COST CONCEPT

■ **Introduction:** A firm carries out business to earn maximum profits. Profits are the revenues collected by a business firm after production and sale of their goods and services. But to gain something, the producer has to lose something. That means, to earn revenues the producer has to incur costs.

■ **Cost:** A cost is an expenditure incurred by a firm to produce goods and services for sale in the market. In other words, a cost is the outflow of money from the business to gain inflow of money after sale of the commodity. A producer has to incur various costs in order to produce goods and services. These costs are of various types.

■ **Types of cost:** The following are the various types of costs:-
1. Direct costs or explicit costs
2. Indirect costs or implicit costs
3. Fixed costs
4. Variable costs
5. Accounting costs
6. Economic costs
7. Total costs
8. Average costs
9. Marginal costs
10. Opportunity costs

■ **Direct cost or explicit cost:** Explicit costs are those costs which are met by cash payments for employing various factors of production. The producer actually pays money to produce his goods and services. A direct or explicit cost is the material, labor, expenses, overheads, selling and distribution, administrative cost related to production of a commodity. It is accurate in nature. An explicit cost can be easily traceable. An explicit cost is defined as follows:

"An explicit cost is a direct expense that is paid in money to others or creditors during the production of goods."

Uses of explicit costs:
1. It shows the expenditure incurred on production of the commodity which is considered for pricing strategy;
2. It also helps in calculating profits;
3. It helps in decision – making;

■ **Indirect cost or implied cost:** Implicit costs are those costs which the firm lets go or sacrifices in order to hire an alternative factor of production. These costs are opportunity costs of the factors of production. Implicit cost is also called as imputed cost. Here cash outflow does not happen. An implicit cost is defined as under:

"An implicit cost is the factor of production sacrificed by the producer for an alternative factor production. The opportunity foregone is the implicit cost."

Uses of implicit cost:
1. It helps in decision making
2. It helps to ascertain opportunity costs
3. They directly impact profitability of the firm

■ **Difference between explicit cost and implicit cost:**

Explicit cost	Implicit cost
1. Meaning: Explicit costs are those costs that are met by cash payments.	Implicit costs are those costs that are not met by cash payments.
2. Nature: It is a direct cost.	It is an indirect cost.
3. Record keeping:	

There is a proper record keeping of these costs as there is money outflow in this.	There is no record for these costs as there is no money outflow involved.
4. Type: It is an expenditure incurred for production.	It is an opportunity sacrificed to employ other factor of production.
5. Money outflow: There is outflow of money.	There is no outflow of money.
6. Other names: Output pocket cost.	Implied cost or notional cost.
7. Profit calculation: Accounting profit and economic profit is calculated.	Only economic profit is calculated.
8. Expenditure incurred: There is expenditure incurred.	There is no expenditure incurred.
9. Examples: Salaries and wages, rent paid, purchase of Raw Materials, etc.	Salary to proprietor, interest on owned capital, etc.
10. Occurrence: Actual and real in nature.	Notional in nature.

* **Fixed costs:** Fixed costs are those costs that do not change in the short run period of time. Fixed costs remain the same regardless of the amount of production and sale of commodities. These costs are incurred by the company irrespective of its production, i.e. even at zero production, the firm incurs fixed cost. A fixed cost can be defined as follows:
"A fixed cost is the cost that remains the same and fixed irrespective of the production of goods."

Uses of fixed cost:

1. Useful in evaluating break – even analysis;
2. Helps in pricing strategy;
3. Helps in decision – making;
4. Helps in controlling variable costs;

🔸 **Variable Cost:** A variable cost is that cost which changes in short – run and long – run time period. It always keeps on changing. These costs are incurred during production process and thus are the costs incurred for employing various factors of production. A fixed cost becomes a variable cost in the long – run. A variable cost is defined as follows:-

"A variable cost is the expenditure incurred on the production of goods and therefore is ever changing."

Uses of variable cost:

1. Helps to set prices for the commodity;
2. Helps to plan profits;
3. Helps in decision making;
4. Helps in cost control;

🔸 **Distinction between fixed cost and variable cost:**

Fixed cost	Variable cost
1. Meaning: Fixed costs are costs that are fixed and have to be incurred irrespective of production of goods.	Variable costs are costs that are not fixed and keep on changing as per the production of goods.
2. Nature: These costs are fixed.	These costs are not fixed.
3. Occurrence: These costs occur even when the there is no production of goods.	These costs occur only when there is production of goods.

4. Changes: Fixed cost only in the long run.	Variable cost changes in short run as well as long run.
5. Other names: Other names for fixed costs are Overhead costs or supplementary costs.	Other names for variable costs are Prime costs.
6. Examples: Depreciation charges, maintenance costs, property taxes, interest, rent, etc.	Electricity charges, raw material purchases, conveyance, salaries and wages, etc.

- **Accounting Costs:** Accounting costs are those costs that a firm actually incurs. These costs are explicit costs. There is an actual expenditure which is kept in records for future reference. An accounting cost is defined as follows:-

"An accounting cost is the actual expenditure incurred by the producer in the course of business. These expenses also have a written record."

Uses of accounting cost:

1. It shows the expenditure incurred on production of the commodity which is considered for pricing strategy;
2. It also helps in calculating profits;
3. It helps in decision – making;

- **Economic Costs:** Economic costs are those costs that an entrepreneur incurs while conducting economic activities. For an entrepreneur an economic activity is his business. Therefore, economic costs include all the direct and indirect that the entrepreneur incurs while conducting business. An economic cost is the summation of explicit cost and implicit cost. An economic cost is defined as follows:

"An economic cost is the combination of direct and indirect costs that are incurred by the firm to produce commodities."

Uses of economic cost:

1. It shows the expenditure incurred on production of the commodity which is considered for pricing strategy;
2. It also helps in calculating profits;
3. It helps in decision – making;
4. It helps in decision making
5. It helps to ascertain opportunity costs
6. They directly impact profitability of the firm

Difference between accounting cost and economic cost:

Accounting cost	Economic cost
1. Meaning: An Accounting cost is the actual cost incurred.	An economic cost is the direct and indirect cost.
2. Nature: It is direct or explicit cost.	It is direct as well as indirect cost, i.e. explicit cost and implicit cost.
3. Importance: Useful for financial reporting and tax purposes.	Useful for managerial decision making purposes.
4. Evaluation: Accounting cost = explicit cost	Economic cost = explicit cost + implicit cost
5. Profit evaluation: Accounting cost evaluation helps to find accounting profit. Accounting profit = total revenue - explicit cost	Economic cost evaluation helps to find economic profit. Economic profit = total revenue – total cost

	Where,
	Total cost = explicit cost + implicit cost
6. Users: Accounting cost is used by an accountant.	Economic cost is used by an economist.

🔳 **Total cost:** Total cost is the total expenditure incurred by the producer to produce his goods. Total cost is also the summation of total fixed costs and total variable costs. Total cost is evaluated as follows:-

1. Total Cost = Cost per unit x Quantity Produced
2. Total Cost = Total Fixed Cost (TFC) + Total Variable Cost (TVC)

Total cost is defined as follows:

"Total cost is the cost which is incurred by the producer to produce a particular quantity of the commodity."

Uses of total cost:

- Helps in economies of scale as a producer needs large amount of raw materials for large production;
- Helps in pricing policy;
- Helps in decision – making;

🔳 **Average Cost:** An average cost is the expenditure incurred by the producer, for producing each unit of the products. An average cost is the per unit expenditure of the producer. Average cost is also the summation of average fixed cost and average variable cost. Average cost is evaluated as follows:-

1. Average cost $= \dfrac{\text{Total Cost}}{\text{Quantity produced}}$
2. Average cost = Average fixed cost (AFC) + Average variable cost (AVC)

Average cost is defined as follows:-

"Average cost is the expense incurred by the producer to produce one unit of the total production."

Uses of average cost:

- Helps to cut down excess expenditure, as per unit cost is calculated;
- Helps in optimum utilization of resources;
- Helps in pricing strategy.

■ **Marginal cost:** Marginal cost is the expenditure incurred by the producer to produce an additional or an extra unit of the commodity. Marginal cost is the additional cost incurred for producing one extra unit after producing certain amount of units.

$MC_n = TC_n - TC_{n-1}$

Marginal cost is defined as follows:

"Marginal cost is the cost or expense incurred for producing an additional or an extra unit of a commodity."
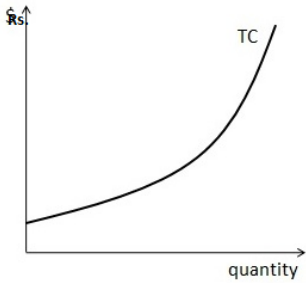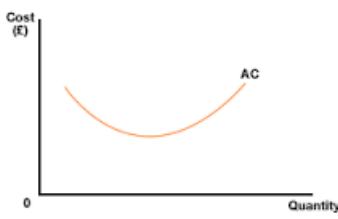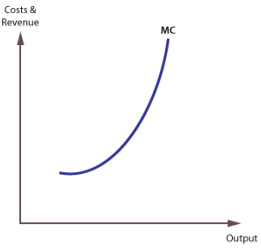
Uses of marginal cost:

- Helps in decision making
- Helps to determine costs for each commodity
- Helps in planning profits.

■ **Distinguish between total cost, average cost and marginal cost:**

Total cost	Average cost	Marginal cost
1. **Meaning:** Total cost is expenditure incurred to produce a bulk	Average cost is the expenditure incurred to produce one unit of the	Marginal cost is expenditure incurred to produce an extra or

quantity of the commodity.	commodity.	additional unit of the commodity.
2. Definition: Total cost is the cost which is incurred by the producer to produce a particular quantity of the commodity	Average cost is the expense incurred by the producer to produce one unit of the total production.	Marginal cost is the cost or expense incurred for producing an additional or an extra unit of a commodity.
3. Includes: It includes total fixed costs and total variable costs.	It includes average fixed costs and average variable costs.	It includes only the cost for producing an extra unit.
4. Calculation: It is calculated in two ways.	It is calculated in two ways.	It is calculated in one way.
5. Formulae: TC = TFC + TVC	AC = AFC + AVC	$MC_n = TC_n - TC_{n-1}$
6. Graphs:		
7. Uses: • Helps in economies of scale as a producer needs large amount of raw materials for large production;	• Helps to cut down excess expenditure, as per unit cost is calculated; • Helps in optimum	• Helps in decision making • Helps to determine costs for each commodity

• Helps in pricing policy; • Helps in decision – making;	utilization of resources; • Helps in pricing strategy.	• Helps in planning profits.

🔶 **Opportunity Cost:** An opportunity cost is the opportunity or choice that is let go off or sacrificed for an alternative choice. In economics, opportunity cost is the foregone production factor in business for an alternative production factor. An opportunity cost is defined as follows:-
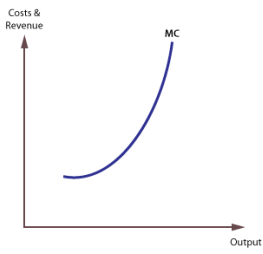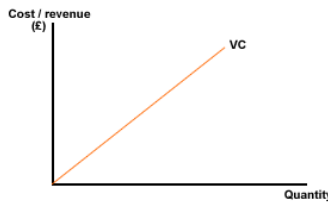
"An opportunity cost in business is the sacrificed option or factor of production for an alternative option or factor of production."

Uses of opportunity cost:

1. Helps in optimum utilization of business resources;
2. Helps in decision – making;
3. Helps in cost control.

🔶 **Distinction between marginal cost and variable cost:**

Marginal cost	Variable cost
1. Meaning: Marginal cost is expenditure incurred to produce an extra or additional unit of the commodity.	Variable costs are costs that are not fixed and keep on changing as per the production of goods.
2. Definition: Marginal cost is the cost or expense incurred for producing an additional or an extra unit of a commodity.	A variable cost is the expenditure incurred on the production of goods and therefore is ever changing.

3. Graph:	

4. Uses:	
• Helps in decision making. • Helps to determine costs for each commodity. • Helps in planning profits.	• Helps to set prices for the commodity. • Helps to plan profits. • Helps in decision making. • Helps in cost control.

🔸 **Conclusion:** Thus are the various cost concepts.

BREAK EVEN ANALYSIS

- **Introduction:** A producer goods for sale in the market with a motive to earn profits. He has to undergo a production process in order to produce goods to sell them in the market. For this, he has to incur expenses, purchase raw materials and employ various factors of production i.e. land, labor, capital and enterprise. A lot of money is spent by the producer to conduct production of his commodities. This attributes to cost.

- **Price or cost:** A cost price is the amount spent by the producer to produce goods for sale in the market. A cost price influences a selling price. A selling price is the amount spent by the ultimate consumer to buy goods or services in the market for the final consumption. The price factor is affected by forces of demand and supply in the market. Every seller tries to reach at the maximum profits level and every consumer bargains to reach at the most affordable price for the commodity. Thus, enters equilibrium price where both the market demand and supply equalize each other. This equilibrium price is acceptable to both the seller as well as the buyer.

- **Production process:** A seller has to undertake an extensive production process to produce his goods for sale in the market. Here the seller or the producer has to control the costs. He has to attain maximum output at minimum costs. This is called optimal production of goods and services. The producers always try to minimize their costs by monitoring the factors employed in the production process. They do this in order to increase the efficiency of the production process. The benefit of cost control by the producer is ultimately passed on to the consumer as the seller or producer doesn't charge very high price for this product unless the he is a monopolist.

- **Break – Even Analysis:** The above mentioned cost control is possible due to Break – Even Analysis. Break – Even Analysis is also called as the cost – volume – profit analysis. It is used to study the relationship between total cost, total revenue, total profits and total losses. It helps to determine level of scales required to pay

operating costs. It also helps to compute profitability of sales before and after break – even points. Thus break – even analysis is a method through which a producer tends to obtain higher profits at minimum costs.

- **Break – Even Point:** Break – even point is a condition in a business firm, where there is no profit – no loss situation in a business firm. The break – even point depicts the quantity of sales at which the firms break – even with total revenues equalizing total costs. Here, price = average cost. The firm makes zero profits at this point and just covers the costs incurred for production, by the producer.

- **Shut – down point:** A shut – Down point is a point of operations where a company experiences no benefit for continuing operations or from shutting down temporarily; it is the combinations of output and price where the company earns just enough revenue to cover its total variable costs. Here the company stops its production on a temporary basis so that it can pay off all its debts and start its production afresh.

- **Difference between Shut – down point and Break – Even point:**

Shut – Down point	Break – Even point
1. Shut – Down point is the lowest phase of production process.	Break – even point is not the lowest phase in production process.
2. It implies that a firm is incurring heavy losses and is in the last stage of closure of business.	It implies that a firm is in the no profit – no loss stage.
3. The firm earns less than normal profits.	There is zero normal profits as there is no profit – no loss situation.
4. No use of conducting business as losses exceed 50% of capital invested.	Business can be further conducted as there is a chance of earning profits.
5. The cost exceeds the revenue in shut down point.	The cost equals revenue in break – even point.

■ **Method of Break – Even Analysis:** The break – even analysis can be performed in two ways –

1. Algebraic Method;
2. Graphical Method.

I. ALGEBRAIC METHOD: In Algebraic method of Break – Even Analysis, we take the help of mathematics to find out Break – Even Points.

a. Break – Even Point: A break – even point needs a fixed cost and a contribution for its computation. A profit can be obtained using the following formula:

Sales	XXX
Less: Variable Cost	XXX
Contribution	XXX
Less: Fixed Cost	XXX
Profit or Income or Revenue	XXX

A break –even point refers to a no profit – no loss situation. We have fixed costs incurred by a firm and contribution that just covers fixed cost. We can find out break – even analysis as follows:

$$\text{Break – even point in units} = \frac{\text{Fixed Cost}}{\text{Contribution Per Unit}}$$

$$\text{Break – even point in units} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}}$$

$$\text{Break – even point in Rupees} = \frac{\text{Fixed Cost}}{\text{Contribution}} \text{ x Sales}$$

$$\text{Break – even point in Rupees} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

Example: A company produces Product A. It incurs the following expenses for the production of Product A:-

- Variable Cost = Rs. 500/- per unit
- Fixed Cost = Rs. 1,00,000/-
- Selling Price = Rs. 750/-
- Units produced = 1,000 units

Calculate the break – even point in units and rupees.

Solution: Statement of Profit/Loss incurred:

Particulars	Per unit (1,000 units)	Amount
Sales	750	7,50,000
Less: Variable Cost	500	5,00,000
Contribution	250	2,50,000
Less: Fixed Cost	100	1,00,000
Profit	**150**	**1,50,000**

Break – even point in units = $\dfrac{\text{Fixed Cost}}{\text{Contribution Per Unit}}$

$$= \dfrac{1,00,000}{250}$$

Break – even point in units = 400 units

P/V Ratio = $\dfrac{\text{Contribution}}{\text{Sales}}$ X 100

$$= \dfrac{2,50,000}{7,50,000} \text{ x } 100$$

P/V Ratio = 33.33%

$$\text{Break – even point in Rupees} = \frac{\text{Fixed Cost}}{\text{Contribution}} \text{ x Sales}$$

$$\text{Break – even point in Rupees} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

$$\text{Break – even point in Rupees} = \frac{1,00,000}{33.33\%}$$

Break – even point in Rupees = Rs. 3,00,000/-

b. Cash Break – Even Point: When a Break – Even point is to be calculated using only those fixed costs whose value is to be paid in cash, such a break – even point is called as Cash Break – Even Point. It is denoted as follows:

$$\text{Cash Break – even point} = \frac{\text{Cash Fixed Cost}}{\text{Contribution per unit}}$$

II.   GRAPHICAL METHOD: The break – even point can be graphically depicted as follows:
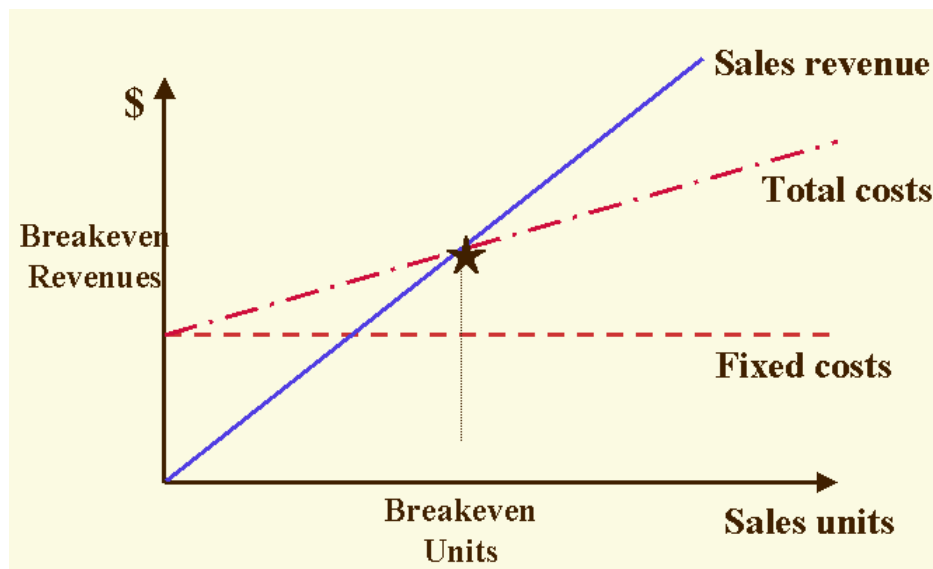
In the graph, the star mark is the break-even point. It has occurred at 400 units of output and Rs. 3,00,000/- revenue amount. The area below the star is a loss making one as the output falls to 200 units and revenue also declines. The area above the star is a profit making one as the output increases along with revenue. The Star mark is a no profit – no loss zone which every producer tries to maintain so that he can start earning profits beyond that point. Here cost and revenue functions are assumed to be linear. It gives a wrong impression that the whole area beyond the star mark is a profitable area which is not true due to continuous changes in price and costs. Price and costs change as per the situation and hence are non – linear. Here we have to consider two break – even points rather than just one break – even point. It is graphically shown as follows:
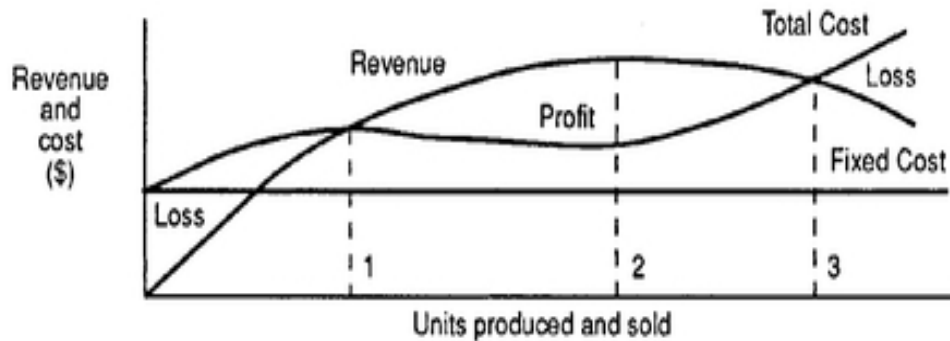
The graph shows a non-linear total cost curve and a non-linear total revenue curve. They both intersect each other at two point 1 and 2, thus forming two break – even points. The area before Point 1 and the area after point 3 are loss making areas. The whole area between point 1 and point 3 is a profitable area as total revenue exceeds total cost. Thus a producer has to decide his range of profits from break – even point analysis.

■ **Variables affecting Break – Even Point:** A break – even point is affected or influenced by three variables:

a. Prices

b. Fixed Costs

c. Variable Costs per unit

■ **Price changes:** Price refers to selling price. As the price changes, the total sales start changing which affects the break – even points. A rise in price will lead to a decline in the break – even point and a fall in price will lead to a rise in break – even point. Thus it can be said that price and break – even point are inversely related to each other. This phenomena can be understood by the following illustration:-

Let fixed cost be Rs. 5,000/-

Price per unit be Rs. 16/-

Variable cost per unit be Rs. 6/-

BEP (units) = $\frac{5000}{16-6} = \frac{5000}{10}$ = 500 units

BEP (units) = 500 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 500 x 16

BEP (RS.) = Rs. 8,000/-

• If price per unit rises to Rs. 18/- then:

BEP (units) = $\frac{5000}{18-6} = \frac{5000}{12}$ = 416.66 units

BEP (units) = 417 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 417 x 18

BEP (Rs.) = Rs. 7,506/-

- If price per unit rises to Rs. 14/- then:

$$\text{BEP (units)} = \frac{5000}{14-6} = \frac{5000}{8} = 625 \text{ units}$$

BEP (units) = 625 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 625 x 14

BEP (Rs.) = Rs. 8,750/-

The above phenomena can be summed as follows:

Price per unit	BEP (units)	BEP (Rs.)
Initial Price Rs. 16/-	500	8,000
Increase in price Rs. 18/-	417	7,506
Decrease in price Rs. 14/-	625	8,750

This phenomena can be summarized or depicted in the following diagram –
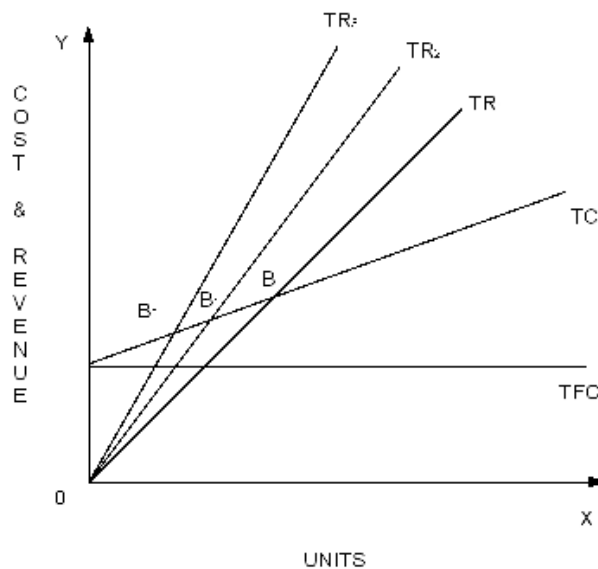
This graph explains the effect of price fluctuation on break – even point. An increase in price will lead the total revenue curve to shift from TR to TR1 but the BEP falls from B to B1. Further when price decreases, the TR curve shifts from TR to TR2 and the BEP shifts from B to B2. Thus changes in price affect the break – even analysis point.

■ **Fixed Cost Changes:** Fixed cost refers to that cost which is fixed for a certain period of time. A fixed cost is fixed in the short – run. It varies or changes in the long – run. The fixed cost changes also affect the break – even point. With the increase in fixed cost, there is an increase in the BEP and with the decrease in fixed cost there is a decrease in the BEP. It can be stated that fixed cost and BEP are directly related. This phenomena can be understood through the following example:

Let fixed cost be Rs. 5,000/-

Price per unit be Rs. 16/-

Variable cost per unit be Rs. 6/-

BEP (units) = $\frac{5000}{16-6} = \frac{5000}{10}$ = 500 units

BEP (units) = 500 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 500 x 16

BEP (RS.) = Rs. 8,000/-

- If fixed cost rises to Rs. 6,000/- then:

    BEP (units) = $\frac{6000}{16-6} = \frac{6000}{10}$ = 600 units

    BEP (units) = 600 units

    BEP (Rs.) = BEP (units) x Price per unit

    BEP (Rs.) = 600 x 16

    BEP (Rs.) = Rs. 9,600/-

- If fixed cost falls to Rs. 4,000/- then:

BEP (units) = $\dfrac{4000}{16-6} = \dfrac{4000}{10}$ = 400 units

BEP (units) = 400 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 400 x 16

BEP (Rs.) = Rs. 6,400/-

The above phenomena can be summed as follows:

Fixed cost	BEP (units)	BEP (Rs.)
Initial fixed cost Rs. 5,000/-	500	8,000
Increase in fixed cost Rs. 6,000/-	600	9,600
Decrease in fixed cost Rs. 4,000/-	400	6,400

This phenomena can be summarized or depicted in the following diagram –
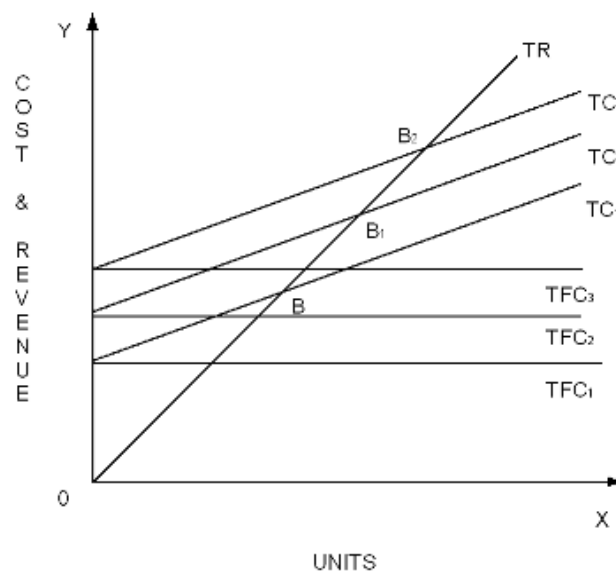
In the above diagram, the BEP are B, B1 and B2. The initial Fixed cost is Rs. 5,000/- where the BEP is B. as the Fixed cost increases to TFC1 i.e. to Rs. 6,000/-, the BEP shifts to Point B1. As the fixed cost decreases to Rs. 4,000/-, the BEP falls from B to B2. Thus is the relationship between fixed cost and BEP.

■ **Variable cost changes:** Variable cost refers to that cost which is not fixed but fluctuating in the short run as well as in the long run. Variable cost includes all expenses that a firm incurs in order to carry out its production. Variable cost also affects the break – even point. As a variable cost increases, the BEP also increases and as the variable cost decreases, the VEP also decreases. It can be said that like fixed cost, variable cost too shares a direct relationship with BEP. This phenomena can be understood with the following example:=

Let fixed cost be Rs. 5,000/-

   Price per unit be Rs. 16/-

   Variable cost per unit be Rs. 6/-

BEP (units) = $\frac{5000}{16-6} = \frac{5000}{10}$ = 500 units

BEP (units) = 500 units

BEP (Rs.) = BEP (units) x Price per unit

BEP (Rs.) = 500 x 16

BEP (RS.) = Rs. 8,000/-

- If variable cost per unit rises to Rs. 8/- then:

   BEP (units) = $\frac{5000}{16-8} = \frac{5000}{8}$ = 625 units

   BEP (units) = 625 units

   BEP (Rs.) = BEP (units) x Price per unit

   BEP (Rs.) = 625 x 16

   BEP (Rs.) = Rs. 10,000/-

- If variable cost per unit falls to Rs. 4/- then:

  BEP (units) = $\dfrac{5000}{16-4} = \dfrac{5000}{12}$ = 416.66 units

  BEP (units) = 417 units

  BEP (Rs.) = BEP (units) x Price per unit
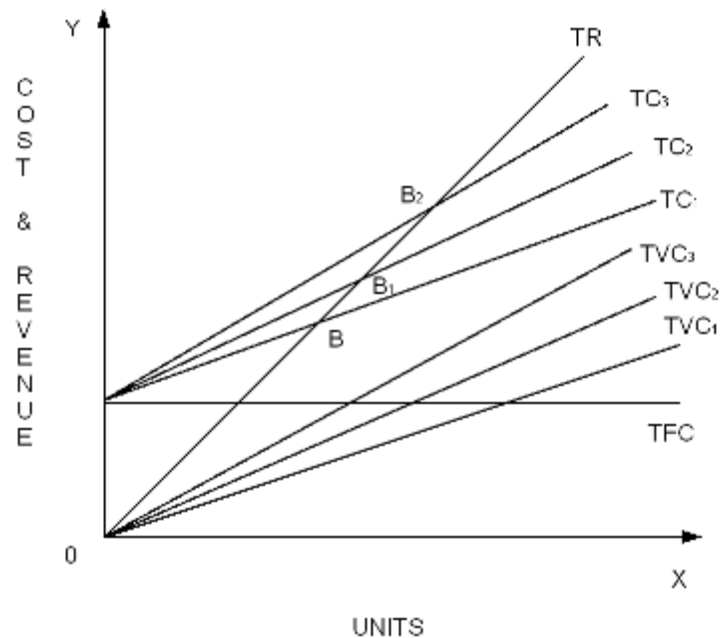
  BEP (Rs.) = 417 x 16

  BEP (Rs.) = Rs. 6,672/-

The above phenomena can be summed as follows:

Variable cost per unit	BEP (units)	BEP (Rs.)
Initial variable cost Rs. 6/-	500	8,000
Increase in variable cost Rs. 8/-	625	10,000
Decrease in variable cost Rs. 4/-	417	6,672

This phenomena can be summarized or depicted in the following diagram –

In the above diagram, the TFC curve is a straight horizontal line depicting fixed cost. The variable costs have different curves that depict its fluctuations at various levels. As variable cost increases to Rs. 8/- there is a shift in the TVC curve from TVC to TVC1. Along with it, the TC curve also shifts to TC1. Then as variable cost falls to Rs. 4/- which also leads the TC curve to fall to Tc2. TC1 curve becomes parallel to TVC1 curve hence shifting the BEP from B to B1. In the second case, the TC2 curve is parallel to TVC2 curve which again shifts the BEP from B to B2. The shift of BEP from B to B1 indicates a rise in the BEP and a shift of BEP from B to B2 indicates a fall in BEP.

The following table shows the effect on BEP due to changes in its variables:

Variable	Change	Effect on BEP
a. Price	Increase	Decrease
	Decrease	Increase
b. Fixed cost	Increase	Increase
	Decrease	Decrease
c. Variable cost	Increase	Increase
	Decrease	Decrease

- ■ **Application of Break – even Analysis in Business:** Break – Even analysis is related to production. Production is carried out by a business firm to earn maximum products by incurring minimum costs. The following are the application of Break – Even Analysis in business:-

a. <u>Recovering the cost:</u> Break – even analysis is related to contribution which is sales less variable cost. A producer understands his fixed and variable costs as he does break – even analysis of his firm's operations and he thus tries to recover those costs. A BEP is always a situation in which a producer would like to be in for some period of time, so that he can recover all his costs.

b. <u>Return on capital:</u> Capital expenditures are incurred in the long run. Since, they are incurred in the long run they are very expensive in nature. The interest or the returns of the capital employed is awaited for the long run. Break – even analysis helps us to understand the time duration in which we can expect the returns on the funds we have employed in the long run. Every firm is interested in knowing the time duration for interest to be received so that it can determine its profitability in the long run.

c. <u>Effects of changes in the firm:</u> Firms have to be dynamic in nature due to the changes in the environment in which it operates. All these changes that take place in the business environment affect the functioning of the business firm's costs and revenues. The changes in cost and revenue are further incorporated using Break – Even Sales volume. Any change in the BEP will change the profitability of the business firms.

d. <u>Forecasting the profits:</u> Profit targets can be short term or long term depending upon the firm's operations and policies. These profit target can be achieved by a firm to pay shareholder's interest and also to efficiently manage the firm's research. BEP is a no profit – no loss situation which is used as a starting point by the firm to increase its profits and reduce losses.

e. <u>Utilizing capacity:</u> A firm uses its capacity to the fullest, i.e. optimally to achieve its set profitability. It minimizes its wastages and improves efficiency to produce maximum output with minimum cost. All this is possible due to Break – Even Analysis.

f. <u>Capital raising techniques:</u> A BEP set by a firm to achieve its profits helps the firm to finalize its amount of capital. Also once the set profit is achieved by the firm; it can set a BEP for raising capital for further expansion.

g. <u>Determination of sales and marketing strategies:</u> Sales and marketing strategies of a firm can be determined using Break – even analysis. The BEP can be shifted downwards by using new and innovative marketing and advertising techniques.

■ **Limitations of Break – Even Analysis:** The following are the limitations of Break – Even Analysis:

1. It is assumed that the cost and revenue functions are linear in a BEP Graph. This can misguide an interpreter in interpreting the graph. He may understand that the area beyond the BEP is fully profitable, which is not the case always.

2. Break – even analysis is only for a single unit of product. In case of multiple or joint products, break – even analysis is very difficult to apply as cost has to be ascertained for each product separately.

3. Break –even analysis uses historical information or data which may or may not be true in the current situation. This can again be misleading.

4. There should be clear classification of fixed costs and variable costs to compute Break – Even Point. Only then the Break – Even Analysis can be applied successfully. However, every time costs cannot be classified as fixed costs and variable costs.

■ **Conclusion:** Thus is a break – even analysis which determines future production process of the business firm.

PRICING PRACTICES – I

- **Introduction:** Market is the place for exchange of goods and services. Market is the reason for business to make economical as profits can be earned only when there is a market existent to accept the commodities produced by the firm. Market is a place where buyers and sellers meet to exchange goods and services for a monetary consideration. The demand and supply forces fluctuate very quickly in the market.

- **Types of Market:** The following are the types of market that are differentiated in accordance with the forces of market demand and supply –
  1. Perfect competition
  2. Monopoly
  3. Monopolistic Competition
  4. Oligopoly

- **Pricing Practices:** A price is a consideration in monetary terms that a buyer pays to the seller for purchasing a product; the seller is ready to offer. The pricing factor depends on the type of market the buyer and seller are in.

- **Price Discrimination:** Price Discrimination takes place in a monopoly market. A monopoly market is a market where there is only one seller in the market and there are many buyers. Thus in a monopoly market supply is less than demand. A monopolist, being a sole trader in the market, takes advantage of the situation and influences the prices, thus creating price discrimination.

- **Definition of Price Discrimination:** In the words of Joan Robinson, "The act of selling same article, produced under single control at different prices to different buyers is known as price discrimination."
  Price discrimination in short means charging different prices to different consumers in order to maximize profits. Price discrimination helps the monopolist to gain consumer surplus that would be with the buyers otherwise.
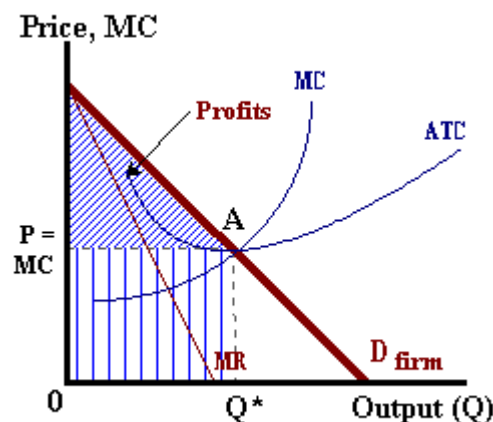
■ **Consumer Surplus:** Consumer surplus is the difference between the total amount the consumer is willing to pay and the total amount he is able to pay for a good or service and the total amount he actually pays to the seller.

Consumer Surplus = Willingness and ability to pay Price – Actual Price

■ **Degrees of Price Discrimination:** A monopolist discriminates prices in different ways. It can be said that there are degrees of price discrimination that a monopolist uses in order to gain consumer surplus in the market. The degrees of price discrimination are as follows:

1. First degree price discrimination
2. Second degree price discrimination
3. Third degree price discrimination

■ **First Degree Price Discrimination:** It is also known as perfect price discrimination. First degree price discrimination takes place when the seller charges different price for every unit consumed by the buyer. It is possible when the goods or services are not transferable from one consumer to another.

Example: Doctors; they charge different fees for different patient. The patients have to pay the fees without bargaining until they have an alternative doctor, who is equally efficient. Here the doctor has complete advantage of consumer surplus, i.e. he gets the price he asks for. This situation can be further explained in the following diagram:

In the diagram, the area PAD, i.e. is the upper triangle in a consumer surplus area. This area can be gained by the seller or monopolist when he charges the consumers different price for each unit consumed.

First degree price discrimination is a rare phenomenon as it needs a complete knowledge about economic and financial position of each and every consumer. It is more theoretical and cannot be implied in practical life as it is impractical.

■ **Second Degree Price Discrimination:** This degree of price discrimination depends on the purchasing power of the buyer. The seller quotes the highest price the buyer is willing to pay. It is practiced in different market segments. Each segment is charged a different price.

Example: A shopkeeper; he may charge certain products at a higher price to some customers who are ready to pay the higher price as they are snobbish in nature; unlikely, the same shopkeeper may charge a normal price to a consumer who is not snobbish in nature and may substitute the product with some other product. This phenomenon can be explained as follows:-
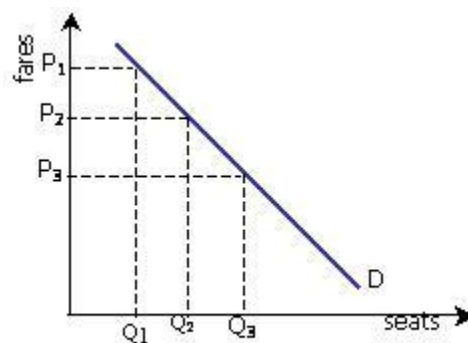
In the above diagram, the monopolist sells his commodity at Price OP_1 and the quantity sold is OQ_1. As the price falls from OP_1 to OP_2, the quantity demanded rises from OQ_1 to OQ_2. Again as the price further falls to OP_3, the quantity demanded further rises to OQ_3. Thus price affects demand for a commodity. This degree of price discrimination is applicable in cases when there are quantity discounts on bulk purchases.

■ **Third Degree Price Discrimination:** The third degree price discrimination happens when a monopolist charges different price in different markets. There is a geographical difference between the two markets which is an advantage for the monopolist.

Example: A monopolist may charge a consumer in Mumbai different amount for the commodity as he would charge for the buyer in Pune. Land prices differ from one city of another. This phenomenon is explained as follows:-
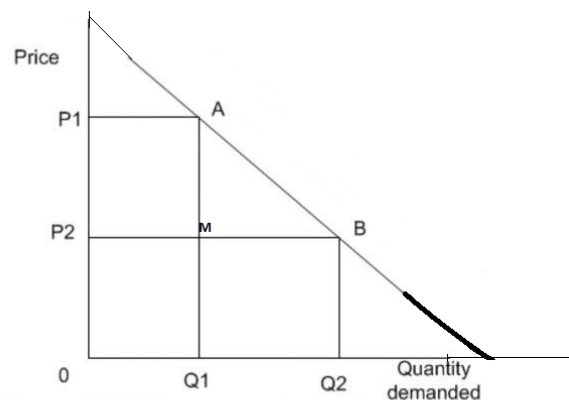
In the above diagram, the price is when OP1 the quantity demanded is OQ1 and when the price is Op2 the quantity demanded is OQ2. Here the monopolist gains a consumer surplus of P2MRP1. The consumer loses his surplus as the seller's revenue increases. This is the most common phenomenon therefore considered in analysis.

■ **Conditions necessary for price discrimination:** The following are conditions necessary for price discrimination:-
1. Goods are non – transferable: Goods charged at different prices to different consumers should be non – transferable in nature. The monopolist should see to it that consumers either do not meet each other or if they meet, they should not be able to transfer the goods to each other.

2. Price difference is negligible: The monopolist while charging different price to different consumers should take care that the price difference is negligible. If it is

so, then the consumer would buy the products without bothering the price difference.

3. Sanction from government: There is government sanction in some cases due to welfare or legal reasons which may create price discrimination.

4. Geographical area: The markets located at different geographical areas but receive goods from the same monopolist do face price discrimination. This is so because the consumer cannot travel from his place to the seller's place in some other city just to buy the goods at a cheaper rate, while incurring all the travel expenses to reach the seller's place.

5. Political Boundary: The political boundary creates price discrimination. A seller may charge a higher price for the commodity in one country and may charge a lower price for the same commodity in some other country.

6. Market segment: Market should be divided into parts or segments called as the market segments. A seller has to divide market into various segments so that he can discriminate the price only.

7. Quality of the product: There are certain consumers who link price to the quality of the product. These consumers believe that higher the price, the better is the quality of the goods and the lower the price the poorer is the quality of goods. The seller can carry out price discrimination in such cases.

8. Barriers: There are various barriers such as tariff barriers that allow a producer or seller to charge heavy prices in the domestic country and to charge a low price in the foreign market.

9. Consumer's Ignorance: There are cases when a consumer is ignorant about the price of a particular commodity. In such a situation, the seller has an advantage of price discrimination.

10. Market Area: The seller has to locate the area where he intends to fluctuate the price. Accordingly, the seller carries out price discrimination.

■ **Conditions necessary for successful or profitable price discrimination:**
The following are the conditions necessary for profitable price discrimination:-

1. Elasticity is different: The first condition for profitable price discrimination is the difference between elasticity, of two markets. Let us say that a seller is operating in two markets that are geographically apart from each other market P and market Q. The seller charges different prices in both these markets for the same commodity.

   Let us consider two cases:
   a. When elasticity of both markets is equal or same;
   b. When elasticity of both markets differ;

   In both cases the seller charges the same price for the same commodity in both the markets.
   In case a, the price elasticity per unit is the same in both markets despite the price discrimination. When both the markets show the same elasticity, the price discrimination is not profitable. It is so because the marginal revenue does not change per unit even when the prices are different.
   Here, MR = AR

   $$MR = AR(e - 1/e)$$

   In such a situation, the seller will not increase profits as every additional unit will bring the same marginal revenue to that of selling one unit less in the other market. In this case, the seller restricts himself to one market only.

In case b, there is a difference between the price elasticity per unit of the two markets. Here the seller first has to analyze the marginal revenue in both markets by keeping his price per unit same. It can be done as follows:-

Market P = AR(e -1/e) = 15 x 3 − 1/3 = 10

Market Q = AR(e -1/e) = 15 x 6 − 1/6 = 12.5

The elasticity in both markets differs. The seller can discriminate price to earn maximum profits. While discriminating the price the seller should analyze which market is more elastic and less elastic. The market which is more elastic, i.e. more responsive to price change, the seller should lower his price in order to increase his sales, ultimately to increase revenue. In the market where elasticity is less, i.e. market is less responsive to price change, the seller should higher the price in order to maximize profits. Here the seller can sacrifice some sales to earn desired revenue. In the example, market Q is more elastic than market P. The seller can decrease his price in market Q and increase price in market P.

2. Total output distribution in accordance with price discrimination: The total output should be distributed as per the market response to the commodity. The seller should distribute his total output in such a way that it will bring him maximum profits. Any further distribution will cause no profits but losses. This situation occurs when marginal revenues of both market equal each other, i.e. MRp = MRq. To achieve this position, the seller has to sell his goods in a less elastic market which leads to an increase in price and increase in profits. The seller cannot obtain equal MR in case of a more elastic market as he has to reduce the price and increase sales. There comes a point where the seller stops shifting his goods from less elastic market to a more elastic market when he finds out that this transfer is no more beneficial. When the marginal revenues in both markets equal each other at different prices, the seller stops the transfer of goods from one market to the other and again restricts himself to one market only. He mostly

restricts to a less elastic market as he has the privilege to increase the price and earn more revenue.

- **Equilibrium point of Price discriminating monopolist:** The equilibrium of price discriminating monopolist can be explained with the following model:-

figure 1   figure 2   figure 3
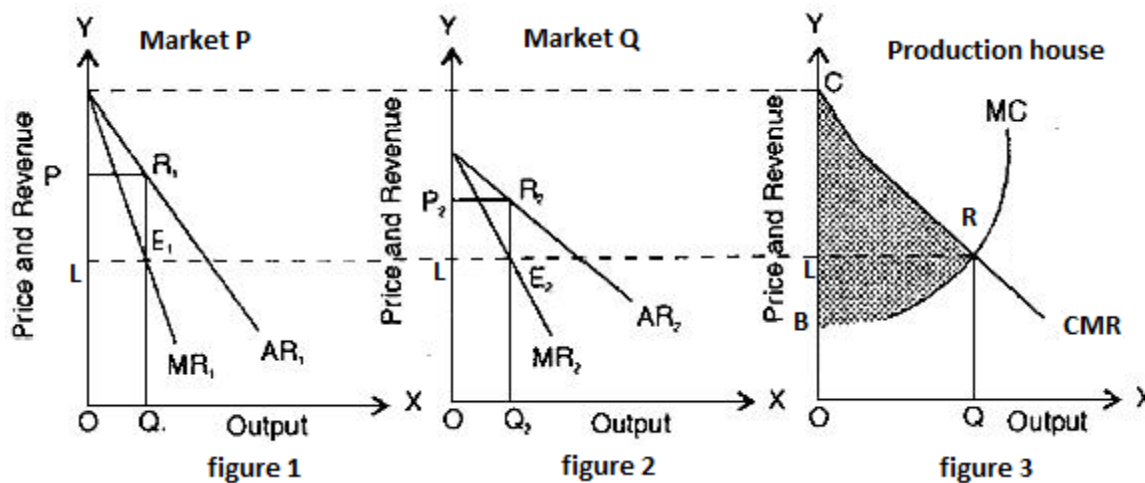
The given model is a three – graph model that depicts the seller's equilibrium. The figure 3, i.e. production house graph shows the equilibrium point at R where MR curves and MC curve intersect each other. The price line thus defined is extended in the Market P and Market Q graph. It means that the seller sells his commodities in both markets at the equilibrium price. The market P is inelastic and market Q is elastic in nature. The total output produced is OM. It is distributed in both markets in such a way that the seller gets equal marginal revenues in both markets, i.e.

$$MR_p = MR_q$$

The line R extended up till the market P graph also depicts the equal marginal revenues, OL in both the markets. As per the elasticity, the outputs are sold in both markets at various prices – OP1 and OP2 respectively. The MR1 curve and MR2 curve combine together to form the combined MR curve i.e.

$$MR_1 + MR_2 = CMR$$

The seller earns profits as follows:-

Profit = Total Revenue – Total Cost

= OQRC – OQRB

Profit = BRC

Thus, a discriminating monopolist will be in equilibrium when:

a. There are different markets that differ in price elasticity, thus encouraging the monopolist to discriminate prices;

b. Total output distributed yields equal marginal revenue from all the markets;

c. Marginal revenue equal marginal cost at the equilibrium point in all the markets.

■ **Dumping:** Dumping is a market situation where the seller has an advantage over the product price in the home market as well as in the international market. In economics, dumping is a kind of predatory pricing which means charging a price below the normal market price for a commodity. It occurs when manufacturer export a product to another country at a very low price. In dumping the producer charges a heavy price of the commodities in the domestic market and a cheaper price for the same commodities in the international market. In the home market the seller is the price maker and in the international market the seller is the price taker. The demand curve for the commodities also differs accordingly. The demand curve for the home market is a downward sloping curve as the demand is affected by price. In the international market the demand is not affected much by the price hence the demand curve is a horizontal straight line. This phenomena can be explained in the following diagram:
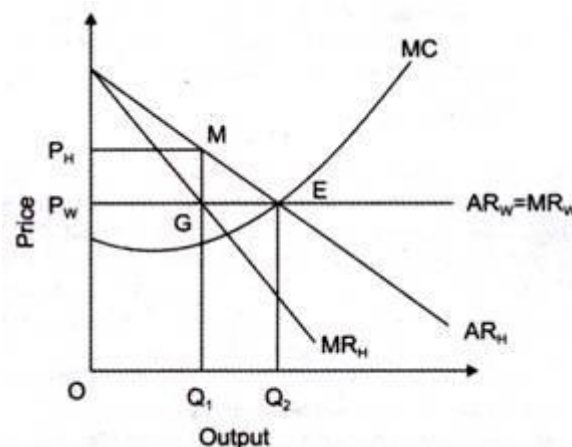
The above diagram mentions dumping. The seller charges two prices for the same commodity i.e. P_H – price in the home country which is costly and P_W – price in the world market which is cheap. The demand curve for the home country is a downward sloping one named AR_H. The demand curve in the world market is a horizontal straight line named AR_W. The marginal cost curve cuts the marginal revenue curve at point E which denotes equilibrium point. The marginal cost keeps on rising thereafter. The total output OQ_2 is divided in both the markets in such a way that the marginal revenue in both markets i.e. home market and world market equal each other. Accordingly the seller sells his output. He sells output OQ_1 in home market at higher as it is less elastic and the seller concentrates on profit maximization. In the world market due to competitors, the seller sells his goods at the lowest possible price in order to increase sales as the world market is more elastic. This helps the seller to balance his profits as well as sales.

Objectives of dumping: The following can be the objectives of dumping:
a. Growth and expansion in the industry
b. Finding place in the international market
c. Sell commodities that are manufactured surplus
d. Develop new trade relations with other international traders
e. To attain monopoly by gradually conquering the market by charging lowest possible price.

Advantages of dumping: The following are the advantages of dumping:
a. Easy penetration into the market by charging lowest possible price
b. Good International relations with other countries
c. Losses incurred while producing the commodities can be recovered through dumping

Disadvantages of dumping: The following are the disadvantages of dumping:
a. Costly;
b. Increase in unhealthy competition in world market;
c. Quality of the goods is not the priority.

Types of dumping: the following are the types of dumping:

a. Sporadic or intermittent dumping: Sporadic dumping is done occasionally. This type of dumping is done when the seller produces extra goods and creates a temporary surplus.

b. Persistent dumping: When a monopolist continuously sells his commodities at a lower price in the international market and at a higher price in the domestic market it is called as persistent dumping. This phenomenon happens continuously.

c. Predatory dumping: In this type of dumping the seller sells his goods at a very low cost or even at losses just to drive out competitors from the market in order to attain monopoly position.

■ **Conclusion:** Thus are the pricing practices that a monopolist undertakes in order to increase his revenue.

PRICING PRACTICES – II

- **Introduction:** Pricing Practice is a technique for pricing your commodity. It involves activities that are aimed at finding an optimum price for a commodity that includes the overall marketing objectives, demand of consumers, product features, pricing policies of the competitor and trends in the market and economy. Pricing practices include the costs that a firm incurs to produce, design and market a commodity through advertisements with an aim to earn maximum revenue which will cover all the costs incurred by the firm to produce that commodity.

- **Types of Pricing Practices:** Pricing practices differ as per the types of market the firm operates in. The following are the types of pricing Practices:-
  1. Marginal Cost Pricing
  2. Cost Plus Pricing
  3. Multiple – Product Pricing
  4. Transfer Pricing

- **Marginal Cost Pricing:** Marginal cost pricing is a pricing practice adopted by a firm to calculate the cost incurred for producing one extra unit or one additional unit of the commodity. In this type of pricing practice, the firm undertakes various types of possibilities of price fluctuations that have the potential to affect the firm's revenue and the demand for the commodity. The marginal cost pricing is undertaken in different ways by a public sector undertaking i.e. Government and a monopolist.

- **Marginal cost pricing undertaken by Public Sector Undertaking or Government:** The public sector undertakings work for public welfare. They often follow the marginal cost pricing method for pricing their goods. This phenomenon can be explained in the following diagram:-
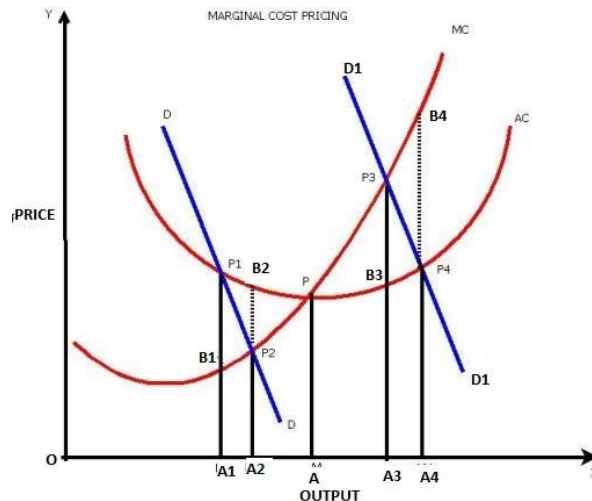
In the given diagram, the public sector undertaking has divided its commodities according to the necessity of the commodities and also as per the income group of the consumers. Initially, the public sector has considered essential goods. The initial quantity produced is OA1 at price O1P1. The initial demand is shown by DD curve. The firm wants to increase its demand, so it will reduce the price to A2P2 which will be equal to the marginal cost but less than average cost. The firm incurs a loss of P2B2. Thus the government incurs a loss while supplying goods at cheaper rates to the consumers for welfare of consumers and general public. This increases demand for the commodities though. If, at some point of time, people are willing to pay more price for the commodity as their demands need to be satisfied, the price can jump from point P2 to Point P which is also the intersection point of Marginal cost curve and Average cost curve. The quantity produced also increases from OA2 to OA and this point is ultimately called the optimum production point where the firm earns a normal profit. This is done for essential commodities.

When the public sector decides to produce goods for people earning high income, it increases its prices for the commodity assuming sufficient demand for the commodity. The price further rises to OP3 and the quantity produced also rises to OA3. The demand of high income group is shown by another demand curve D1D1. The price exceeds Average Cost curve and the firm earns an excess profit of B3P3. The firm can further raise its production to OA4 and charge a low price, i.e. A4P4.

But the consumer may not be willing to pay the price Q4P4. This compels the public sector unit to produce commodities up to point OA3 and spend the remaining amount on producing more essential goods for consumer welfare.

The public sector unit uses marginal cost concept while producing essential commodities. It is so because essential commodities are demanded by all types of consumers and so the public sector unit has to fix the price as per each unit produced so that the price can be less. Here profit may not be incurred. The public sector unit uses average cost concept while producing goods demanded by high – income group people, i.e. luxuries goods, as it also includes its profit per commodity produced. Here price is not a very concern issue as the consumers have high income.

Advantages of Marginal Cost Pricing:

1. It is simple to understand
2. Costs can be regulated
3. Helps in decision – making
4. Easy entry into the market
5. Helps in earning good profits.

Disadvantages of Marginal Cost Pricing:

1. Not useful to long – term pricing
2. Market prices of the commodities are ignored
3. Losses are incurred at some point of time
4. Only cost factor is taken into consideration
5. At times it is not possible to classify the costs as marginal cost and average costs.

- **Cost plus Pricing:** Cost plus pricing method is the second type of pricing practices. It means that pricing for the product is based on cost incurred for producing the product. It is a cost based method of pricing the commodity produced. Cost plus pricing is also termed as Mark – Up Pricing as we have to find a mark up on percentage on cost in order to obtain desired profits. Here cost, i.e. Average Cost is calculated as follows:-

Average Cost (AC) = Average Variable Cost (AVC) + Average Overhead Cost

Where,

Average Overhead Cost is a certain percentage of Average Variable Cost.

Before computation of Average Cost, the firm needs to have a mark-up (m) percentage as follows:

$$m = \frac{\text{price} - \text{average cost}}{\text{average cost}}$$

Where,

Price – average cost = profit margin.

The mark – up point differs from industry to industry. A firm can adopt several methods of cost plus pricing methods.

Advantage of cost plus pricing method:

1. Simple and easy to understand
2. Earns good profits for the firm
3. Helps in decision – making

Disadvantages of cost plus pricing method:

1. Future demand for the commodity is not taken into consideration
2. Opportunity cost is ignored. This may result in wrong estimation of price.
3. Rival firm's pricing strategy is not taken into consideration.

● **Multiple – Product Pricing:** Multiple – Product pricing is done when the producer produces multiple products that are either substitutes or complementary to each other. Through multiple – product pricing producer finds out the effect of change in the price of one commodity on the demand of other commodity. There is a demand and production interrelation between commodities. This interrelationship complicates the pricing analysis. The interrelation can be as follows:-

$$MRr = \frac{\Delta TRr + \Delta TRs}{\Delta Qr} \qquad \dots 1$$

$$MRs = \frac{\Delta TRs + \Delta TRr}{\Delta Qs} \qquad \dots 2$$

In the above two equation, two products are considered: **r** and **s**. Equation 1 talks about product **r** and equation talks about product **s**. In the first equation, the effect of change in total revenue of product **r** as well as product **s** is measured by changing the quantity sold of product **r**, i.e. an additional unit of product **r** is sold for the analysis.

In the second equation, the effect of change in total revenue of product **s** as well as product **r** is measured by changing the quantity sold of product **s**, i.e. as additional unit of product **s** is sold for the analysis.

If the answer on the right hand side of the equation is positive, then the goods are complementary goods as there is a direct relationship between price and demand for complementary goods.

If the answer on the on the right hand side of the equation is negative, then the goods are substitutes, as there is inverse relationship between price and demand for substitutes.

In case the firm wants optimal output, the firm must consider total effect on the product due to changes in other product. Failure to do this will cause losses. If the firm is producing three commodities, R, S and T then, optimal production is estimated as follows:-

$$MC = \sum MR$$

Where

$\sum MR$ is the summation of Marginal revenues of R, S and T.

Advantages of multiple – product pricing:
1. Future demand is considered
2. Helps in decision making
3. Earns good profits for the firm

4. Helps in expansion of business

Disadvantages of multiple – product pricing:
1. Complicated calculation
2. A sudden change in demand can adversely affect this pricing practice
3. Chances of committing errors.

● **Transfer Pricing:** Transfer pricing is that type of pricing practice where there is a sale of goods from one entity to another at a set price within an organization. For example, if one department sells goods to another department at an already fixed price, that price is called as transfer price.

As per the principle of transfer pricing, the transfer price should match either the price what the seller would charge an independent customer or the price what the buyer would pay to an independent supplier.

Advantages of transfer pricing:
1. Transfer prices are necessary for calculation of divisional profits
2. Helps in decision – making
3. Useful in calculating taxes and duties
4. Helps in profit maximization

Disadvantages of transfer pricing:
1. Conflicts take place between divisional managers regarding fixation of transfer price
2. Additional resources are required to carry out transfer pricing practice
3. Transfer pricing practice may not be beneficial all the time.

Types for transfer pricing:
1. Market based transfer price: In this type of transfer price the firms use the market price of the commodity of inter – departmental sale.

2. Cost based transfer price: In this type of transfer price, the firms consider the cost incurred for producing the commodity as a transfer price for inter – departmental sale.

3. Negotiated transfer price: This transfer price is decided by mutual agreement among the divisional managers. The top management does not decide any transfer price.

🔴 **Conclusion:** Thus are the various types of pricing practices.