which means the minimum efficient scale of production does not change.

MULTIPLE CHOICE QUESTIONS (1/2 MARKS)

1. The market structure which has a very large number of sellers selling identical products is called
 - (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
2. The market structure with perfect mobility of factors and products is called
 - (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
3. The market structure with perfect knowledge is called
 - (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
4. The conditions for perfect competition are fulfilled when
 - (a) Sellers are large in number
 - (b) Buyers are large in number
 - (c) Commodity produced is homogenous
 - (d) All the above
5. The following are conditions of perfect competition except
 - (a) Sellers are large in number
 - (b) Buyers are large in number
 - (c) Commodity produced is homogenous
 - (d) Commodity produced is differentiated
6. The following are conditions of perfect competition except
 - (a) Strong barriers to entry
 - (b) Sellers are large in number
 - (c) Commodity produced is homogenous
 - (d) Buyers are large in number
7. The following are conditions of perfect competition except
 - (a) Sellers are large in number

- (b) Single buyer
 - (c) Commodity produced is homogenous
 - (d) Freedom to Entry and exit
8. The condition of short run equilibrium under perfect competition is
- (a) $MC=MR$
 - (b) $AC=MR$
 - (c) $AC=AR$
 - (d) $AR=\text{Selling cost}$
9. The large number of firms producing the same commodity ensure that the individual firm has no control over
- (a) Price of the commodity
 - (b) The quantity of the commodity
 - (c) Both of the above
 - (d) None of the above
10. Individual firm has no control on the price of the commodity in the market is a condition of
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Bilateral monopoly
11. In a Perfect competitive market
- (a) Firm is the price giver and the industry is a price taker
 - (b) Firm is the price taker and the industry is a price giver
 - (c) Both are price makers
 - (d) Both are price takers
12. One of the essential conditions of perfect competition is
- (a) Product Differentiation
 - (b) Multiplicity of prices for identical product at any one time
 - (c) Many sellers and few buyers
 - (d) Only one price for identical goods at any one time
13. Under perfect market conditions the individual firm in the industry has -----
- control over the price of the product.
- (a) Some
 - (b) Full

- (c) No
 - (d) None of the above
14. The condition of short run equilibrium under perfect competition is
- (a) $MC=MR$
 - (b) MC cuts MR from below
 - (c) MC is rising when it cuts AR
 - (d) All the above
15. Under perfect market conditions mobility of resources and products are
- (a) Ensured
 - (b) Not ensured
 - (c) Not considered
 - (d) None of the above
16. A firm under perfect competitions shall be in equilibrium when marginal cost will be equal to marginal revenue and marginal cost curve is still
- (a) Declining
 - (b) Rising
 - (c) Constant
 - (d) None of the above
17. Which of the following is ONLY applicable to long run equilibrium under perfect competition
- (a) $MC=MR = PRICE = AC$
 - (b) $AR=AC < PRICE=DEMAND$
 - (c) $AR=AC \& MC=MR$
 - (d) $P = AR = MR = MC = LRMC = ATC = LRAC$
18. Perfect competitive market equilibrium in the long run is treated as the most efficient condition because
- (a) $MC=MR$
 - (b) $P = AR = MR = MC = LRMC = ATC = LRAC$
 - (c) $AR=AC \& PRICE=DEMAND$
 - (d) $AR=AC \& MC=MR$
19. A firm in a Perfect competitive market earns maximum abnormal profit when
- (a) Average Revenue = Marginal revenue
 - (b) Marginal cost = Marginal revenue

- (c) Average revenue > Average cost
 - (d) Both (b) and (c)
20. In a firm's equilibrium analysis, ----- is included in the Average cost curves.
- (a) Supernormal profit
 - (b) Normal profit
 - (c) Losses
 - (d) Abnormal profits
21. Demand curve faced by a firm under perfect competition is
- (a) Parallel to X axis
 - (b) Parallel to Y axis
 - (c) Downward sloping
 - (d) Upward sloping
22. Demand curve faced by the industry under perfect competition is
- (a) Parallel to X axis
 - (b) Parallel to Y axis
 - (c) Downward sloping
 - (d) Upward sloping
23. In the short run, a perfectly competitive firm can have
- (a) Abnormal profit
 - (b) loss
 - (c) Normal profit
 - (d) Any of the above are possible
24. In the Long run, a perfectly competitive firm can have
- (a) Abnormal profit
 - (b) loss
 - (c) Normal profit
 - (d) Any of the above are possible
25. Uniform price in the market is a feature of
- (a) Monopolistic competition
 - (b) Perfect competition
 - (c) Monopoly
 - (d) Bilateral monopoly
26. Under monopolistic competition the long run price should be

- (a) Equal to LAC
 - (b) Equal to MC
 - (c) Equal to MR
 - (d) All the above
27. Cross elasticity of demand under Perfect competition is?
- (a) Zero
 - (b) Infinitely elastic
 - (c) Highly elastic
 - (d) Highly inelastic
28. Optimum capacity output under long run is a feature of equilibrium under
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
29. $MC=MR=AR=AC$, This will happen
- (a) In the short run under Perfect competition
 - (b) In the long run under Perfect competition
 - (c) In the short run under monopolistic competition
 - (d) In the long run under monopolistic competition
30. Efficient allocation of resources is likely to be achieved under
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
31. A firm under Perfect competition is a
- (a) Price taker
 - (b) Price maker
 - (c) Quantity adjuster
 - (d) Both (a) and (c)
32. When a firm is in equilibrium, under perfect competition
- (a) Cost per unit of output are the lowest
 - (b) Total profits are the greatest
 - (c) Total cost are the lowest
 - (d) Profit per unit of output is the greatest

33. Short run Supply curve of a firm under perfect competition is

- (a) Rising portion of total cost curve
- (b) Rising portion of Average cost curve
- (c) Rising portion of marginal cost curve
- (d) Rising portion of total revenue curve

34. An increasing cost industry is which

- (a) Long run supply curve is rising
- (b) Long run total cost is rising
- (c) Marginal cost is U shaped
- (d) LAC is U shaped

35. A decreasing cost industry is which

- (a) Long run supply curve is downward slopping
- (b) Long run total cost is decreasing
- (c) Marginal cost is U shaped and increasing
- (d) LAC is Saucer shaped

36. A Constant cost industry is which

- (a) Long run supply curve is Parallel to X axis
- (b) Long run total cost is Stagnant
- (c) Marginal cost is a Parallel to Y axis
- (d) LAC is Saucer shaped

Module III: Monopoly

Monopoly – Sources of monopoly – AR and MR curve of a monopolist - Short run and Long run equilibrium – Supply curve of a monopolist – The multiplant firm – Monopoly power – measuring monopoly power – Lerner Index - social cost of monopoly – Regulation of monopoly - Price discrimination – first degree, second degree and third degree – International price discrimination and dumping –Two part tariff, tying and bundling – Peakload pricing - Monopsony – Bilateral monopoly.

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Meaning of Monopoly

A monopoly is an industry with a single firm in which the entry of new firms is blocked. Such a market has only one seller but has many buyers. The monopolist is the market and completely controls the amount of output offered for sale.

Pure Monopoly:

Pure monopoly may be defined as an industry with a single firm that produces a product for which there are no close substitutes and in which significant barriers to entry prevent other firms from entering the industry to compete for profits.

Three conditions are necessary for pure monopoly to exist. They are:

1. A single producer or seller of a product.
2. There are no close substitutes for the product.
3. There exist strong barriers to the entry into the industry.

Average Revenue (AR) and Marginal Revenue (MR) Curves of a Monopolist

In the case of monopoly one firm constitutes the whole industry. The entire demand of the consumers for a product faces the monopolist. Since the demand curve of the consumers for a product slopes downward, the monopolist faces a downward sloping demand curve. If he wants to increase the sales of his good, he must lower the price. Demand curve facing the monopolist will be his average revenue curve. Thus the average revenue curve of the monopolist slopes downwards throughout its length.

Marginal Revenue is the change in total revenue that results from a units change in output. Demand curve facing the monopolist will be his average revenue. Since average revenue curve slopes downward, the MR curve will lie below it. That is the Marginal Revenue will be less than the price or Average Revenue.

The Multiple Plant Firm

The multiple plant monopoly is a case of monopolist who is producing an identical product in more than one plant with different cost of production. Whatever be the total

output, it should be divided between the two plants so that marginal cost is the same in each plant. The total output must be such that marginal revenue equals marginal cost at each plant.

Monopoly Power

Pure monopoly is defined as single seller of a product that has 100% market share. In reality pure monopoly is rare. Markets in which several firms compete with one another are much more common, and each such firm has a monopoly power over certain portion of the market normally referred to as market share. While there are only a few cases of pure monopoly, monopoly 'power' is much more widespread, and can exist even when there is more than one supplier.

Measuring Monopoly Power

The important distinction between perfectly competitive firm and a firm with monopoly power is that; For the competitive firm price equals marginal cost: for the firm with monopoly power, price exceeds marginal cost. Therefore the natural way to measure monopoly power is to examine the extent to which the profit-maximizing price exceeds marginal cost.

Lerner Index of Monopoly Power

The Lerner Index of monopoly power was introduced by economist Abba Lerner in 1934. Lerner Index is a measure of monopoly power calculated as excess of price over marginal cost as a fraction of price. It is the difference between price and marginal cost, divided by price.

Symbolically,
$$L = \frac{(P - MC)}{P}$$

where P = Price, MC = Marginal Cost , L = Lerner Index

The Lerner Index always has a value between zero and one. For a perfectly competitive firm, P=MC, so that L = 0. The larger is L, the greater is the degree of monopoly power.

Social Cost of Monopoly

Monopoly produces less output and charges a higher price than a competitively organized industry. In a competitive market price equals marginal cost. Monopoly power, on the other hand, implies that price exceeds marginal cost. Since monopoly power results in higher prices and lower quantities produced, we would expect it to make consumers worse off and the firm better off.

Inefficiency and consumer loss is one important social cost of monopoly. Price must equal marginal cost for markets to produce what people want. In a pure monopoly price is above marginal cost of the product. When this happens, the firm is under producing from society's point of view. Society would be better off if the firm produced more and charged a

lower price. Monopoly leads to an inefficient mix of output. The social cost of this inefficiency is called the deadweight loss.

Rent seeking is another important social cost of monopoly. Rent seeking involves such activities like spending large amounts of money in socially unproductive efforts to acquire, maintain, or exercise its monopoly power. Rent seeking might involve lobbying activities to obtain government regulations that make entry by potential competitors more difficult.

Regulation of Monopoly

Price regulation is an important means by which government can limit monopoly power. Price regulation can eliminate the deadweight loss that results from monopoly power. As the price is regulated by the government and lowered further, the quantity produced continues to increase and the deadweight loss continues to decline.

Price regulation is most often used for natural monopolies, such as local utility companies. A natural monopoly is a firm that can produce the entire output of the market at a cost that is lower than what it would be if there were several firms. A firm is a natural monopoly because it has economies of scale (declining average and marginal costs) over its entire output range. If the price is lowered to a lower level the firm would lose money and go out of business.

Regulation of monopoly is sometimes based on the rate of return that it earns on its capital. The regulatory agency determines an allowed price, so that this rate of return is in some sense “competitive” or “fair”. This practice is called rate-of-return regulation. The maximum price allowed is based on the (expected) rate of return that the firm will earn.

Price Discrimination or Discriminating Monopoly

Price discrimination refers to the practice of selling the same product at different prices to different buyers. A seller makes price discrimination between different buyers when it is both possible and profitable for him to do so. If the manufacturer of a refrigerator of a given variety sells it at Rs. 8000 to one buyer and at Rs. 8200 to another buyer (all conditions of sale and delivery being the same in two cases), he is practicing price discrimination.

Price discrimination are of the following three types:

- a) **Personal** : Price discrimination is personal when a seller charges different prices from different persons.
- b) **Local**: Price discrimination is local when the seller charges different prices from different people of different localities or places.

- c) **According to use or trade:** Price discrimination is according to use when different prices are charged according to the uses to which the commodity is put. For example, electricity is sold at different prices for domestic use and industrial use.

Degrees of Price Discrimination

Prof A.C. Pigou has distinguished between the following three types of price discrimination.

- i) Price discrimination of first degree
- ii) Price discrimination of second degree
- iii) Price discrimination of third degree

i) Price Discrimination of First Degree:

Price discrimination of first degree is also known as perfect price discrimination because this involves maximum possible exploitation of each buyer in the interest of seller's profits. Price discrimination of first degree is said to occur when the monopolist is able to sell each separate unit of the output at a different price. That is perfect price discrimination occurs when a firm charges the maximum amount that buyers are willing to pay for each unit.

ii) Price Discrimination of Second Degree:

In price discrimination of second degree buyers are divided into different groups and from each group a different price is charged which is the lowest demand price of that group.

iii) Price Discrimination of Third Degree:

Price discrimination of third degree is said to occur when the seller divides his buyers into two or more than two sub-markets or groups and charges different price in each sub-market. The price charged in a sub-market need not be the lowest demand price of that sub-market or group.

International Price Discrimination and Dumping

Dumping is an international price discrimination in which an exporter firm sells a portion of its output in a foreign market at a very low price and the remaining output at a high price in the home market.

Haberler defines dumping as: "The sale of goods abroad at a price which is lower than the selling price of the same goods at the same time and in the same circumstances at home, taking account of differences in transport costs".

Viner's definition is simple. According to him, "Dumping is price discrimination between two markets in which the monopolist sells a portion of his produced product at a low price and the remaining part at a high price in the domestic market."

Objectives of Dumping:

The main objectives of dumping are as follows:

1. To Find a Place in the Foreign Market:

A monopolist resorts to dumping in order to find a place or to continue himself in the foreign market. Due to perfect competition in the foreign market he lowers the price of his commodity in comparison to the other competitors so that the demand for his commodity may increase. For this, he often sells his commodity by incurring loss in the foreign market.

2. To Sell Surplus Commodity:

When there is excessive production of a monopolist's commodity and he is not able to sell in the domestic market, he wants to sell the surplus at a very low price in the foreign market. But it happens occasionally.

3. Expansion of Industry:

A monopolist also resorts to dumping for the expansion of his industry. When he expands it, he receives both internal and external economies which lead to the application of the law of increasing returns. Consequently, the cost of production of his commodity is reduced and by selling more quantity of his commodity at a lower price in the foreign market, he earns larger profit.

4. New Trade Relations:

The monopolist practices dumping in order to develop new trade relations abroad. For this, he sells his commodity at a low price in the foreign market, thereby establishing new market relations with those countries. As a result, the monopolist increases his production, lowers his costs and earns more profit.

Two Part Tariff and Bundling

A **two-part tariff** is a [price discrimination](#) technique in which the price of a [product](#) or [service](#) is composed of two parts - a lump-sum fee as well as a per-unit charge. In general, price discrimination techniques only occur in partially or fully [monopolistic markets](#). It is designed to enable the firm to capture more [consumer surplus](#) than it otherwise would in a non-discriminating pricing environment.

Under Two-Part Tariffs Consumers pay a one-time access fee (T) for the right to buy a product, and a per-unit price (P) for each unit they consume. Examples: Amusement parks, Golf Clubs, T-passes, Dance Clubs.

Other examples of Two-Part Tariffs are: Some video stores offer customers two ways to rent films: (i) Pay an annual membership fee (e.g., \$40), and then pay a small fee for the daily rental of each film (e.g., \$2 per film per day) (Two part Tariff) (ii) Pay no membership fee, but pay a higher daily rental fee (e.g., \$4 per film per day) (Simple rental fee)

Bundling

Bundling refers to selling more than one product at a single price. Bundling is applicable when:

- a) The firm has market power
- b) Price discrimination is not possible (inability to offer different prices to different customers or segments)
- c) Demand for two or more goods to be sold is negatively correlated (the more consumers demand one good, the less they will demand of the other good)

Pure Bundling: Consumers must buy both goods together; the choice of buying one good without buying the other is NOT given.

Mixed Bundling: Consumers have the choice of buying one good without the other.

Peak-load Pricing

When demand for a commodity varies at different periods of time, higher price of a commodity or service are charged for peak period when demand is greater and lower price charged for off-peak period when demand is lower.

This dual pricing, that is, higher price for peak period and lower price for off-peak period is known as peak-load pricing. Examples of peak-load pricing are many. In India internet charges of BSNL Broadband during day time, which is the peak time, is higher compared to off-peak period from 11.00 PM to 6.00 AM.

Peak-load pricing is generally recommended for regulated companies such as electric company, telephone company etc. In many countries electric companies are permitted to charge higher rates during day time which is the peak period for the use of electricity and lower rates for the night which is off-peak period for the use of electricity.

Monopsony

Monopsony is similar to monopoly in many regards. A monopolistic market has one seller and many competitive buyers. A monopsonistic market has one buyer and many competitive sellers. Thus **monopsony refers to a market in which there is only a single buyer**. With only one buyer or few buyers as in oligopoly, some buyers may have monopsony power, a buyer's ability to affect the price of a good. Monopoly power enables the buyer to purchase a good for less than the price that would prevail in a competitive market. However, a buyer with monopsony power can purchase goods at a price below marginal value.

Much more common than pure monopsony are markets with a few firms competing among themselves as buyers. For Example, the major Indian automobile manufacturers compete

with one another as buyers of tyres. Because each of them accounts for a large share of the tyre market, each has some monopsony power in that market. Maruti Suzuki, the largest buyer, may be able to exert considerable monopsony power while giving contract for the supply of tyres.

Bilateral Monopoly

Bilateral monopoly is a market with only one seller and only one buyer. It is not possible for the seller to behave as a monopolist and the buyer to behave as a monopsonist at the same time. Bilateral monopoly is rare. Markets in which a few producers have some monopoly power and sell to a few buyers who have some monopsony power are more common.

Model Questions and Answers

Essay Type Questions

1. Explain the determination of price and equilibrium under monopoly

Answer:

A monopolist will so determine the price of the product as to get maximum profit. A monopolist is in equilibrium when he produces that amount of output which yields him maximum total profit. A monopolist is also in equilibrium in the short period when he incurs minimum loss.

In the case of monopoly one can know about price determination or equilibrium position with the help of marginal revenue and marginal cost analysis. According to this analysis, a monopolist will be in equilibrium when two conditions are satisfied, that is;

- i) $MC = MR$ and
- ii) MC curve cuts MR curve from below.

A monopolist earns maximum profit when he is in equilibrium. Price and output determination under monopoly are studied with reference to two periods: i) Short period and ii) Long period

I. Price Determination under Short Period or Short run Equilibrium

Short run refers to that period in which time is so short that the monopolist cannot change the fixed factors like machinery, plant, etc. Monopolist can increase or decrease his output in response to increase or decrease in demand by changing the variable factors. A monopolist will be in equilibrium when he produces that amount of output at which i) marginal cost is equal to marginal revenue and ii) marginal cost curve cuts marginal revenue curve from below. A monopolist in equilibrium may face any of the three situations in short period, viz., i) Super-normal profit, ii) Normal profit and iii) Minimum loss.

- i) **Super-normal Profit:** If the price (AR) fixed by the monopolist in equilibrium is more than his average cost (AR), then he will get super-normal profits. The monopolist will produce upto the point where $MC = MR$. This limit will indicate equilibrium output. If the price of equilibrium output is more than the average cost ($AR > AC$), then the monopolist will earn super-normal profit. Fig 14.2 given below depicts this. In the figure the monopolist is in equilibrium at point E where $MC = MR$. The monopolist will produce OQ units of output and sell it at BQ price which is more than the average cost CQ. Thus the total profit of the monopolist will be PBCD, the shaded area.

- ii) **Minimum Loss:** In the short run monopolist may incur loss also. If in the short run price falls due to fall in demand, the monopolist may continue production so long as the price covers average variable cost (AVC). In case the monopolist is obliged to fix a price which is less than the average variable cost, then he will prefer to stop production. Accordingly, a monopolist in equilibrium in the short period may bear minimum loss equivalent to fixed costs. Fig 14.3 given below shows the losses incurred by the monopolist in the short run. In the figure the monopolist is in equilibrium at point E, producing CQ units of output. The price of equilibrium output is fixed at BQ, which is less than the average cost CQ. Therefore the monopolist incurs a loss of DCBP, shown by the shaded area.

- iii) **Normal Profit:** If in the short run equilibrium the marginal cost of the monopolist is equal to marginal revenue ($MC = MR$), the monopolist price (AR) is equal to its average cost (AC), i.e., $AR = AC$, then the monopolist will earn only normal profit. Figure 14.4 shows the short run equilibrium of the firm with normal profits. In the figure the monopolist is in equilibrium at point E, (where $MC = MR$), producing OQ units of output. At this point the average cost (AC) curve touches the average revenue (AR) curve at point B. Thus at point B, average cost equals average revenue. Therefore, the monopolist earns only normal profit as $AC = AR$.

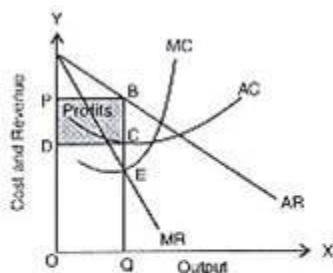


Fig. 14.2: Short Run Equilibrium of Monopolist Earning Super Normal Profits (Positive Economic Profits)

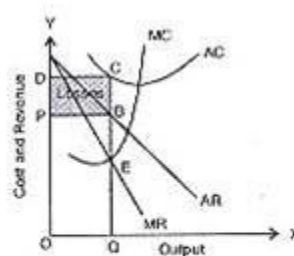


Fig. 14.3 : Short Run Equilibrium of Monopolist Incurring Losses (Negative Economic Profits)

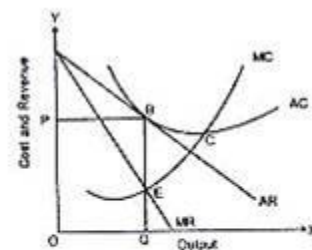
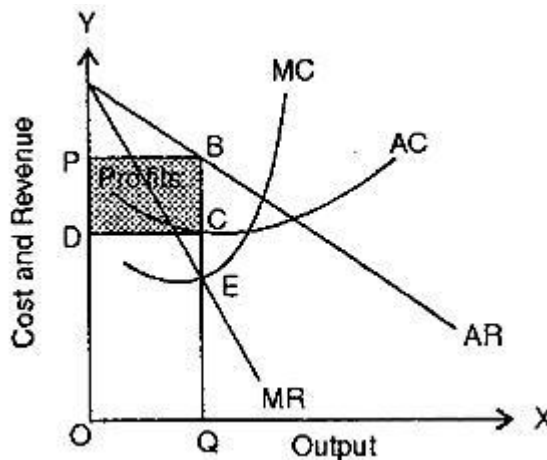


Fig. 14.4 : Short Run Equilibrium Earning Normal Profits

II. Price Determination under Long Period or Long period Equilibrium

In the long run monopolist will be in equilibrium at a point where his long run marginal cost is equal to marginal revenue ($LMC = MR$). In the long run because of sufficiently long period at the disposal of the monopolist, all cost can be varied and supply can be increased in response to increase in demand. In the short run equilibrium price can be more than, equal to or less than average cost, but in the long run price (AR) is more than the long run average cost. If the price is less than long run average cost, the monopolist would like to close down the firm rather than suffer losses. That is in the long run a monopolist earns super normal profit. Monopoly firm in the long run is not contended with normal profit alone, as the firms under perfect competition do, rather it is in a position to earn super-normal profit. Super normal profit refers to a situation where $AR > LAC$

Fig 14.5, Long run Equilibrium of a monopolist



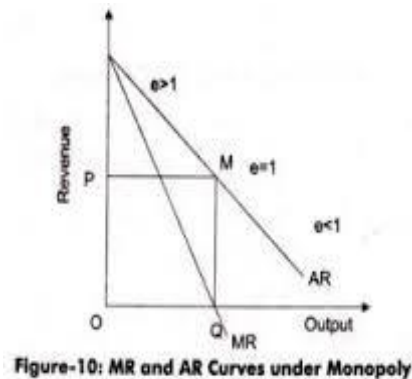
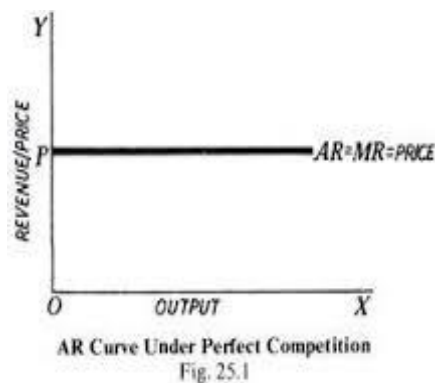
Long run equilibrium of the monopolist can be explained with the help of fig 14.5. In the figure the monopolist is in equilibrium at point E where $MC = MR$. Hence OQ is the equilibrium level of output and OP (= BQ) is the equilibrium level of price. CQ is the average cost per unit and BQ is the average revenue. The price (average revenue) BQ being more than the average cost CQ, that is, ($AR > AC$), the monopolist earns super normal profit. Accordingly, the monopolist earns $BQ - CQ = BC$ of supernormal profit per unit. The supernormal profit earned by the monopolist will be PBCD, the shaded area.

2. Explain the price and output determination under monopoly. (Refer Essay Question No. 1)
3. Define monopoly. How is price determined in monopoly market? (Refer Essay Question No. 1)
4. Compare and contrast a perfectly competitive market and a monopoly market

Answer:

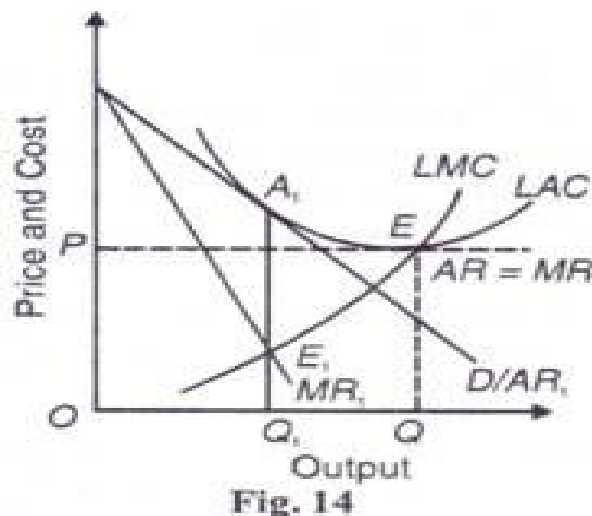
Comparison between monopoly and perfect competition can be made on the basis of the following.

- 1) **Goals of the Firm:** A firm's objective, whether operating under perfect competition or monopoly, is to earn maximum profit. A firm that maximizes profit is called a rational firm.
- 2) **Assumption Regarding Production:** Under perfect competition it is assumed that all firms produce/sell homogeneous products. A monopoly firm may or may not produce homogeneous product. In case of monopoly another main assumption is that entire supply is made by one firm.
- 3) **Assumption regarding number of sellers and buyers:** Under perfect competition there are large number of buyers and sellers of homogeneous product. No seller by changing his supply, and no buyer by changing his demand could influence the price. Under perfect competition a group of firms producing homogeneous product is called an industry. On the contrary, under monopoly there is only one seller and large number of buyers. Under monopoly firm is also an industry. New firms cannot enter the industry or the market.
- 4) **Assumption regarding entry:** Under perfect competition there is no restriction on the entry of new firms into and exit of old firms from the industry. However, this entry or exit is not simple in the short run. It is possible only in the long-run. In case of monopoly there is restriction on the entry of new firms. Because of monopoly situation, no firm can enter the market or industry.
- 5) **Implications regarding shape of the demand curve:** Under perfect competition due to large number of firms and the assumption of homogeneous product demand curve is perfectly elastic. It means that under perfect competition average revenue (AR) curve is parallel to OX axis. In this case average revenue is equal to marginal revenue, $AR = MR$. As is evident from fig 25.1; AR and MR curve are shown by the same curve P. In this situation price of the product is determined by the industry and each firm has to accept that price. Therefore, a firm under perfect competition is a price taker.



On the contrary, under monopoly average revenue (AR) curve slopes downwards. In this case AR and MR curves are separate from one another as shown in figure 10 and the MR curve not only slopes downwards, but is below AR curve. Monopolist is the price maker.

- 6) **Implications regarding decisions:** Under perfect competition, a firm can take decision only in respect of the quantity to be produced. It can, at the best, decide by how much to produce at the price determined by the industry so as to be in equilibrium. A firm need not incur any selling cost by way of advertisement. On the other hand a monopolist can determine either the quantum of output or the price, but even he cannot determine both. It is because when one these factors are determined, then the other is also automatically determined. If the monopolist fears entry of potential competitors, then he may incur some selling cost on advertisement and publicity.
- 7) **Comparison regarding price:** In the long run price under monopoly is higher than price under perfect competition. It is so because, in the long run equilibrium of a firm under perfect competition, price is equal to minimum long run average cost as shown in figure 14, below. In other words, under monopoly conditions, output is reduced from OQ to OQ_1 and price is increased from QE to QA_1 . It is clear from the figure that a firm under perfect competition will be in equilibrium at point E and produce OQ output at QE price. On the other hand, a monopolist will be in equilibrium at point E which produces OQ_1 output and sells at Q_1A_1 price.



- 8) **Comparison regarding output:** In case of long run equilibrium, output of a firm under perfect completion, is more than the output of a monopoly firm. In the long run equilibrium, a firm's long run marginal cost (LMC), marginal revenue (MR), long

run average cost (LAC) and average revenue (AR) are all equal to one another as shown in figure 14. Equilibrium point E indicates that;

$$MC = MR = AR = AC$$

Therefore under perfect completion the output will be ON. On the other hand equilibrium output under monopoly will be OQ_1 which is less than competitive equilibrium output OQ. Accordingly under monopoly equilibrium price is more and output is less than under perfectly competitive firm.

- 9) **Comparison regarding supply:** In case of perfect competition supply curve can be known. It is because, firstly under perfect competition, all firms can sell as much quantity of the product as they like at the given [price. Secondly, there is no price discrimination under perfect competition. On the other hand, under monopoly supply curve cannot be calculated.
- 10) **Comparison regarding profit:** In the short run, a firm whether operating under perfect competition or monopoly may earn super normal profit, or normal profit, or may incur losses. In the long run a firm under perfectly competitive equilibrium earns only normal profit. On the other hand, a monopoly firm under long run equilibrium continues to earn supernormal profit.
- 11) **Utilization or resources:** A firm under perfect competition makes optimum use of available resources. On the contrary, in case of monopoly, the main objective of the monopolist is to maximize his profit. He achieves this objective by high piece per unit of output and reducing the total quantity of output. Since the output is deliberately restricted in monopoly, there is no full utilization of available resources under monopoly.

Short Essay Type Questions (5 marks)

1. Briefly explain the nature of demand curve and marginal revenue curve under monopoly.

Answer:

Monopoly may be defined as an industry with a single firm that produces a product for which there are no close substitutes. It is important to understand the nature of the demand curve facing a monopolist. The demand curve facing an industrial firm under perfect competition, is a horizontal straight line, but the demand curve facing the whole industry under perfect competition is sloping downward. But in the case of monopoly one firm constitutes the whole industry. Therefore, the entire demand of the consumers for a product faces the monopolist. Since the demand curve of the consumers for a product slopes downward, the monopolist faces a downward sloping demand curve.

If the monopolist wants to increase the sale of his good, he must lower the price. He can raise the price if he is prepared to sacrifice some sales. To put it in another way, a monopolist can lower the price by increasing his level of sales and output, and he can raise the price by reducing his level of sales or output. A perfectly competitive firm merely adjusts the quantity of output it has to produce, price being a given and constant datum for

him. But the monopolist encounters a more complicated problem. He cannot merely adjust quantity at a given price because each quantity change by him will bring about a change in the price at which the product can be sold.

Consider Fig. 26.1 given below. DD is the demand curve facing a monopolist. At price OP the quantity demanded is OM, therefore he would be able to sell OM quantity at price OP. If he wants to sell a greater quantity ON, then price to the OL. If he restricts his quantity to OG, fall price will rise to OH. Thus every quantity change by him entails a change in price at which the product can be sold. Thus the problem faced by a monopolist is to choose a price-quantity combination which is optimum for him, that is, which yields him maximum possible profits.

Demand curve facing the monopolist will be his average revenue curve. Thus, the average revenue curve of the monopolist slopes downward throughout its length. Since average revenue curve slopes downward, marginal revenue curve will lie below it. This follows from usual average- marginal relationship. The implication of marginal revenue curve lying below average revenue curve is that the marginal revenue will be less than the price or average revenue.

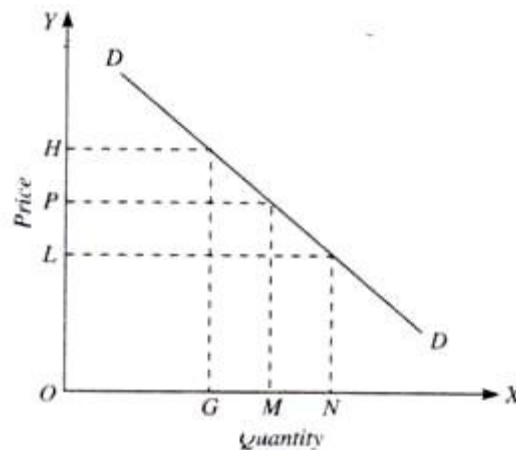


Fig. 26.1. Demand curve of the monopolist slopes downward.

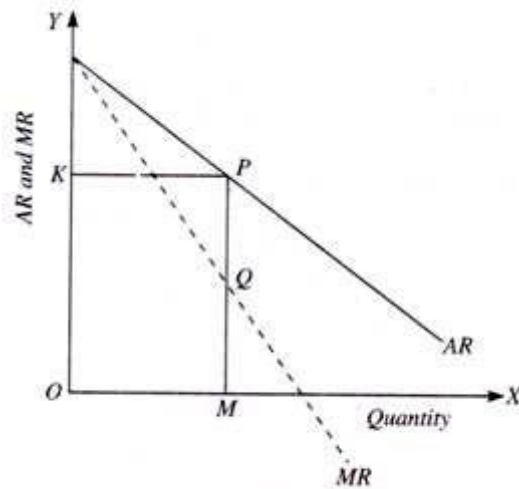


Fig. 26.2. Average and Marginal Revenue Curves under Monopoly

When monopolist sells more, the price of his product falls; marginal revenue therefore must be less than the price. In Fig. 26.2 AR is the average revenue curve of the monopolist and slopes downward. MR is the marginal revenue curve and lies below AR curve. At quantity OM, average revenue (or price) is MP and marginal revenue is MQ which is less than MP.

Average and marginal revenue at a quantity are related to each other through price elasticity of demand and in this connection we derived the following formula:

$$MR = AR \frac{(e-1)}{e}, \text{ where } e \text{ stands for price elasticity.}$$

Since AR is the same thing as price

Therefore, $MR = \text{price} \frac{(e-1)}{e}$

or $\text{price} = MR \frac{e}{e-1}$

Since the expression $\frac{e-1}{e}$ will be less than unity, MR will be less than price, or price will be greater than MR. The extent to which MR curve lies below AR curve depends upon the value of the $\frac{e-1}{e}$ fraction.

The monopolist has a clearly distinguished demand curve for his product, which is identical with the consumers' demand curve for the product in question. It is also worth mentioning that, unlike oligopolist or a firm under monopolistic competition, monopolist does not consider the repercussions of the price change by him upon those of other firms.

2. Explain the relationship between average and marginal revenue under monopoly

Answer:

The average revenue curve is the downward sloping industry demand curve and its corresponding marginal revenue curve lies below it. The relation between the average

revenue and the marginal revenue under monopoly can be understood with the help of Table 2. The marginal revenue is lower than the average revenue.

Table 2: Under Monopoly

Q	$AR (=P)$ Rs	TR Rs	MR Rs
1	20	20	20
2	18	36	16
3	16	48	12
4	14	56	8
5	12	60	4
6	10	60	0
7	8	56	-4

Given the demand for his product, the monopolist can increase his sales by lowering the price, the marginal revenue also falls but the rate of fall in marginal revenue is greater than that in average revenue. An increase in quantity sold from 1 to 2 increases revenue from Rs. 20 to 36; MR is thus Rs. 16. As the quantity sold increases from 2 to 3, MR falls to 12 and when quantity sold increases from 6 to 7, MR becomes negative. When MR is positive, revenue is increasing with increase in quantity, but when MR is negative, revenue is decreasing. In Table 2, AR falls by Rs. 2 at a time whereas MR falls by Rs. 4. This is shown in Figure 2, in which the MR curve is below the AR curve and lies half way on the perpendicular drawn from AR to the T-axis. This relation will always exist between straight line downward sloping AR and MR curves.

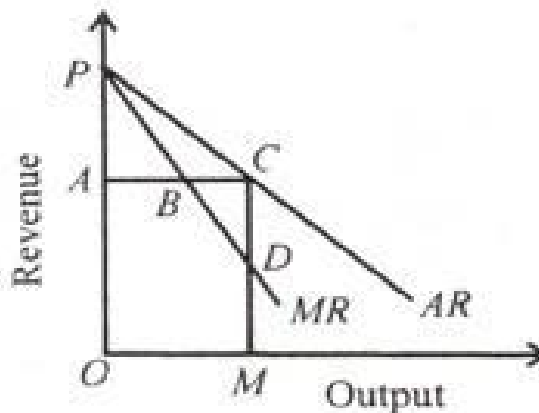


Fig. 2

AR, MR and Elasticity:

However, the true relationship between the AR curve and its corresponding MR curve under monopoly or imperfect competition depends upon the elasticity of the AR curve. We know that elasticity at point C in Figure 2 is:

$$MR = AR \frac{(e-1)}{e}, \text{ where } e \text{ stands for price elasticity.}$$

Since AR is the same thing as price

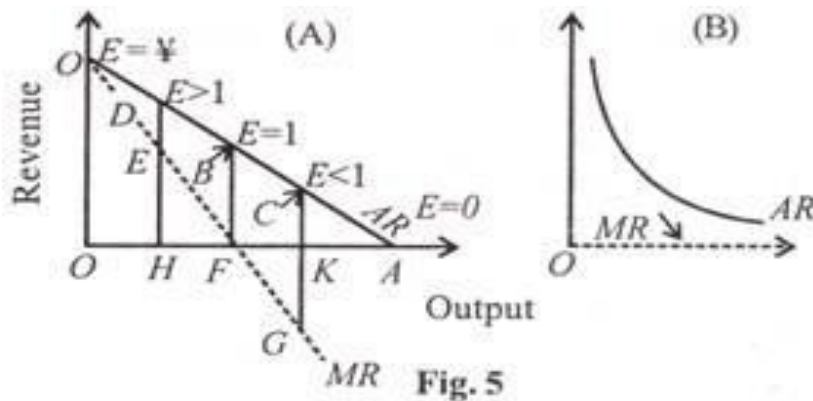
Therefore, $MR = \text{price} \frac{(e-1)}{e}$

or $\text{price} = MR \frac{e}{e-1}$

Since the expression $\frac{e-1}{e}$ will be less than unity, MR will be less than price, or price will be greater than MR. The extent to which MR curve lies below AR curve depends upon the value of the $\frac{e-1}{e}$ fraction.

On the basis of this formula the relationship between AR and MR is explained in terms of the Figure 5 (A). At point B on the average revenue curve, the elasticity of demand is equal to 1. According to the formula,

The MR curve is zero when it touches the X-axis at point F. Thus, where elasticity of AR curve is unity, MR is always zero. In case the elasticity of the AR curve is unity throughout its length like a rectangular hyperbola, the MR curve will coincide with the X-axis, shown as a dotted line in Figure 5 (B).



If the elasticity of the AR curve at point D is greater than unity, say 3, $MR = AR \frac{3-1}{3} = \frac{2}{3}$. It shows that when the elasticity of AR is greater than one, MR is always positive. It is EH in Figure 5 (A). Where the elasticity of the AR curve is less than unity, it shows MR to be negative. At point C on the AR curve, elasticity is less than unity and MR is negative KG. If the elasticity of AR is infinity ($E = \infty$), MR coincides with it at point P in Figure 5 (A). Lastly, when the elasticity of the AR curve is zero, the gap between AR and MR curves becomes wider and MR lies much below the X-axis.

3. What do you mean by Multi-plant Monopoly? What are conditions of profit maximization of multi-plant monopolist?

Answer:

The multiple plant monopoly is a case of monopolist who is producing an identical product in more than one plant with different cost of production. Whatever be the total output, it should be divided between the two plants so that marginal cost is the same in each plant. The total output must be such that marginal revenue equals marginal cost at each plant.

Suppose a firm has two plants. What should be its total output and how much of that output should be produced by each plant. Whatever be the total output, it should be divided between the two plants so that marginal cost (MC) is the same in each plant. Otherwise the firm could reduce its costs and increase its profit by reallocating production. For example, if marginal cost at Plant 1 were higher than at Plant 2, the firm could produce the same output at a lower cost by producing less at Plant 1 and more at Plant 2.

We know that the condition for profit maximization is that marginal revenue equals marginal cost. Otherwise, the firm could increase its profit by raising or lowering total output. The cost conditions vary from plant to plant and so there will be two distinct cost functions. Since marginal revenue must equal marginal cost, profit is maximized when marginal revenue equals marginal cost at each plant.

This result can be derived algebraically. Let Q_1 and C_1 be the output and cost of production for Plant 1 and Q_2 and C_2 be the output and cost of production for Plant 2. Then total output can be expressed as: $Q_T = Q_1 + Q_2$

Then Profit is maximized when the Marginal Revenue of the firm equals the marginal cost at Plant 1.

$$f = TR - C$$

$$f = PQ_T - C_1(Q_1) + C_2(Q_2)$$

The firm should increase output from each plant until incremental profit from the last unit produced is zero. Setting incremental profit from output at Plant 1 equal to zero, we get

$$\frac{\Delta f}{\Delta Q_1} = \frac{\Delta(PQ_T)}{\Delta Q_1} - \frac{\Delta C_1}{\Delta Q_1} = 0$$

Here $\frac{\Delta(PQ_T)}{\Delta Q_1}$ is the revenue from producing one more unit- ie., marginal revenue, MR, for all of the firm's output. The second term $\frac{\Delta C_1}{\Delta Q_1}$, is marginal cost at Plant 1, MC_1 . Thus we have $MR - MC_1 = 0$. Or

$$MR = MC_1$$

Similarly, we can set incremental profit from output at Plant 2 to zero, so that the marginal revenue of the firm equals marginal cost at Plant 2.

$$MR = MC_2$$

Putting these two relations together we see that the firm will maximize profit by producing that level of output such that

$$MR = MC_1 = MC_2$$

The multi-plant monopolist maximizes its profit by choosing that level of output in each plant so that the marginal revenue, MR, equals the Marginal cost, MC, for each plant.

4. What do you mean by Price discrimination? Explain different degrees of price discrimination.

Answer:

Price discrimination refers to the practice of selling the same product at different prices to different buyers. A seller makes price discrimination between different buyers when it is both possible and profitable for him to do so. If the manufacturer of a refrigerator of a given variety sells it at Rs. 8000 to one buyer and at Rs. 8200 to another buyer (all conditions of sale and delivery being the same in two cases), he is practicing price discrimination.

Price discrimination is not a very common phenomenon. It is very difficult to charge different prices for the identical product from different buyers. More often, the product is slightly differentiated to successfully practice price discrimination. Thus the concept of price discrimination can be broadened to include the sale of the various varieties of the same good at prices which are not proportional to their marginal costs.

Price discrimination are of the following three types:

- a) **Personal discrimination:** Price discrimination is personal when a seller charges different prices from different persons.
- b) **Local discrimination:** Price discrimination is local when the seller charges different prices from different people of different localities or places.
- c) **Discrimination according to use or trade:** Price discrimination is according to use when different prices are charged according to the uses to which the commodity is put. For example, electricity is sold at different prices for domestic use and industrial use.

Degrees of Price Discrimination

Prof A.C. Pigou has distinguished between the following three types of price discrimination.

- i) Price discrimination of first degree
- ii) Price discrimination of second degree
- iii) Price discrimination of third degree

i) Price Discrimination of First Degree:

Price discrimination of first degree is also known as perfect price discrimination because this involves maximum possible exploitation of each buyer in the interest of seller's profits. Price discrimination of first degree is said to occur when the monopolist is able to sell each separate unit of the output at a different price. That is perfect price discrimination occurs when a firm charges the maximum amount that buyers are willing to pay for each unit.

ii) Price Discrimination of Second Degree:

In price discrimination of second degree buyers are divided into different groups and from each group a different price is charged which is the lowest demand price of that group.

iii) Price Discrimination of Third Degree:

Price discrimination of third degree is said to occur when the seller divides his buyers into two or more than two sub-markets or groups and charges different price in each sub-market. The price charged in a sub-market need not be the lowest demand price of that sub-market or group.

5. What are the situations in which price discrimination is possible?

Answer:

Two fundamental conditions are necessary for the price discrimination to become possible.

First, price discrimination can occur only if it is not possible to transfer any unit of the product from one market to another. In other words, price discrimination can be practiced by a seller only when he is selling in different markets which are divided in such a way that the products sold by him in a cheaper market cannot be resold in the dearer market.

Second essential condition for price discrimination to occur is that it should not be possible for the buyers in the dearer market to transfer themselves into the cheaper market to buy the product at lower price.

Thus price discrimination is possible in the following cases.

- a) The nature of the commodity or service may be such that there is no possibility of transference from one market to another.
- b) Discrimination is often possible when the markets are separated by large distance or tariff barriers, so that it is very expensive to transfer goods from a cheaper market to be resold in a dearer market.
- c) In some cases there may be legal sanction for price discrimination. For example, railways charge different fares for travelling in First Class, Second Class and AC. It is unlawful to travel in first class with a ticket for the second class. This is a clear case of price discrimination by legal sanction.
- d) Price discrimination may become possible due to preference or prejudices of the buyers.
- e) Price discrimination may become possible due to ignorance and laziness of buyers.
- f) Price discrimination may become possible when several groups of buyers require the same service for clearly differentiated commodities.

6. What are the important sources of monopoly?

Answer:

A monopoly is an industry with a single firm in which the entry of new firms is blocked. Such a market has only one seller but has many buyers. The monopolist is the market and completely controls the amount of output offered for sale. A monopoly is a firm that faces a downward sloping demand and has a choice about what price to charge—without fearing of chasing all of its customers away to rivals.

However, many firms have market power or monopoly power, which means that they can increase their price above marginal cost and sustain sales for a long period of time. ^[1] The theory of monopoly is applicable to such firms, although they may face an additional and important constraint: A price increase may affect the behavior of rivals.

Sources of Monopoly:

The important source or causes of monopoly are the following:

1. Monopoly granted by the government:

The most common source of monopoly is that granted by the government either through patents—in which case the monopoly is temporary—or through a government franchise. Many cities and towns license a single cable TV company or taxi company, although usually basic rates and fares are set by the terms of the license agreement.

2. Large Economies of Scale:

A second source of monopoly is a large economy of scale. The scale economy needs to be large relative to the size of demand. A monopoly can result when the average cost of a single firm serving the entire market is lower than that of two or more firms serving the market. For example, long-distance telephone lines were expensive to install, and the first company to do so, AT&T, wound up being the only provider of long-distance service in the United States.

The demand-side equivalent of an economy of scale is a network externality. A network externality arises when others' use of a product makes it more valuable to each consumer. Fax machines are valuable only if others have similar machines. A source of network externality is third-party products. Choosing Microsoft Windows as a computer operating system means that there is more software available than for Macintosh or Linux, as the widespread adoption of Windows has led to the writing of a large variety of software for it.

3. Control of an essential or valuable input into production process:

The third source of monopoly is control of an essential, or a sufficiently valuable, input to the production process. A firm may control the total supply of a raw material that is essential in the production of some product. He may be the sole owner of a natural resource. By controlling the key raw material or natural resource a firm can monopolize the industry and keep new competitors out.

4. Historical or entry lag

A firm may enjoy monopoly because of early start in the field and one else has the necessary know how. The first firm to market some product will usually enjoy some monopoly position.

5. Limit-pricing policy or unfair competition

Another source of monopoly is the limit-pricing policy adopted by the existing firm. **Limit pricing policy is the policy which aims at the prevention of new entry.** This can be achieved by setting a price just below the minimum average long run cost of the possible potential entrant. Such a policy may be combined with continuous product differentiation and heavy advertising. These policies make entry of new firms unattractive.

6. Capital size

Monopoly may also be caused because of the huge amount of capital required to establish a particular productive unit. The supply of commodity may involve the use of such a vast amount of capital investment that new competitors are effectively excluded from entering the market.

7. Business Merger

A firm may acquire monopoly simply by taking over and getting a high combined market share for the new larger firm. Once unified, the former competitors merge into monopoly.

7. What do you mean by monopoly power? Explain the Lerner Index of monopoly power.

Answer:

Pure monopoly is defined as single seller of a product that has 100% market share. In reality pure monopoly is rare. Markets in which several firms compete with one another are much more common, and each such firm has a monopoly power over certain portion of the market normally referred to as market share. While there are only a few cases of pure monopoly, monopoly 'power' is much more widespread, and can exist even when there is more than one supplier.

The important distinction between a perfectly competitive firm and a firm with monopoly power is that; for the competitive firm price equals marginal cost and for the firm with monopoly power, price exceeds marginal cost. Therefore the natural way to measure monopoly power is to examine the extent to which the profit-maximizing price exceeds marginal cost.

Sources of Monopoly Power

Monopoly power is the ability of a firm to set price above marginal cost and that the amount by which price exceeds marginal cost depends inversely on the elasticity of demand facing the firm. The ultimate determinant of monopoly power is the firm's elasticity of demand. The less elastic the demand curve of a firm, the firm has more monopoly power. The sources of monopoly power of some firms are the following:

a) The elasticity of market demand:

If there is only one firm – a pure monopolist – its demand curve is the market demand curve. In this case, the firm's degree of monopoly power depends completely on the elasticity of market demand. However, more often several firms compete with one another. Then the elasticity of market demand sets a lower limit on the magnitude of the elasticity of demand for each firm.

b) The number of firms in the market:

The second determinant of a firm's monopoly power is the number of firms in its market. If there are many firms it is unlikely that any one firm will be able to affect price significantly. Other things being equal, the monopoly power of each firm will fall as the number of firms increases. As more and more firms compete, each firm will find it harder to raise prices and avoid losing sales to other firms.

c) The interaction among firms:

The way in which competing firms interact is sometimes the most important determinant of monopoly power. Suppose there are four firms in a market. They may compete aggressively, undercutting one another's price to capture more market share. On the other hand, firms might not compete much. They may even collude agreeing to limit output and raise prices. Collusion can generate substantial monopoly power.

Lerner Index of Monopoly Power

The Lerner Index of monopoly power was introduced by economist Abba Lerner in 1934. Lerner Index is a measure of monopoly power calculated as excess of price over marginal cost as a fraction of price. It is the difference between price and marginal cost, divided by price.

Symbolically,
$$L = \frac{(P - MC)}{P}$$
 where P = Price, MC = Marginal Cost, L = Lerner Index

The Lerner Index always has a value between zero and one. For a perfectly competitive firm, P=MC, so that L = 0. The larger is L, the greater is the degree of monopoly power.

8. Distinguish between simple monopoly and discriminating monopoly

Answer:

A monopoly is a market where there is one seller for the product. The seller is called the monopolist. When the monopolist faces the same demand curve for all consumers, he charges the same price to all consumers. This is a case of simple monopoly.

However, if the monopolist can find out different segments of buyers/ consumers/ customers with different demand curves (different in the sense that the slope of the demand curves are different for different segments), he can maximize profits by charging different prices for the same product for different segments, provided that the product sold in one segment where the monopolist charges lower price does not get transferred through re-sale at a price lower than the price at which the monopolist sells the same good at a higher price. In that case we call the monopolist to be practicing price discrimination. This is the case of discriminating monopolist.

The following are the main difference between simple monopoly and discriminating monopoly:

a) Nature of Price:

Simple monopoly is a market structure in which the monopolist charges uniform price for a given product from different buyers. Contrary to it discriminating monopoly is the market structure in which the monopolist charges different prices for the same product.

b) Volume of output, revenue and profits:

The price discrimination allows the monopolist to expand his output, total revenue and profits beyond those which a simple monopolist would realize.

c) Social Impact:

In simple monopoly uniform price is charged from all the buyers, whether rich or poor. Contrary to it monopolist practicing price discrimination charges low prices on the poor and compensate the resulting loss by charging higher prices from the rich. Thus unlike simple monopoly, discriminating monopoly facilitates redistribution of income in favour of the poor. In this sense price discrimination is socially more desirable.

d) Survival of Public utilities:

In case of certain public utilities, the uniform prices charged by the monopoly may fail to cover its total average cost. In the long run these public utilities will be forced out of business even if it offers an essential service. On the other hand price discrimination will enable the public utility to enlarge its revenue so as to cover its total cost and ensure survival of the firm.

9. Define monopoly and explain the assumptions/features of monopoly.

Answer:

A monopoly is a market where there is one seller for the product. The seller is called the monopolist. In other words monopoly is an industry with a single firm in which the entry of new firms is blocked. Such a market has only one seller but has many buyers. The monopolist is the market and completely controls the amount of output offered for sale.

Main features or assumptions of monopoly are the following.

1. One seller and large number of buyers:

Under monopoly there should be a single producer of the commodity. He may be a sole proprietor or there may be a group of partners or a joint stock company or a state. Thus there is only one firm in a monopoly and there is no distinction between a firm and industry. But the buyers of the product are large in numbers. Consequently no buyer can influence the price, but the seller can.

2. Monopoly is also an industry.

Under monopoly situation there is only one firm and the difference between firm and industry disappears. There is no difference between the study of a firm and industry.

3. Restrictions on the entry of new firms.

Under monopoly there are some barriers or restrictions on the entry of new firms into monopoly industry. These barriers may take several forms like patent rights, government laws, economies of scale etc. There is no competitor for a monopoly firm.

4. No Close substitutes

The commodity produced by the monopolist should not have close substitutes; otherwise the monopolist will not be able to determine the price of his commodity as per his discretion.

5. Price maker

A monopolist is price maker. A price maker is one who has got control over the supply of the product. A monopolist has full control over the supply of the commodity. On the other hand, there are a large number of buyers, but the demand of single buyer constitutes only a small portion of total market demand. Hence the buyers have to pay the same price fixed by the monopolist.

6. Price discrimination

A monopolist may be able to charge different prices for the same product from different customers. Thus monopolist can practice price discrimination.

7. Absence of supply curve

The monopolist does not have a supply curve independent of demand. The monopolist simultaneously examines demand and cost when deciding how much to produce and what to charge. Under monopoly marginal cost curve is not the supply curve. It is because a monopolist can sell different quantities of the commodity at different prices.

10. What do you mean by natural monopoly? Give reasons for the emergence of natural monopoly.

Answer:

A natural monopoly is a firm that can produce the entire output of the market at a cost that is lower than what it would be if there were several firms. If a firm is natural monopoly, it is more efficient to let it serve the entire market rather than have several competing firms. That is Natural monopolies occur when a single firm is able to serve the entire market demand at a lower cost than any combination of two or more smaller firms. A natural monopoly's cost structure is very different from that of most industries. For a natural monopoly, the average total cost continues to shrink as output increases.

Situation where one firm (because of a unique raw material, technology, or other factors) can supply a market's entire demand for a good or service at a price lower than two or more firms can. Such situations occur usually in case of utilities or where a market can support only one producer (because the decreasing returns to scale make the optimum plant size large in relation to the demand) or where long-range average total cost is declining with higher output throughout the range of the possible demand.

A *natural monopoly* is a distinct type of **monopoly** that may arise when there are extremely high fixed **costs** of distribution, such as exist when large-scale infrastructure is required to ensure supply. Examples of infrastructure include cables and grids for electricity supply, pipelines for gas and water supply, and networks for **rail** and underground. These costs are also **sunk costs**, and they deter entry and exit. In the case of natural monopolies, trying to increase competition by encouraging new entrants into the market creates a potential loss of **efficiency**. The efficiency loss to society would exist if the new entrant had to duplicate all the fixed factors - that is, the infrastructure. It may be more efficient to allow only one firm to supply to the market because allowing competition would mean a *wasteful duplication of resources*.

Some of the important reasons for the emergence of natural monopoly are the following:

1) Economies of Scale:

With natural monopolies, **economies of scale** are very significant so that minimum efficient scale is not reached until the firm has become very large in relation to the total size of the market. *Minimum efficient scale* (MES) is the lowest level of output at which all economies of are exploited. If MES is only achieved when output is relatively high, it is likely that few firms will be able to compete in the market. When MES can only be achieved when one firm has exploited the majority of economies of scale available, then no more firms can enter the market.

2) Investment in expensive infrastructure:

In the case of infrastructural facilities like transport, communication, electricity supply, etc, huge and expensive investments are required. Since huge capital investments are required in such services, normally more firms will not enter into such services, leading to the natural formation of monopolies.

3) Existence of high fixed cost:

Natural monopolies tend to form in industries where there are high fixed costs. A firm with high fixed costs requires a large number of customers in order to have a meaningful return on investment.

4) High Initial costs:

The initial investment costs are very high in the case of some industries like utility services. Other firms are discouraged from entering the market because of the high initial costs and the difficulty of obtaining a large enough market share to achieve the same low costs as the monopolist.

5) Railways as a natural monopoly:

Railways are often considered a typical example of a natural monopoly. The very high costs of laying track and building a network, as well as the costs of buying or leasing the trains, would prohibit, or deter, the entry of a competitor. To society, the costs associated with building and running a rival network would be wasteful.

6) Avoiding wasteful duplication:

The best way to ensure competition, without the need to duplicate the infrastructure, is to allow new train operators to use the existing track; hence, competition has been introduced, without duplication of costs. This is called *opening-up* the infrastructure. This approach is frequently adopted to deal with the problem of privatising natural monopolies and encouraging more competition.

7) Utility Companies:

Natural monopolies are common in markets for 'essential services' that require an expensive infrastructure to deliver the good or service, such as in the cases of water supply, electricity, and gas, and other industries known as public utilities. Because there is the potential to exploit monopoly power, governments tend to nationalise or heavily regulate them.

8) Regulators:

If public utilities are privately owned, as in the UK, since privatisation during the 1980s, they usually have their own special regulator to ensure that they do not exploit their monopoly status. Examples of regulators in India include **Telecom Regulatory Authority of India (TRAI)**, Insurance Development and Regulatory Authority (IRDA) etc.. Regulators can cap prices or the level of return gained.

11. How does a monopolist practice first degree discrimination?

(Refer Short essay question No. 4)

12. Dumping is international price discrimination. Give reasons to support it.

Meaning of Dumping:

Dumping is an international price discrimination in which an exporter firm sells a portion of its output in a foreign market at a very low price and the remaining output at a high price in the home market. Haberler defines dumping as: "The sale of goods abroad at a price which is lower than the selling price of the same goods at the same time and in the same circumstances at home, taking account of differences in transport costs" Viner's definition is simple. According to him, "Dumping is price discrimination between two markets in which the monopolist sells a portion of his produced product at a low price and the remaining part at a high price in the domestic market."

Objectives of Dumping:

The main objectives of dumping are as follows:

1. To Find a Place in the Foreign Market:

A monopolist resorts to dumping in order to find a place or to continue himself in the foreign market. Due to perfect competition in the foreign market he lowers the price of his commodity in comparison to the other competitors so that the demand for his commodity may increase. For this, he often sells his commodity by incurring loss in the foreign market.

2. To Sell Surplus Commodity:

When there is excessive production of a monopolist's commodity and he is not able to sell in the domestic market, he wants to sell the surplus at a very low price in the foreign market. But it happens occasionally.

3. Expansion of Industry:

A monopolist also resorts to dumping for the expansion of his industry. When he expands it, he receives both internal and external economies which lead to the application of the law of increasing returns. Consequently, the cost of production of his commodity is reduced and by selling more quantity of his commodity at a lower price in the foreign market, he earns larger profit.

4. New Trade Relations:

The monopolist practices dumping in order to develop new trade relations abroad. For this, he sells his commodity at a low price in the foreign market, thereby establishing new market relations with those countries. As a result, the monopolist increases his production, lowers his costs and earns more profit.

Effects of Dumping:

Dumping affects both the importer and exporter countries in the following ways:

1. Effects on Importing Country:

The effects of dumping on the country, in which a monopolist dumps his commodity, depend on whether dumping is for a short period or a long period and what are the nature of the product and the aim of dumping.

1. If a producer dumps his commodity abroad for a short period, then the industry of the importing country is affected for a short while. Due to the low price of the dumped commodity, the industry of that country has to incur a loss for some time because less quantity of its commodity is sold.
2. Dumping is harmful for the importing country if it continues for a long period. This is because it takes time for changing production in the importing country and its domestic industry is not able to bear competition. But when cheap imports stop or dumping does not exist, it becomes difficult to change the production again.
3. If the dumped commodity is a consumer good, the demand of the people in the importing country will change for the cheap goods. When dumping stops, this demand will reverse, thereby changing the tastes of the people which will be harmful for the economy.
4. If the dumped commodities are cheap capital goods, they will lead to the setting up of a new industry. But when the imports of such commodities stop, this industry will also be shut down. Thus ultimately, the importing country will incur a loss.
5. If the monopolist dumps the commodity for removing his competitors from the foreign market, the importing country gets the benefit of cheap commodity in the beginning. But after competition ends and he sells the same commodity at a high monopoly price, the importing country incurs a loss because now it has to pay a high price.
6. If a tariff duty is imposed to force the dumper to equalise prices of the domestic and imported commodity, it will not benefit the importing country.
7. But a lower fixed tariff duty benefits the importing country if the dumper delivers the commodity at a lower price.

2. Effects on Exporting Country:

Dumping affects the exporting country in the following ways:

1. When domestic consumers have to buy the monopolistic commodity at a high price through dumping, there is loss in their consumers' surplus. But if a monopolist produces more commodities in order to dump it in another country, consumers benefit. This is because with more production of the commodity, the marginal cost falls. As a result, the price of the commodity will be less than the monopoly price without dumping. But this lower price than the monopoly price depends upon the law of production under which the industry is operating. If the industry is producing under the law of diminishing returns, the price will not fall because costs will increase and so will the price increase. The consumers will be losers and the monopolist will profit. There will be no change in price under fixed costs. It is only when costs fall under the law of increasing returns that both the consumers and the monopolist will benefit from dumping.
2. The exporting country also benefits from dumping when the monopolist produces more commodity. Consequently, the demand for the required inputs such as raw materials, etc. for the production of that commodity increases, thereby expanding the means of employment in the country.

3. The exporting country earns foreign currency by selling its commodity in large quantity in the foreign market through dumping. As a result, its balance of trade improves.

Anti-Dumping Measures:

The following measures are adopted to stop dumping:

a. Tariff Duty:

To stop dumping, the importing country imposes tariff on the dumped commodity consequently, the price of the importing commodity increases and the fear of dumping ends. But it is necessary that the rate of duty on imports should be equal to the difference between the domestic price of the commodity and the price of the dumped commodity. Generally, the tariff duty is imposed more than this difference to end dumping, but it is likely to have harmful effects on other imports.

b. Import Quota:

Import quota is another measure to stop dumping under which a commodity of a specific volume or value is allowed to be imported into the country. For this purpose, it includes the imposition of a duty along with fixing quota, and providing a limited amount of foreign exchange to the importers.

c. Import Embargo:

Import embargo is an important retaliatory measure against dumping. According to this, the imports of certain or all types of goods from the dumping country are banned.

d. Voluntary Export Restraint:

To restrict dumping, developed countries enter into bilateral agreements with other countries from which they fear dumping of commodities. These agreements ban the export of specified commodities so that the exporting country may not dump its commodities in other country. Such bilateral VER agreements exist between India and EU countries in exporting Indian textiles.

13. Point out different degrees of price discrimination.

(Refer Short essay Question No. 4)

14. Explain how monopolies can be regulated

Answer:

A monopolist can exploit the society by lowering the output and by raising the price of his product. Therefore, governments in each country keep the activities of the monopolist well under control. Monopoly can be controlled and regulated in the following ways.

1. **Anti-monopoly Legislation:** Monopoly power can be restricted by enacting anti-monopoly legislations. Such legislative measures prevent monopoly forms from indulging in such practices like cut-throat competition.
2. **Maintenance of fair competition:** Monopoly power comes into being when it is not opposed by any real or potential competition. Monopoly firms adopt illegal and immoral methods to crush their rival firms. In order to prevent it legislative

measures have been taken in many countries to maintain fair competition and to check unfair trade practices of monopoly firms.

3. **Price and output control measures:** Monopoly is also criticized as under it more prices is charged and less output is produced compared to perfect competition. Therefore, it is suggested that monopolist be compelled determine price and output equal to competitive price and output. This policy is pursued in public utility services like Railways, Electricity supply etc.
4. **Purchaser's Association:** Setting up of Consumer's forum has been suggested to enhance the bargaining capacity of the consumers. This suggestion is based on the assumption that monopolist derives his bargaining capacity because of the absence of competition. The purchaser's can increase their bargaining capacity by forming consumer's forums.
5. **Publicity:** Prof. Pigou and other economist lay emphasis on intensive publicity with regard to the evils of monopoly power. Such an adverse propaganda will create a fear in the mind of the monopolist and he will keep away from objectionable and improper methods.
6. **Control through subsidies and taxes:** Mrs. Joan Robinson has suggested the use of tax and grants to establish competitive price and output. Suppose that the government fixes competitive price as the maximum price for the monopolist to sell his output, the monopolist cannot charge higher than this price. The loss suffered by the monopolist can be compensated by the government by giving him grants. Likewise the government can mop up the excess price charged by the monopolist by imposing taxes.

15. Distinguish between price discrimination and product differentiation.

(Refer short essay question 4 of this module and short essay question 3 of module IV)

VERY SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. What is bilateral monopoly?

Bilateral monopoly is a market with only one seller and only one buyer. It is not possible for the seller to behave as a monopolist and the buyer to behave as a monopsonist at the same time. Bilateral monopoly is rare. Markets in which a few producers have some monopoly power and sell to a few buyers who have some monopsony power are more common.

2. **What do you mean by price discrimination?**

(Refer Short essay question No. 4)

3. **What is third degree price discrimination?**

(Refer Short essay question No. 4)

4. **Define Monopoly**

(Refer Short essay question No. 6)

5. **What are the conditions for short run monopoly equilibrium?**

(Refer essay question No. 1)

6. What do you mean by discriminating monopoly?

(Refer Short essay question No. 4)

7. Distinguish between pure monopoly and discriminating monopoly

(Refer Short essay question No. 4)

8. Multi plant monopolist (Refer short essay question No. 3)

9. State the condition for equilibrium of a multi-plant monopolist

(Refer Short essay question No. 3)

10. Briefly state the concept of monopoly power. (Refer short essay question No. 7)

11. Write a note on Lerner Index of measuring monopoly power.

(Refer short essay question No. 7)

12. What is natural monopoly? (Refer short essay question No. 10)

13. What are the degrees of price discrimination? (Refer short essay question No. 4)

14. Dumping. Write any two objectives of dumping. (Refer short essay question No. 12)

15. International price discrimination. (Refer short essay question No. 12)

16. What do you mean by Two-part tariff?

A **two-part tariff** is a [price discrimination](#) technique in which the price of a [product](#) or [service](#) is composed of two parts - a lump-sum fee as well as a per-unit charge. In general, price discrimination techniques only occur in partially or fully [monopolistic markets](#). It is designed to enable the firm to capture more [consumer surplus](#) than it otherwise would in a non-discriminating pricing environment.

17. What do you mean by bundling

Bundling refers to selling more than one product at a single price. Bundling is applicable when:

- a) The firm has market power
- b) Price discrimination is not possible (inability to offer different prices to different customers or segments)
- c) Demand for two or more goods to be sold is negatively correlated (the more consumers demand one good, the less they will demand of the other good)

18. What is peak load pricing

When demand for a commodity varies at different periods of time, higher price of a commodity or service are charged for peak period when demand is greater and lower price charged for off-peak period when demand is lower.

This dual pricing, that is, higher price for peak period and lower price for off-peak period is known as peak-load pricing. Examples of peak-load pricing are many. In India internet charges of BSNL Broadband during day time, which is the peak time, is higher compared to off-peak period from 11.00 PM to 6.00 AM.

19. Distinguish between monopoly and monopsony

Monopsony is similar to monopoly in many regards. A monopolistic market has one seller and many competitive buyers. A monopsonistic market has one buyer and many

competitive sellers. Thus **monopsony refers to a market in which there is only a single buyer.**

20. Bilateral monopoly

Bilateral monopoly is a market with only one seller and only one buyer. It is not possible for the seller to behave as a monopolist and the buyer to behave as a monopsonist at the same time. Bilateral monopoly is rare. Markets in which a few producers have some monopoly power and sell to a few buyers who have some monopsony power are more common.

Multiple Choice Questions

1. Price discrimination is an essential feature of
 - a) Perfect competition
 - b) Oligopoly
 - c) Duopoly
 - d) monopoly
2. Under monopoly the slope of AR curve is:
 - a) Upward sloping
 - b) downward sloping
 - c) horizontal
 - d) None of these
3. Monopoly market is :
 - a) Single seller market
 - b) single buyer market
 - c) single buyer and seller
 - d) None
4. In a monopsony market there is:
 - a) Single seller
 - b) single buyer
 - c) Two sellers
 - d) two buyers
5. Third degree price discrimination occurs when the monopolist charges different prices for the same commodity in different
 - a) Markets
 - b) places
 - c) continents
 - d) countries
6. Price discrimination is possible:
 - a) Under any market form
 - b) only under monopoly
 - c) Only under monopolistic completion
 - d) Only in perfect competition
7. Monopolist maximizes profit at the point where
 - a) $MC = AC$
 - b) $MC = MR$
 - c) $AC = AR$
 - d) $MR = AR$
8. At the point of equilibrium of a monopolist MC cuts MR curve
 - a) From below
 - b) from above
 - c) at point of equality of AC and AR
 - d) None
9. A multiplant monopolist maximizes his profit at the point where:
 - a) $MR = MC_1$
 - b) $MR = MC_2$
 - c) $MR_1 = MR_2$
 - d) $MR = MC_1 = MC_2$
10. Lerner Index is a measure of:
 - a) Elasticity of demand
 - b) Monopoly power
 - d) Inequality
 - d) None

11. For a firm with monopoly power
- a) Price equals MC
 - b) Price is less than MC
 - c) Price exceeds MC
 - d) None
- Railways is an example of :
- a) Simple monopoly
 - b) differentiated monopoly
 - c) Natural monopoly
 - d) Monopsony
12. A market with only one buyer and one seller is called
- a) Oligopsony
 - b) monopsony
 - c) Bilateral monopoly
 - d) None
13. Bilateral monopoly is a market with
- a) Single buyer
 - b) Single seller
 - c) Single buyer and single seller
 - d) Few buyers and sellers
14. The dual pricing system of charging high price during peak time and low price during of peak time is called
- a) Double pricing
 - b) Dual pricing
 - c) kinked pricing
 - d) peak load pricing
15. Selling more than one product at a single price
- a) Dumping
 - b) Bundling
 - c) Discounting
 - d) Off loading
16. An international price discrimination
- a) Dumping
 - b) Bundling
 - c) Discounting
 - d) Off loading

Answers:

1. d 2. b 3. a 4. b 5. a 6. b 7. b 8. a 9. d 10. b
11. c 12. c 13. c 14. c 15. d 16. b 17. A

Module IV: Monopolistic Competition and Oligopoly

Monopolistic competition and Oligopoly – Features of monopolistic competition – Short run and long run equilibrium - Product differentiation and selling costs – Oligopoly - Characteristics – Collusive versus non-collusive oligopoly – Cournot model – Kinked demand curve model - Cartel and price leadership

Objectives of the module

4. To develop basic understanding of various Market forms and their price determining strategies.
5. To develop capacity to compare and appreciate various market strategies especially monopolistic competition and oligopoly.
6. To develop capacity to assess various practical situations of pricing strategies and selling strategies of a firm and to compare it with theoretical frame work.

TERMS AND CONCEPTS DISCUSSED:

Monopolistic competition: The model of monopolistic competition describes a common market structure in which firms have many competitors, but each one sells a slightly different product.

Product differentiation: It is the process of distinguishing a [product](#) or service from others, to make it more attractive to a particular [target market](#). This involves differentiating it from [competitors'](#) products as well as a firm's own products

Selling costs : Selling costs refer to the expenses incurred on marketing, sales promotion and advertisement of the product. Such costs are incurred to persuade the buyers to buy a particular brand of the product in preference to competitor's brand

Oligopoly: Oligopoly is that form of imperfect competition where there are a few firms in the market producing either homogenous or differentiated products. In other words, an oligopoly is a [market structure](#) in which a few firms dominate. When a market is shared between a few firms, it is said to be highly concentrated

Collusive Oligopoly: Collusion is an agreement between two or more parties, sometimes illegal and therefore secretive, to limit open [competition](#) by deceiving, misleading, or defrauding others of their legal rights, or to obtain an objective forbidden by [law](#) typically by defrauding or gaining an unfair market advantage. It is an agreement among firms or individuals to divide a market, set prices, limit production or limit opportunities.^[1] It can involve "wage fixing, kickbacks, or misrepresenting the independence of the relationship between the colluding parties"

Non-collusive oligopoly: Competing, oligopolists prefer non-price competition in order to avoid price wars. A price reduction may achieve strategic benefits, such as gaining market share, or deterring entry, but the danger is that rivals will simply reduce their prices in response. In such a case no conditions of collusion exist.

Cartel: An organization created from a formal agreement between a group of producers of a good or service, to regulate supply in an effort to regulate or manipulate prices. It is a formal organization of sellers or buyers that agree to fix selling prices,

purchase prices, or reduce production using a variety of tactics. Cartels usually arise in an [oligopolistic industry](#).

Price leadership: Price leadership is when a firm that is the leader in its sector determines the price of goods or services. Price leadership can leave the leader's rivals with little choice but to follow its lead and match these prices if they are to hold onto their market share

QUESTION BANK

ESSAY TYPE QUESTIONS (12 MARKS)

1. What are the features of monopolistic competition? Explain short run and long run equilibrium under monopolistic competition.

Monopolistic competition

The model of monopolistic competition describes a common market structure in which firms have many competitors, but each one sells a slightly different product. Monopolistic competition as a market structure was first identified in the 1930s by American economist Edward Chamberlin, and English economist Joan Robinson.

Many small businesses operate under conditions of monopolistic competition, including independently owned and operated high-street stores and restaurants. In the case of restaurants, each one offers something different and possesses an element of uniqueness, but all are essentially competing for the same customers.

Characteristics

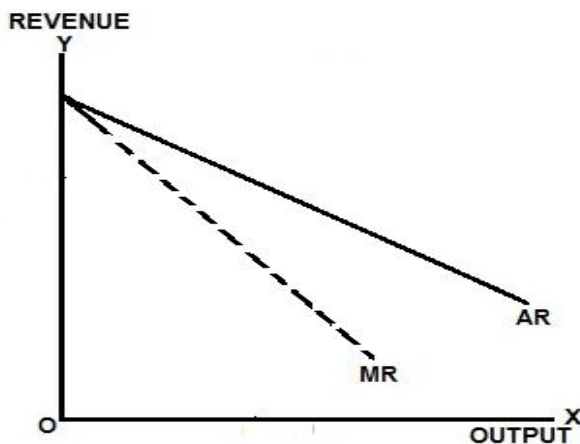
Monopolistically competitive markets exhibit the following characteristics:

2. **Large number of firms:** There are usually a large numbers of independent firms competing in the market.
3. **Independent Action by firms:** Each firm makes independent decisions about price and output, based on its product, its market, and its costs of production.
4. **Imperfect but wide spread knowledge:** Knowledge is widely spread between participants, but it is unlikely to be perfect.
5. **More role to the producer:** The entrepreneur has a more significant role than in firms that are perfectly competitive because of the increased risks associated with decision making.
6. **Existence of freedom to entry and exit:** There is freedom to enter or leave the market, as there are no major barriers to entry or exit.
7. **Product differentiation:** A central feature of monopolistic competition is that products are differentiated. There are four main types of differentiation:
 - Physical product differentiation, where firms use size, design, colour, shape, performance, and features to make their products different. For example, consumer electronics can easily be physically differentiated.
 - Marketing differentiation, where firms try to differentiate their product by distinctive packaging and other promotional techniques. For example, breakfast cereals can easily be differentiated through packaging.

- Human capital differentiation, where the firm creates differences through the skill of its employees, the level of training received, distinctive uniforms, and so on.
 - Differentiation through distribution, including distribution via mail order or through internet shopping, such as Amazon.com, which differentiates itself from traditional bookstores by selling online.
8. **Firms are facing down ward sloping demand curve:** Firms are price makers and are faced with a downward sloping demand curve. Because each firm makes a unique product, it can charge a higher or lower price than its rivals. The firm can set its own price and does not have to 'take' it from the industry as a whole, though the industry price may be a guideline, or becomes a constraint. This also means that the demand curve will slope downwards.
 9. **Existence of selling cost:** Firms operating under monopolistic competition usually have to engage in advertising. Firms are engaged in competition with other firms offering a similar product or service, and may need to advertise to let customers know their differences. Common methods of advertising for these firms are through local press and radio, local cinema, posters, leaflets and special promotions.
 9. **Objective of profit maximisation:** Monopolistically competitive firms are assumed to be profit maximisers because firms tend to be small with entrepreneurs actively involved in managing the business.

Nature of AR and MR under Monopolistic Competition

Due to imperfection in the market, the demand curve (AR Curve) faced by a firm under monopolistic competitive market is down ward sloping. It means that in order to sell more a firm will have to reduce the price of the commodity. Since AR is downward sloping, MR also downward sloping. Besdes MR Curve lies below AR Curve. The nature of AR and MR under monopolistic competition is explained in the following figure.

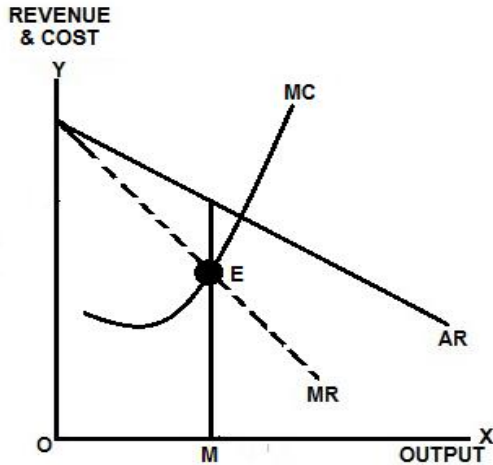


Equilibrium under monopolistic competition.

Two important conditions are to be satisfied to attain short run equilibrium under monopolistically competitive firms. they are:

1. Marginal Cost= Margianl Revenue (MC=MR)
2. MC should Cut MR curve from below

Such a condition is explained in the following figure:



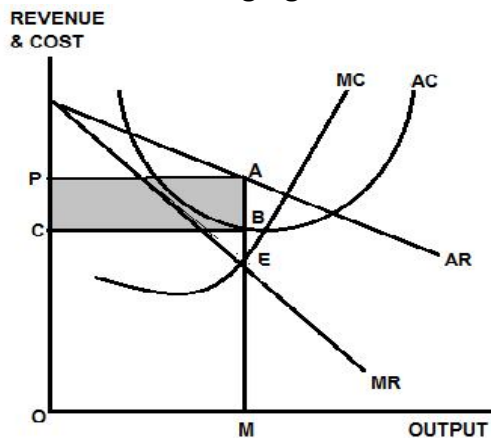
Monopolistic competition in the short run: Abnormal profit

In the short run supernormal profits are possible, but in the long run new firms are attracted into the industry, because of low barriers to entry, good knowledge and an opportunity to differentiate.

Two important conditions are to be satisfied to attain short run equilibrium under monopolistically competitive firms. they are:

3. Marginal Cost= Margianl Revenue (MC=MR)
4. MC should Cut MR curve from below

Such a condition is explained in the following figure,



In the figure:

At profit maximisation, equilibrium point is attained at point E where, MC = MR, and the firm is producing output OM and price is OP. At this stage:

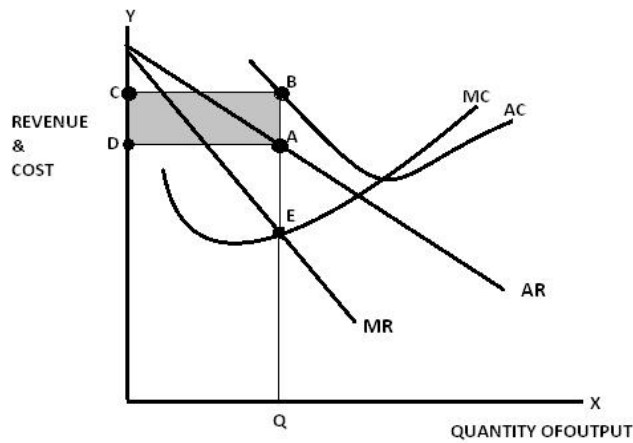
- AR = MA

- $AC = MB$
- Since $AR > AC$, the firm is gaining abnormal profit.
- Profit per unit = $MA - MB = AB$
- Total abnormal profit of the firm at OQ output = $OM \times AB = PABC$ (Shaded area).

As new firms enter the market, demand for the existing firm's products becomes more elastic and the demand curve shifts to the left, driving down price. Eventually, all super-normal profits are eroded away.

Monopolistic competition in the short run: Loss Position

In the short run, there is a possibility of loss also to a firm under monopolistic competition. Such a case is demonstrated in the following figure.



In the figure:

The equilibrium point is attained at point E where, $MC = MR$, and the firm is producing output OQ and price is OC . At this stage:

- $AR = QA$
- $AC = QB$
- Since $AR < AC$, the firm is suffering loss.
- Loss per unit = $QB - QA = AB$
- Total loss of the firm at OQ output = $OQ \times AB = ABCD$. (the shaded area)

As loss suffering firms leave the market, demand for the existing firm's products becomes less elastic and the demand curve shifts to the right, which push the price up. Eventually, all loss will be covered and the firm starts to earn normal profit in the long run.

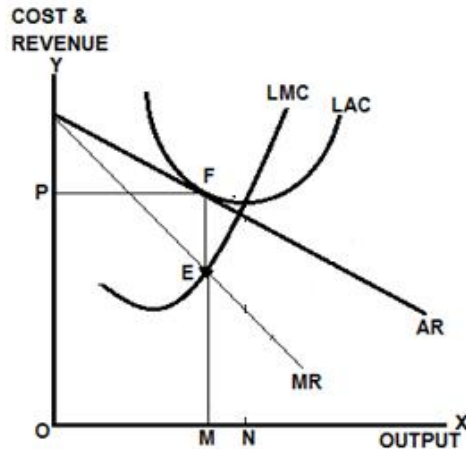
Monopolistic competition in the long run

The freedom to enter and to leave the industry in a monopolistically competitive market will lead to changes in the supply of the products in the market. Abnormal profit of the existing firm in the short run will attract new firms to the industry. Similarly firms suffering with loss will leave the industry. Therefore, in the long run all the existing firms will earn only normal profit.

Three conditions are to be satisfied for long run equilibrium under MPC.

7. Marginal Cost= Marginal Revenue (MC=MR)
8. MC should Cut MR curve from below
9. Average Revenue should be equal to Average Total cost (AR=ATC)

The normal profit of firm in the long run is demonstrated in the figure below.



The equilibrium point is attained at point E where $MC = MR$, and the firm is producing output OM and price is OP. At this stage:

- $AR = MF$
- $AC = MF$
- Since $AR = AC$, the firm is earning only normal profit

Hence the three conditions of equilibrium for the long run are satisfied. Since the firm is earning normal profit, it has no tendency to change its scale of operation.

Examples of monopolistic competition

Examples of monopolistic competition can be found in every high street.

Monopolistically competitive firms are most common in industries where differentiation is possible, such as:

- The restaurant business
- Hotels and pubs
- General specialist retailing
- Consumer services, such as hairdressing

The survival of small firms

The existence of monopolistic competition partly explains the survival of small firms in modern economies. The majority of small firms in the real world operate in markets that could be said to be monopolistically competitive.

Evaluation

The advantages of monopolistic competition

Monopolistic competition can bring the following advantages:

1. There are no significant barriers to entry; therefore markets are relatively contestable.
2. Differentiation creates diversity, choice and utility. For example, a typical high street in any town will have a number of different restaurants from which to choose.
3. The market is more efficient than monopoly but less efficient than perfect competition - less allocatively and less productively efficient. However, they may be dynamically efficient, innovative in terms of new production processes or new products. For example, retailers often constantly have to develop new ways to attract and retain local custom.

The disadvantages of monopolistic competition

There are several potential disadvantages associated with monopolistic competition, including:

1. Some differentiation does not create utility but generates unnecessary waste, such as excess packaging. Advertising may also be considered wasteful, though most is informative rather than persuasive.
 2. As the diagram illustrates, assuming profit maximisation, there is allocative inefficiency in both the long and short run. This is because price is above marginal cost in both cases. In the long run the firm is less allocatively inefficient, but it is still inefficient.
2. What is oligopoly? What are different types of oligopoly? Distinguish between collusive and non collusive oligopoly.

OLIGOPOLY

The term oligopoly is derived from two Greek words “oligos” meaning few and “pollen” meaning to sell. Oligopoly is that form of imperfect competition where there are a few firms in the market producing either homogenous or differentiated products. In other words, an oligopoly is a [market structure](#) in which a few firms dominate. When a market is shared between a few firms, it is said to be highly concentrated. Modern economists used the term **concentration ratio** to define monopoly. It represent the combined market share of the largest four firms in the market. Although only a few firms dominate, it is possible that many small firms may also operate in the market.

Classification of oligopoly

Basis of classification	Types of oligopoly	Basic feature
Nature of product	Perfect oligopoly	Selling Homogenous product
	Imperfect (Differentiated oligopoly)	Selling Differentiated products
Freedom to entry and Exit	Open oligopoly	Existance of freedom to enter in the market
	Closed oligopoly	No freedom to entry and exit

On the basis of Agreement or understanding	Collusive oligopoly	Agreement or understanding between firms (Explicit and Tacit)
	Non collusive oligopoly	Lack of understanding or agreement
Price leadership	Partial Oligopoly	One large firm (Price leadership)
	Full oligopoly	No firm is a price leader
Degree of Co ordination	Syndicated oligopoly	Sell the products of firms through a centralised syndicate
	Organised oligopoly	Organise themselves into a central association for fixing output price etc
Concentration Ratio	Tight oligopoly	Concentration ratio 60 %
	Loose oligopoly	Concentration ratio 40% to 20%

Important features of oligopoly

The main characteristics of firms operating in a market with few close rivals include:

1. Interdependence :

Firms that are interdependent cannot act independently of each other. A firm operating in a market with just a few competitors must take the potential reaction of its closest rivals into account when making its own decisions. For example, if a petrol retailer like Indian Oil corporation wishes to increase its market share by reducing price, it must take into account the possibility that close rivals, such as HP and BP, may reduce their price in retaliation. An understanding of [game theory](#) and the [Prisoner's Dilemma](#) helps appreciate the concept of interdependence.

2. Strategy

Strategy is extremely important to firms that are interdependent. Because firms cannot act independently, they must anticipate the likely response of a rival to any given change in their price, or their non-price activity. In other words, they need to plan, and work out a range of possible options based on how they think rivals might react.

Oligopolists have to make critical strategic decisions, such as:

- Whether to compete with rivals, or collude with them.
- Whether to raise or lower price, or keep price constant.
- Whether to be the first firm to implement a new strategy, or whether to wait and see what rivals do. The advantages of 'going first' or 'going second' are respectively called 1st and 2nd-mover advantage. Sometimes it pays to go first because a firm can generate *head-start* profits. 2nd mover advantage occurs when it pays to wait and see what new strategies are launched by rivals, and then try to improve on them or find ways to undermine them.

3. Barriers to entry

Oligopolies and monopolies frequently maintain their position of dominance in a market might because it is too costly or difficult for potential rivals to enter the market. These hurdles are called *barriers to entry* and the incumbent can erect them deliberately, or they can exploit natural barriers that exist.

Natural entry barriers include:

- a. **Economies of large scale production:** If a market has significant economies of scale that have already been exploited by the incumbents, new entrants are deterred.
- b. **Ownership or control of a key scarce resource:** Owning scarce resources that other firms would like to use creates a considerable barrier to entry, such as an airline controlling access to an airport.
- c. **High set-up costs:** High set-up costs deter initial market entry, because they increase break-even output, and delay the possibility of making profits. Many of these costs are sunk costs, which are costs that cannot be recovered when a firm leaves a market, and include marketing and advertising costs and other fixed costs.
- d. **High R&D costs :** Spending money on Research and Development (R & D) is often a signal to potential entrants that the firm has large financial reserves. In order to compete, new entrants will have to match, or exceed, this level of spending in order to compete in the future. This deters entry, and is widely found in oligopolistic markets such as pharmaceuticals and the chemical industry.

Artificial barriers include:

- a. **Predatory pricing:** Predatory pricing occurs when a firm deliberately tries to push prices low enough to force rivals out of the market.
- b. **Limit pricing:** Limit pricing means the incumbent firm sets a low price, and a high output, so that entrants cannot make a profit at that price. This is best achieved by selling at a price just below the average total costs (ATC) of potential entrants. This signals to potential entrants that profits are impossible to make.
- c. **Superior knowledge :** An incumbent may, over time, have built up a superior level of knowledge of the market, its customers, and its production costs. This superior knowledge can deter entrants into the market.
- d. **Predatory acquisition :** Predatory acquisition involves taking-over a potential rival by purchasing sufficient shares to gain a controlling interest, or by a complete buy-out. As with other deliberate barriers, regulators, like the Competition Commission, may prevent this because it is likely to reduce competition.
- e. **Advertising :** Advertising is another sunk cost - the more that is spent by incumbent firms the greater the deterrent to new entrants.
- f. **A strong brand :** A strong brand creates loyalty, 'locks in' existing customers, and deters entry.
- g. **Loyalty schemes:** Schemes such as Tesco's Club Card, help oligopolists retain customer loyalty and deter entrants who need to gain market share.
- h. **Exclusive contracts, patents and licences:** These make entry difficult as they favour existing firms who have won the contracts or own the licenses. For example,

contracts between suppliers and retailers can exclude other retailers from entering the market.

*i. **Vertical integration** :Vertical integration can 'tie up' the supply chain and make life tough for potential entrants, such as an electronics manufacturer like Sony having its own retail outlets (Sony Centres*

4. Indeterminateness of demand curve facing an oligopolist: The interdependence between firms results in the indeterminateness of AR and MR curves faced by an oligopolistic market.
5. Conflicting attitudes of the firms
6. Element of monopoly
7. Indeterminateness of demand curve : Due to strong interdependence between firms, the demand curve become indeterminate. The uncertainty prevailing in the market restricts a firm to follow an independent price policy and thus demand curve cannot be determined.
8. Price rigidity: The basic feature of oligopoly market is that their price is rigid. If a firm tend to decrease the price of their product, all other firms will follow it, and no firm will be benefited with the price decrease. If a firm increases the price of their product, no other firm will follow it and the price increased firm will loose their customers. So a firm under oligopoly has no tendency either to increase or decrease their price

Collusive oligopolies

Another key feature of oligopolistic markets is that firms may attempt to collude, rather than compete. If colluding, participants act like a monopoly and can enjoy the benefits of higher profits over the long term.

Types of collusion

***Overt** : Overt collusion occurs when there is no attempt to hide agreements, such as the when firms form trade associations like the Association of Petrol Retailers.*

***Covert** :Covert collusion occurs when firms try to hide the results of their collusion, usually to avoid detection by regulators, such as when fixing prices.*

***Tacit** :Tacit collusion arises when firms act together, called acting in concert, but where there is no formal or even informal agreement. For example, it may be accepted that a particular firm is the price leader in an industry, and other firms simply follow the lead of this firm. All firms may 'understand' this, but no agreement or record exists to prove it. If firms do collude, and their behaviour can be proven to result in reduced competition, they are likely to be subject to regulation. In many cases, tacit collusion is difficult or impossible to prove, though regulators are becoming increasingly sophisticated in developing new methods of detection.*

Non Collusive or Competitive oligopolies

When competing, oligopolists prefer non-price competition in order to avoid price wars. A price reduction may achieve strategic benefits, such as gaining market share, or deterring entry, but the danger is that rivals will simply reduce their prices in response. In such a case no condition of collusion exist.

This leads to little or no gain, but can lead to falling revenues and profits. Hence, a far more beneficial strategy may be to undertake non-price competition.

3. Briefly explain Cournot model of oligopoly?

Cournot model of Duopoly (Oligopoly)

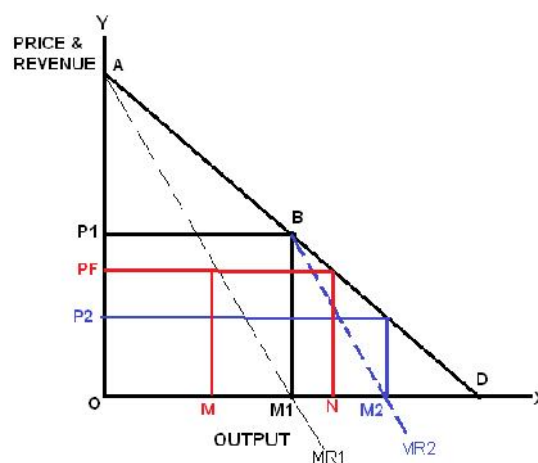
Monopoly power comes from a firm's ability to set prices and quantity. This ability is dictated by the shape of the demand curve facing that firm. In our perfect competition model, we assume the operation of large number of firms, the demand curve faced by each firm is a flat line. These firms are price takers. There is a medium between monopoly and perfect competition in which only a few firms exist in a market. As against monopoly, no firm in oligopoly faces the entire demand curve, but each does have some power to set prices. A small collection of firms who dominate a market is called an oligopoly. A duopoly is a special case of an oligopoly, in which only two firms exist.

Cournot Duopoly

In 1838, Augustin Cournot introduced a simple model of duopolies that remains the standard model for oligopolistic competition. Following are the assumptions of Cournot duopoly model.

1. The two firms A & B produce homogeneous and indistinguishable goods.
2. There are no other firms in the market and no new firm can enter into the market.
3. Each firm takes their output decision independently. It means that Collusive behaviour is prohibited. Firms cannot act together to form a cartel.
4. There exists one market for the produced goods and there is a market demand curve for the product.
5. Each firm chooses a quantity to produce.
6. The cost of production is zero or negligible.
7. A firm thinks that the rival will continue with their present level of output.

Cournot Equilibrium can be explained with the help of the following figure.



In the figure there are three stages in the Equilibrium analysis of Cournot.

Stage 1: At the first stage there is only one firm (Firm A) in the market. The market demand curve is AD and corresponding MR curve is MR1. The total output that can be sold by all the firms in the market is OD. Since cost of production is zero, MC also will be equal to zero and

MR will be equal to MC at half of the total output. ($\frac{1}{2}$ of 100% is 50 %). So he fixes his output OM1 where the firm A is producing half of the total output OD and he charges monopoly price OP1.

Stage 2: In this stage firm B enter in to the market. Firm B understands that firm A is producing half of the total demand. Besides firm B thinks that the remaining portion of the market is M1D and its corresponding demand curve BD is his demand curve. So Firm B produces his equilibrium quantity M1M2 and sells it at the equilibrium price P2 by assuming that firm A is not going to change his output. Firm B produces half of the remaining quantity. (It is $\frac{1}{2}$ of $(100\%-50\%) = 25\%$).

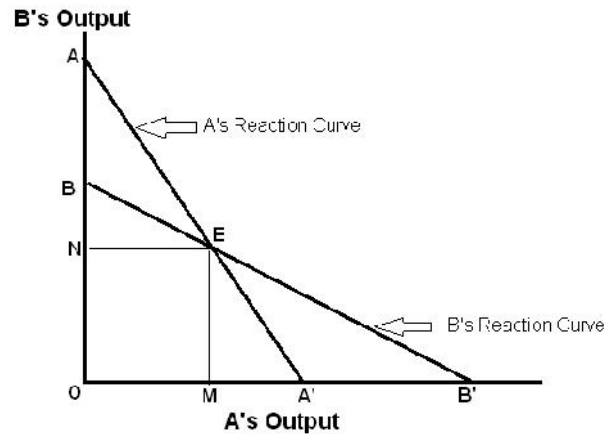
Stage 3: After the entry of firm B to the market, Firm A realises that his profit has been decreased due to the entry of a new firm. Firm A realises that firm B is producing 25% of output. By assuming that firm B is not going to change their output firm A alter its output. Here in this stage Firm A produces half of the ‘unproduced portion’ by firm 2. (It is $\frac{1}{2}$ of $(100\%-25\%) = 37.5\%$).

Here Firm A is reacting by decreasing their output level, but firm B is reacting by increasing their ouput level. This process of changing output will be continued until both the firms are producing $\frac{1}{3}$ (33.33%) of output each and charging same price OPF. The remaining $\frac{1}{3}$ output will be unproduced.

Let us assume that the total market demand is **100 units**; then the actions and reactions of both the firms can be summarised as follows:

Stages	FIRM A	FIRM B	Unproduced
Level 1	Half of 100 units = 50 units	Half of $(100-50) = 25$ units	25 Units
Level 2	Half of $(100-25) = 37.5$ units	Half of $(100-37.5) = 32.25$ units	30.25 Units
Level 2	Half of $(100-32.25) = 33.875$ units	Half of $(100-33.875) = 33.0625$ units	33.0625 Units
This process continues until all the existing firms are producing same Quantity			
Final	33.333 Units	33.333 Units	33.333 Units

The equilibrium of cournot model can also be explained with the help of reaction curves of two firms. A reaction curve with respect to output simply explains the reactions of the firm to the output changes of his rival firm. Such an equilibrium is explained in the figure below.



In the figure, the reaction curves intersect at Point E and it is the equilibrium point where firm A is producing OM output and Firm B is producing ON output.

The Cournot equilibrium is a best response made in reaction to a best response and, by definition, is therefore a Nash equilibrium. Unfortunately, the Cournot model does not describe the dynamics behind reaching equilibrium from a non-equilibrium state. The basic model of Cournot duopoly can be extended to any number of firms. In such a case the output of a firm will be in accordance with the number of firms.

4. How kinked demand curve approach can be used to explain price determination under oligopoly?

Kinked demand curve

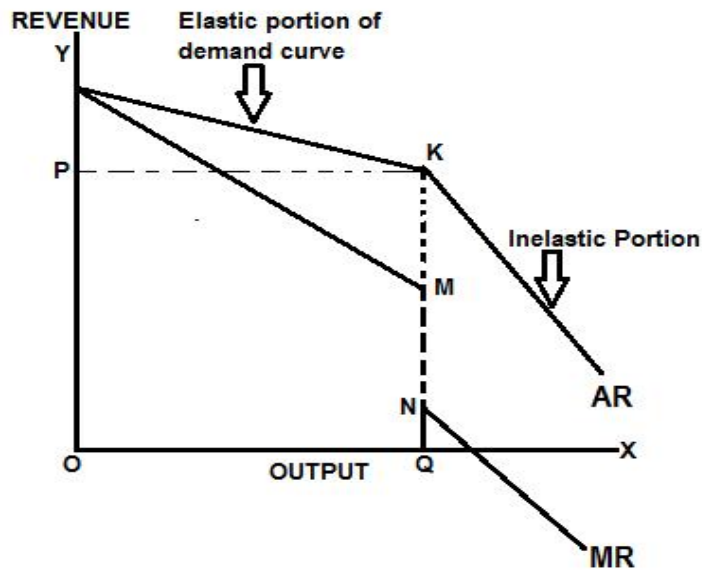
Many explanations have been given of this price rigidity under oligopoly and most popular explanation is the so-called kinked demand curve hypothesis. The kinked demand curve hypothesis was put forward independently by PAUL M. SWEEZY, an American economist, and by Hall and Hitch, Oxford economists.

It is for explaining price and output under oligopoly with product differentiation, that economists often use the kinked demand curve hypothesis. This is because when under oligopoly products are differentiated, it is unlikely that when a firm raises its price, all customers would leave it because some customers are intimately attached to it due to product differentiation.

As discussed above, the concept of kinked demand curve is used to explain price rigidity of oligopoly market situation. The reaction of rivals to a price change depends on whether price is raised or lowered. The theory of oligopoly suggests that, once a price has been determined, will *stick* it at this price. This is largely because firms cannot pursue independent strategies. For example, if a firm raises the price of its product, rivals will not follow this strategy and the firm who decreased price will lose their revenue. And so the demand curve for the price increase is relatively elastic. Rivals have no need to follow suit because it is to their competitive advantage to keep their prices as they are.

But in the same manner, when a firm decrease their price rivals would be forced to follow suit and drop their prices in response. Again, the firm will lose sales revenue and market share because of the imitation of the policy by other firms. The demand curve is relatively inelastic in this context.

The elasticity of demand, and hence the gradient of the demand curve, will be also be different. The demand curve will be *kinked*, at the *current* price. The concept of kinked demand curve is explained in the following figure. Since Demand curve has a kink, MR curve is indeterminate corresponding to the kink of AR curve.

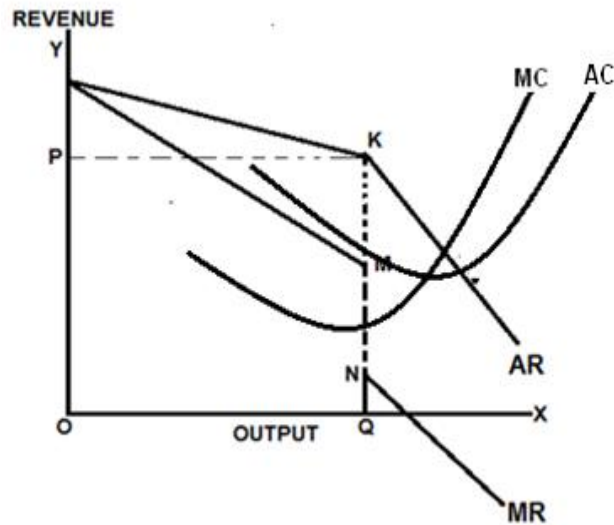


In the figure Demand curve (AR Curve) has a kink at point K and corresponding to point K, there is a discontinuity range MN on the MR Curve. Price is determined at the point of kink where the producer has no tendency to either to increase or to decrease the price of the product. The equilibrium analysis is done with the following diagram.

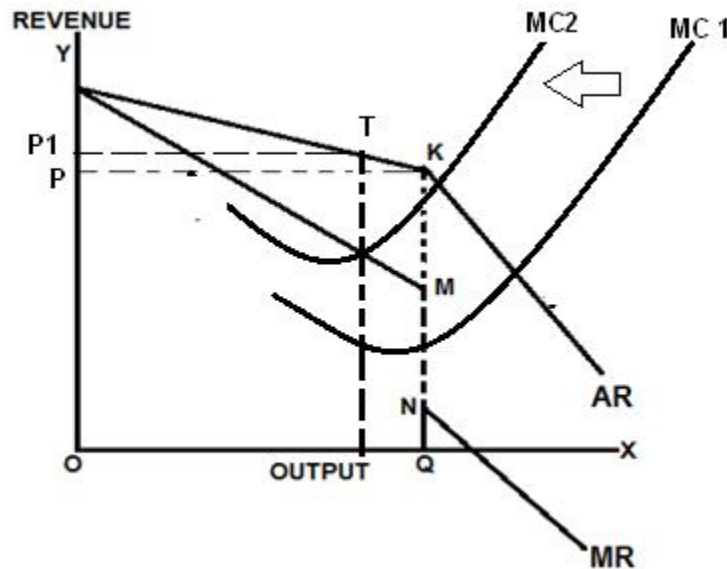
Maximising profits

If marginal revenue and marginal costs are added it is possible to show that profits will also be maximised at price P. Profits will always be maximised when $MC = MR$, and so long as MC cuts MR in its vertical portion, then profit maximisation is still at P. Furthermore, if MC changes in the vertical portion of the MR curve, price still sticks at P. Even when MC moves out of the vertical portion, the effect on price is minimal, and consumers will not gain the benefit of any cost reduction.

The equilibrium point is attained by equating MC and MR.



In the figure MC curve passes through the discontinuity range of MR curve. So the equilibrium quantity and price will be corresponding to the kink. Here OQ is the output and OP is the price. Even when there is a large rise in marginal cost, price tends to stick close to its original, given the high price elasticity of demand for any price rise.



In the figure, when the cost condition is changed, Marginal cost curve shift from MC1 to MC2 curve. This large increase in cost affect price but price increase is only negligible amount from P1 to P2.

Critical Appraisal of Kinked Demand Curve Theory:

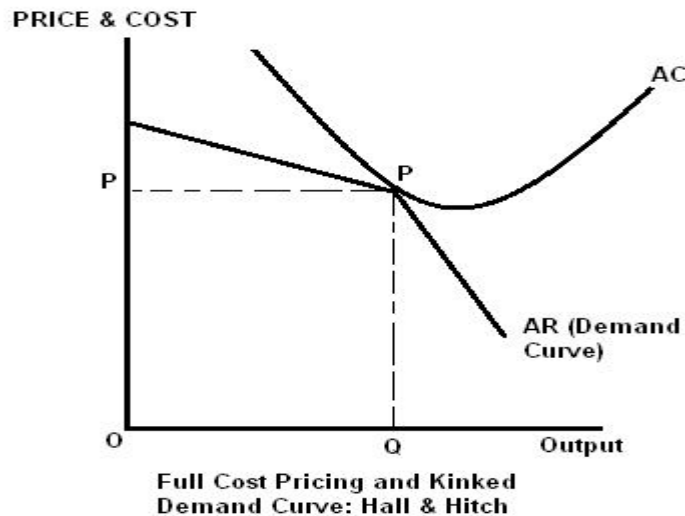
We saw above how the kinked demand curve theory of oligopoly provides an explanation of price rigidity under oligopoly. But there is a major drawback in the theory.

1. It only explains why once an oligopoly price has been determined it would remain rigid or stable it does not explain how the price has been determined.
2. Another shortcoming of the kinked-demand oligopoly theory is that it does not apply to the oligopoly cases of prices leadership and price cartels which account for quite a large part of the oligopolistic markets. When price leadership and price cartels exist in oligopolistic markets there is concerted behaviour in regard to the price changes and hence there is no kink in the demand curve in these cases.
3. In the case of pure oligopoly (i.e. oligopoly with homogenous products), the kinked demand curve theory does not furnish a complete explanation for price rigidity observed in oligopolistic markets. From the kinked demand curve analysis it follows that prices are likely to remain stable when demand or cost conditions decrease, whereas under pure oligopoly prices are likely to rise in the case of increase in cost or demand.
4. Finally, it has been rightly asserted that explanation of price stability by Sweezy's kinked demand curve theory applies only to depression periods. In periods of depression, demand for the products decreases. As has been explained above, in the context of decreased demand, price in kinked demand curve theory is likely to remain sticky. But in periods of boom and inflation when the demand for the product is high and increasing, the price is likely to rise rather than remaining stable

Hall and Hitch's version of kinked demand Curve

Hall and Hitch's version of kinked demand curve analysis also explains the determination of oligopoly price.

According to Hall and Hitch, equilibrium price is determined by average cost (including normal profits), that is, by the tangency between average cost curve and the demand curve, as shown in the following figure..



We, therefore, conclude that from Sweezy as well as Hall and Hitch's versions of kinked demand curve, it follows that prices are likely to remain stable during depression periods but not during boom and inflationary periods. Our analysis shows that whether we use kinked demand curve of the type postulated by Sweezy, or Hall and Hitch prices are unlikely to be stable during the boom periods.

SHORT ESSAY TYPE QUESTIONS (5 MARKS)

1. What are the features of monopolistic competition?

Ans : See Essay question no 1

2. Explain short run equilibrium under monopolistic competition?

Ans : See Essay question no 1

3. What is product differentiation?

Product differentiation: A central feature of monopolistic competition is that products are differentiated. There are four main types of differentiation:

- Physical product differentiation, where firms use size, design, colour, shape, performance, and features to make their products different. For example, consumer electronics can easily be physically differentiated.
- Marketing differentiation, where firms try to differentiate their product by distinctive packaging and other promotional techniques. For example, breakfast cereals can easily be differentiated through packaging.
- Human capital differentiation, where the firm creates differences through the skill of its employees, the level of training received, distinctive uniforms, and so on.
- Differentiation through distribution, including distribution via mail order or through internet shopping, such as Amazon.com, which differentiates itself from traditional bookstores by selling online.

4. Explain excess capacity under monopolistic competition?

OR

5. Why Monopolistic competition is treated as inefficient?

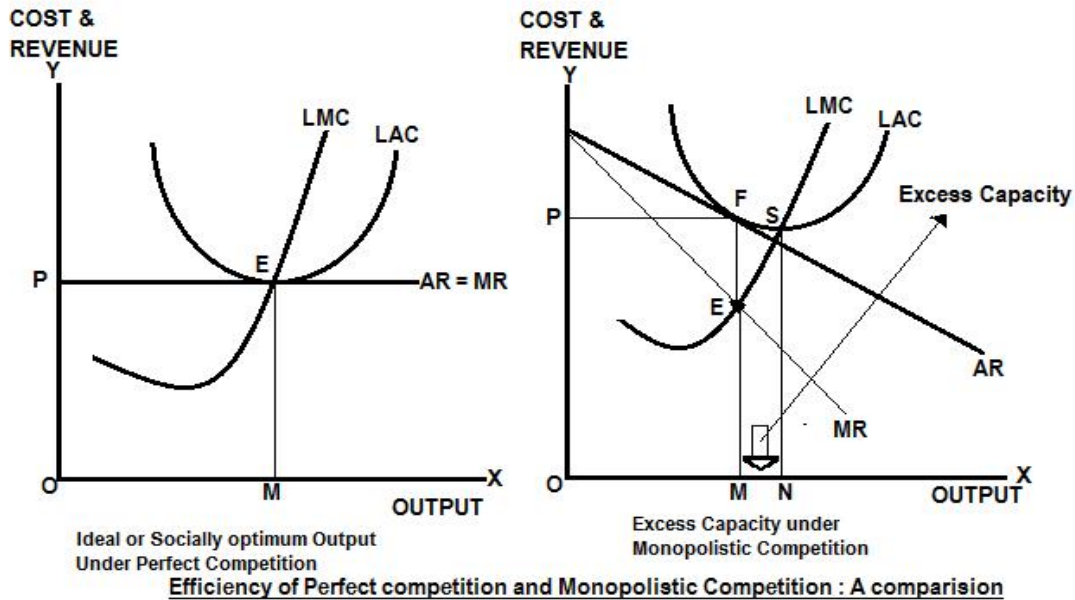
The problem of excess Capacity or Inefficiency of MPC

Firms under monopolistic competition restrict output in order to maintain higher prices than firms in competitive markets. Firms under monopolistic competition operate at higher average total cost than equivalent firms in competitive markets. This implies that not all production efficiencies are being captured in monopolistically competitive markets.

The amount by which the average-cost-minimizing quantity exceeds the quantity produced by a firm under monopolistic competition is referred to as "excess capacity."

$$\text{Excess Capacity} = \text{Optimum production capacity} - \text{Equilibrium output under MPC}$$

The firm is allocatively and productively inefficient in both the long and short run. Consider the comparative analysis of long run equilibrium under perfect competition and monopolistic competition.



In the diagram, Ideal output is produced by perfect competitive firm because the firm is producing at the minimum of its long run average cost. It means that the firm is using its optimum capacity. But under monopolistic competitive market, the firm is operating before the optimum because they are forced to stop production when average cost is decreasing. So the cost and prices are higher in monopolistically competitive market. Here MN level of output cannot be produced by the firm and this Unproduced output is termed as **EXCESS CAPACITY**.

This means they are productively inefficient in both the long and short run. As an economic model of competition, monopolistic competition is more realistic than perfect competition - many familiar and commonplace markets have many of the characteristics of this model.

6. What is selling cost?

Selling costs:

Under monopolistic competition, products are differentiated and these differences are made known to the buyers through selling costs. Selling costs refer to the expenses incurred on marketing, sales promotion and advertisement of the product. Such costs are incurred to persuade the buyers to buy a particular brand of the product in preference to competitor's

brand. Due to this reason, selling costs constitute a substantial part of the total cost under monopolistic competition.

The selling costs, according to Chamberlin, include “advertising in its many forms, salaries of salesmen and the expenses of sales departments and sales agencies (except where these agencies actually handle the goods), window displays, and displays and demonstration of all kinds.”

It must be noted that there are no selling costs in perfect competition as there is perfect knowledge among buyers and sellers. Similarly, under monopoly, selling costs are of small amount (only for informative purpose) as the firm does not face competition from any other firm.

7. Distinguish between collusive and non collusive oligopoly?
See essay No 2
8. Explain kinked demand curve under oligopoly?
See Essay No :4
9. What are the features of oligopoly?
See essay No 2
10. What is non price competition ?

NON PRICE COMPETITION

Non-price competition refers to the efforts on the part of a monopolistic competitive firm to increase its sales and profits through product variation and selling expenses instead of a cut in the price of its product. The monopolistic competitor can always change his product either by varying its physical attributes or by changing the promotional programmes.

Product variation and selling expenses make the firm’s demand curve less elastic and increase the costs of production. Consequently, the amount of profits which the firm can earn by producing the quantity of the product that equates its MR with MC will also be changed.

To achieve the goals of increase in its sales and profits, the firm may spend more on advertising and promotion rather than on changing the attributes of its product. Or, it may change the attributes of its product in such a way as to make it more appealing to customers. Or, if resources permit, it may spend more on both advertising and the product variation.

VERY SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. What are the features of monopolistic competition?

Monopolistic competition

The model of monopolistic competition describes a common market structure in which firms have many competitors, but each one sells a slightly different product.

Characteristics

Monopolistically competitive markets exhibit the following characteristics:

- Large number of firms
- Independent Action by firms.

- Imperfect but wide spread knowledge
- More role to the producer
- Existence of freedom to entry and exit.
- Product differentiation
- Firms are facing down ward slopping demand curve
- Existence of selling cost.
- Objective of profit maximisation.

2. What is product differentiation?

Product differentiation: In [economics](#), product differentiation is the process of distinguishing a [product](#) or service from others, to make it more attractive to a particular [target market](#). This involves differentiating it from [competitors'](#) products as well as a firm's own products. The concept was proposed by [Edward Chamberlin](#) in his 1933 *Theory of Monopolistic Competition*.

A central feature of monopolistic competition is that products are differentiated.

There are four main types of differentiation:

- Physical product differentiation: use size, design, colour, shape, etc
- Marketing differentiation: distinctive packaging and promotional techniques
- Human capital differentiation: skill of its employees, the level of training received, distinctive uniforms, and so on.
- Differentiation through distribution: including distribution via mail order or through internet shopping

3. What is price leadership?

DEFINITION OF 'PRICE LEADERSHIP'

Price leadership is when a firm that is the leader in its sector determines the price of goods or services. Price leadership can leave the leader's rivals with little choice but to follow its lead and match these prices if they are to hold onto their market share. Alternatively, competitors may also choose to lower their prices in the hope of gaining market share as discounters. Price leadership can be positive when the leader sets prices higher, since its competitors would be justified in ratcheting their prices higher as well, without the threat of losing market share. In fact, higher prices may improve profitability for all firms.

Different kinds of Price Leadership are given below:

- Ñ Dominant firm price leadership: A large firm fixes the price and other small firms act as Price-takers.
- Ñ Collusive Price leadership: as a result of an explicit or a tacit collusion.
- Ñ Low cost firm price leadership: A low cost firm fixes the price and other small firms act as Price-takers.
- Ñ Barometric Price Leadership: Efficiency or Technological skill

4. What is cartel? Why cartels are formed?

An organization created from a formal agreement between a group of producers of a good or service, to regulate supply in an effort to regulate or manipulate prices. It is a formal organization of sellers or buyers that agree to fix selling prices, purchase prices, or reduce production using a variety of tactics. Cartels usually arise in an [oligopolistic industry](#).

The aim of such [collusion](#) (also called the cartel agreement) is to increase individual members' [profits](#) by reducing competition. Organization of Petroleum Exporting Countries (OPEC) - the world's largest cartel - is protected by U.S. foreign trade laws.

5. What are selling cost?

See Shot Essay No :6

6. What is collusive oligopoly?

See Essay Questions

7. What is non collusive oligopoly?

See Essay Questions

8. What is meant by price rigidity under oligopoly?

See Essay Questions

9. Explain kinked demand curve under oligopoly?

See Essay Questions

10. What are the features of oligopoly?

See Essay Questions

11. What is group equilibrium?

Chamberlin's Group Equilibrium:

Group equilibrium relates to the equilibrium of the "industry under a monopolistic competitive market. The word "industry" refers to all the firms producing a homogeneous product. But under monopolistic competition the product is differentiated. Therefore, there is no "industry" but only a "group" of firms producing a similar product.

Each firm produces a distinct product and is itself an industry. Chamberlin lumps together firms producing very closely related products and calls them product groups. So in defining an industry, Chamberlin lumps together firms in such product groups as cars, cigarettes, breweries, etc. In the product group, the demand for each product has high cross elasticity so that when the price of other products in the group changes, it shifts the demand curve.

Chamberlin develops his theory of long-run group equilibrium by means of two demand curves Market Demand curve (DD) and Individual demand curve (dd), the demand curve facing the group is DD. It is drawn on the assumption that all firms charge the same

price and are of equal size, dd represents an individual firm's demand curve. The two demand curves reflect the alternatives that face the firm when it changes its price.

12. What is non price competition?

See Short Essay

13. What is bilateral monopoly?

A bilateral monopoly is a market structure consisting of both a monopoly (a single seller) and a monopsony (a single buyer). Bilateral monopoly' is a market that has only one supplier and one buyer. The one supplier will tend to act as a monopoly power, and look to charge high prices to the one buyer. The lone buyer will look towards paying a price that is as low as possible. Since both parties have conflicting goals, the two sides must negotiate based on the relative bargaining power of each, with a final price settling in between the two sides's points of maximum profit.

For Eg: Large companies would essentially monopolize all the jobs in a single town and use their power to drive wages to lower levels. Workers, to increase their bargaining power, formed labor unions with the ability to strike, and became an equal force at the bargaining table with regard to wages paid.

What is monopsony?

In economics, a **monopsony** (from Ancient Greek (*mónos*) means "single" and (*opsōnía*) "purchase") is a market form in which only one buyer interfaces with would-be sellers of a particular product. A market similar to a monopoly except that a large buyer not seller controls a large proportion of the market and drives the prices down. Sometimes referred to as the buyer's monopoly.

People have accused Ernest and Julio Gallo (the big wine makers) of being a monopsony. They had such power buying grapes from growers, that sellers had no choice but to agree to their terms.

14. What is peak load pricing?

Peak load pricing is the Charging of the highest possible prices in accordance with the rising demand for a service with few competitive peers. Often used by electricity companies during the summer, to capture the highest load of demand at the highest prices for the highest profit.

Peak-load pricing is a pricing technique to collect more revenue from the consumers. Instead of different demands for the same good, we consider the demands for a good in different periods of the day, month or year, then finding the optimal capacity (quantity supplied) and, after wards, the optimal peak-load prices

MULTIPLE CHOICE QUESTIONS (1/2 MARKS)

37. The market structure which have large number of sellers selling differentiated product is called

- (a) Perfect competition
- (b) Monopoly
- (c) Monopolistic competition
- (d) Oligopoly

38. The market structure which number of sellers is small with interdependence is called
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
39. The cost incurred to alter the position nor slope of demand curve is known as
- (a) Marginal cost
 - (b) Selling cost
 - (c) Alternate cost
 - (d) Additional cost
40. The condition of short run equilibrium under monopolistic competition is
- (a) $MC=MR$
 - (b) $AC=MR$
 - (c) $AC=AR$
 - (d) $AR=MR$
41. Kinked demand curve explain which of the following features of oligopoly
- (a) Selling cost
 - (b) Price rigidity
 - (c) Non price competition
 - (d) Product differentiation
42. Demand curve of a firm under monopolistic competition is
- (a) Parallel to X axis
 - (b) Parallel to Y axis
 - (c) Downward slopping
 - (d) Upward slopping
43. Which of the following is not a feature of monopolistic competition?
- (a) Homogenous product
 - (b) Large number of firms
 - (c) Freedom to entry and exit
 - (d) Differentiated product
44. In the long run, a monopolistically competitive firm earn
- (a) Abnormal profit
 - (b) loss
 - (c) Normal profit
 - (d) Differentiated profit
45. In the short run, a monopolistically competitive firm can have
- (a) Abnormal profit
 - (b) loss
 - (c) Normal profit
 - (d) Any of the above are possible
46. Selling cost is a feature of
- (a) Monopolistic competition
 - (b) Perfect competition
 - (c) Monopoly
 - (d) Bilateral monopoly
47. The concept of group equilibrium is related to
- (a) Paul M sweezy
 - (b) Joan robinson
 - (c) E H Chamberline
 - (d) E L Edgeworth

48. The concept of kinked demand curve is related to
- (a) Paul M sweezy
 - (b) Joan robinson
 - (c) E H Chamberline
 - (d) E L Edgeworth
49. Under monopolistic competition the long run price should be
- (a) Greater than LAC
 - (b) Equal to LAC
 - (c) Equal to MC
 - (d) Equal to MR
50. Refrigerator company is an example of
- (a) Oligopoly
 - (b) Perfect competition
 - (c) Monopoly
 - (d) Bilateral monopoly
51. Cross elasticity of demand under monopolistic competition is?
- (a) Zero
 - (b) Highly elastic
 - (c) Highly inelastic
 - (d) infinite
52. The concept of group equilibrium is related to
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
53. Excess capacity is a feature of equilibrium under
- (a) Perfect competition
 - (b) Monopoly
 - (c) Monopolistic competition
 - (d) Oligopoly
54. Which of the following is an form collusive oligopoly
- (a) Bilateral monopoly
 - (b) Monopoly
 - (c) cartel
 - (d) Kinked Oligopoly
55. Under monopolistic competiton
- (a) $AR = MR$
 - (b) AR lies below MR
 - (c) MR lies below AR
 - (d) AR and MR coincide
56. OPEC is an example of
- (a) Bilateral monopoly
 - (b) Monopoly
 - (c) cartel

- (d) Kinked Oligopoly
57. In the long run, which of the following is applicable to a firm under monopolistic competition
- (a) $AR = AC$
 - (b) $AR > AC$
 - (c) $AR < AC$
 - (d) $AR = MC$
58. The supply rule of the profit maximizing monopolist is different from that of a competitive firm
- a. TRUE
 - b. FALSE
59. Comparing a monopoly and a competitive firm, the monopolist will _____
- a. produce less at a lower price
 - b. produce more at a lower price
 - c. produce less at a higher price
 - d. produce less at a lower price
60. A discriminating monopolist will charge a higher price from which group of customers?
- a. Group with more elastic
 - b. Group with less elastic
 - c. Group with Unitary Elastic
 - d. Group with Infinitely Elastic
25. Perfect price discrimination means that every customer _____
- a. buys the same amount
 - b. pays the same price
 - c. contributes the same revenue
 - d. pays what she thinks the product is worth
26. All of the following are types of imperfect competition except
- a. monopolistic competition
 - b. oligopoly
 - c. monopoly
 - d. unfair competition
27. A natural monopoly has a declining _____ over a large range of output
- a. long run marginal cost
 - b. short run marginal cost
 - c. long run average cost
 - d. long run marginal cost
28. Supernormal profit refers to
- (A) High proportion of net profit
 - (B) Minimum necessary profit to induce an entrepreneur to remain in business
 - (C) Unexpectedly high Profit
 - (D) Residual surplus
61. Which form of monopoly control is most advantageous to consumer?
- a. price controls
 - b. quantity controls
 - c. lump sum tax
 - d. all the above

Monopolistic competition and Oligopoly – Features of monopolistic competition – Short run and long run equilibrium - Product differentiation and selling costs – Oligopoly - Characteristics – Collusive versus non-collusive oligopoly – Cournot model – Kinked demand curve model - Cartel and price leadership

- Ref:** 1. Koutsoyiannis, *'A Modern Microeconomics'*, Chapter 5, 6, 7
2. Watson and Getz, *'Price Theory and its uses'*
3. Dominik Salvatore, *'Principles of Microeconomics'*