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25-objective 25- subjective {50 marks.

1(a) 5 mark

(b) 5 mak

2 a, b, c, d, e, f any (5) (5 X 3 mark = 15)

Theory of Demand

Demand - Desire is not sufficient for demand. Desire should be accompanied with ability to pay. This gives readiness to buy. So, if a consumer is ready to buy the commodity at given price within given time period, it is said to be demand.

- [Ability to pay] - key wood
- Demand is flow concept - cz it changes
- Supply is Flow "
- Stock is point concept [point concept for definite period of time]

* Determinants of demand [Factors Affecting Demand]
D = f(P)

(I)* Price = There is inverse relationship between price and quantity demand i.e when price rises quantity demand decreases and vice versa.

(II) Income of the consumer :- In general there is positive relationship between income and demand In case of luxuries, superior and normal good, there is positive relationship in case of inferior good there is inverse relationship bet° income of consumer and demand.

(III) Price of related goods :- Related goods relates to the substitutes and complementary goods. In case of substitute goods when price of one product rises the demand for other product rises but in case of complementary goods when price of one product rises the demand for other product decreases.

(v) Taste and preference :- It is also a major determinant of demand. The demand for goods and services increases having high taste and preferences demand decreases.

(vi) Advertisement :- It is gives information about the product and attracts consumer towards the product so, high expenditure on advertisment, demand increases.

(vii) Population size :- Population size of country also effect demand. For eg :- demand for raincoat, umbrella increases in rainy season. Similarly demand for coat, sweater, jacket increases in winter season.

For MCQ Similarly other determination of demand are expected income, income distribution, fashion, peer pressure, rate of interest. (Bank's interest).

* Law of Demand

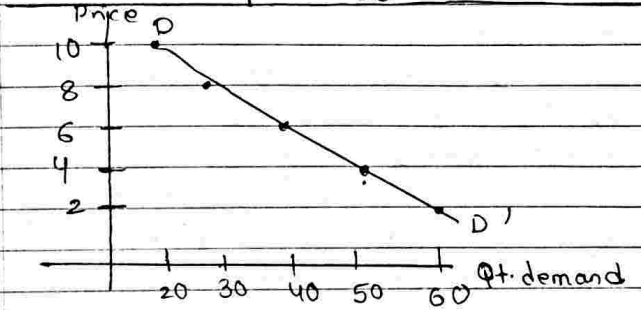
"It states that there is inverse relationship between price and quantity demand, other things remaining same. (Ceteris Paribus). In other words law of demand explains when price rises, qty demand decreases and vice versa, other things remaining same.

Assumption

(i) No change in income of the cosumer.
(ii) No change in price of related good.
(iii) No change in taste & preference
(iv) No change in pop^{n} size.

Consider the following schedule

Price (Rs)	Qt of demand (kg)
2	60
4	50
6	40
8	30
10	20



In the above shedule qty demand is taken along horizontal axis and price along vertical axis. DD' represents demand curve which is downward slopping from left to right. This shows inverse relationship between price & qty. demand. In the above shedude price rises from 2 to 4 to 8 --- Rs 10, qty demand decreases from 60 kg to 50 kg - 20 kg. This also shows inverse relationship between price and qty demand.

* Exception / Limitations of law of demand

(i) If income of the consumer, price of related goods, taste and preference, adverlisement changes, then law of demand is not applicable.

(ii) Giffen and veblin goods
Giffen goods → inferior goods
Veblin goods → showy " → not essential)
↓ like gold, dimond
superior goods.

Giffen good is a special type of inferior good & veblin good is a special type of superior goods which are used to demonstrate in the society. In case of Giffen and Veblin goods demand increases along with rise in price.

(ii) Fear of shortage :- Fear of shortage of goods is also an exception of law of demand. Consumers demand more goods even at the higher price, due to fair of scarcity.

(iv) Habitual goods :- Habitual goods refers to the habit forming goods such as smoking, taking alcohol, taking drugs. So, incase of habitual goods, law of demand doesn't hold.

Individual Demand Curve

The tabular representation of quantity demand at various prices by the consumer is known as individual demand schedule. The graphical representation of individual demand schedule is said to be individual demand curve.

Consider the following schedule.

Price	Demand
100	1
80	2
60	4
40	6

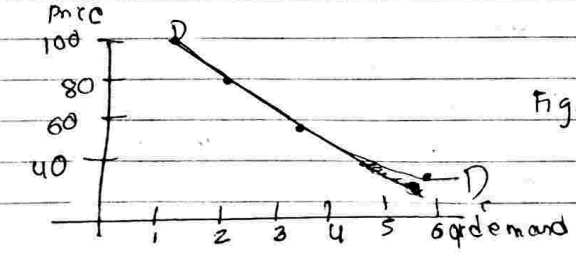


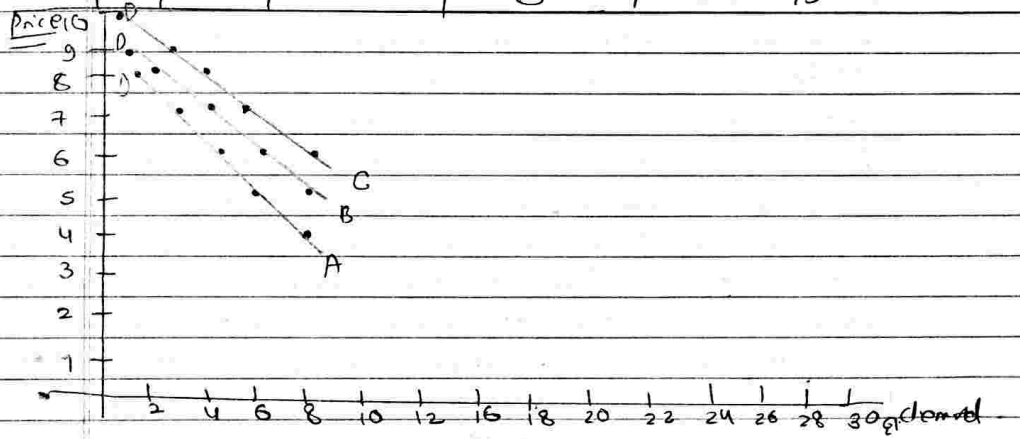
Fig:- Individual demand curve

In the above schedule qty of demand is taken in horizontal axis & price along vertical axis. DD' represents individual demand curve which is downward slopping from left to right. This shows inverse relationship between price and qty of demand. In above schedule as price ↓ from is 100 to Rs 80 -- 40, demand ↑ from 1 to 2 to --- 6. This also shows inverse relationship of price & qty demand.

Market demand curve : It is the horizontal summation of individual demand curve i.e aggregation of individual demand gives market demand.

Consider the following schedule.

Price	Qty. demand by			Market demand
	Consumer A	Consumer B	Consumer C	A+B+C
2	8	9	10	27
4	7	8	9	24
6	6	7	8	21
8	5	6	7	18
10	4	5	6	15



In the above graph, qty of demand is taken along horizontal axis and price along vertical axis D_A, D_B, D_C represent individual demand curve & D_M represents market demand curve, which is the sum of individual demand curve ($D_M \Rightarrow D_A + D_B$)

Market demand curve is downward slopping from left to right, this shows inverse relationship between price and market demand. In above schedule price scales from Rs 2 to 4 -- Rs 10, market demand decreases from 27 kg to 24 kg - 15 kg. This also shows inverse relationship betn price & market demand.

* Movement along demand curve :- Movement along demand curve is increase or decrease in qty demand due to change in price but other factors that affects demand remain same. In case of movement, consumer moves from one point to another along in the same demand curve. Increase in qty demand is known as expansion & decrease is known as contraction.

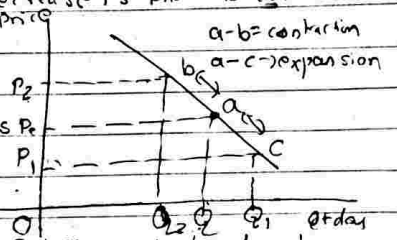
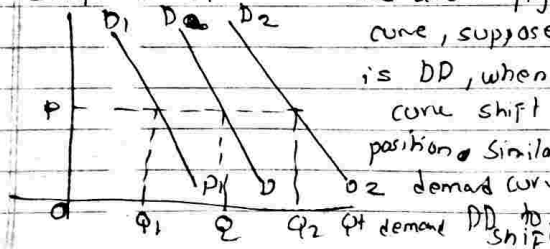


Fig:- Movement along demand curve

The above figure shows movement along P_2 demand curve. Suppose, the initial price is P & OP_1 & OQ_1 is qty demanded, when price rises from OP_1 to OP_2 quantity demand decreases from OQ to Q_2. This is known as contraction. Similarly when price falls from OP to OP_1 qty demand increases from OQ to OQ_1. This is known as expansion.

\# Shift in demand curve :- It is the increase or decrease in demand due to change in other factors that affect demand but price remains same. In case of shift the position of demand curve changes. Rise in demand is known as increase in demand and fall in demand is decrease in demand. When demand increases demand curve shift to right & when demand decreases, demand curve shift to left.



The above figure shows shift in demand curve, suppose the initial demand curve is DD, when demand increases demand curve shift to right from DD to D_2D_2 position. Similarly when demand decreases demand curve shift to the left from DD to D_1D_1 position i.e. left shift indicate decrease in demand & right shift indicates increase in demand.

Causes of shift in demand curve.

(1) Change in income of the consumer.
(2) Change in price of related good.
(3) Change in taste and preferance
(4) Change in advertisement
(5) Change in population size
(6) Change in season, weather, climate.

(1.) Income of the consumer.

There is +ve relationship betn the income and quantity demand. When the income is increases rise in quantity demand and vice versa. When increase in price then shift in demand curve is right

(2) Change in price of related goods.

Related good refers to the complementary goods and substitude. In case of substitude good, when prices of one commodity rises the demand for another product increases. demand curve shift right. But in case of complementary goods when price of one product rises the demand for another product decreases. This causes the right and left and shift in demand curve. demand curve shift to left.

(3) Change in taste and preference :-

Change in taste and preferance also a major dominant of quantity demand. The demand for goods and services increases if there is high test and preference. Similarly the demand will be low in case of low taste and preference. It cause shift in demand curve right

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(4) Advertisment

Advertisment gives about the information of product and attracts consomer towards product. so higher value of expenditure on advertisement higher will be the demand. It cause shift in demand curve right.

(5) Population size

There is +ve relationship between the size of popolation and quantity demand. Demand of the goods and service increases when the size of the popolation increases.

(6) Season, wheather and climate :- Season wheather and climate are the major determinants of the demand. During rain good umbrella should be increases in winter season.

Similary the other determinats of the demand are expected, income, rate of interest, income distribution e.t.c. It causes the shift in demand.

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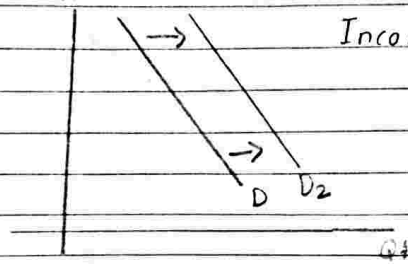
MCQ

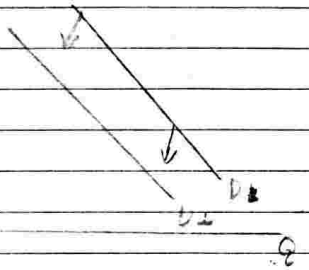
(1) Pr. income



Income of the consumer increases.

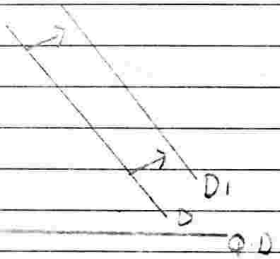
P I

(2)



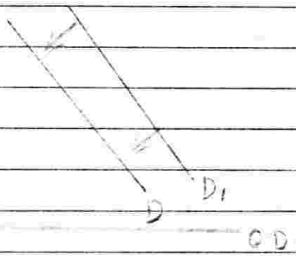
Income of the consumer decreases.

(3)



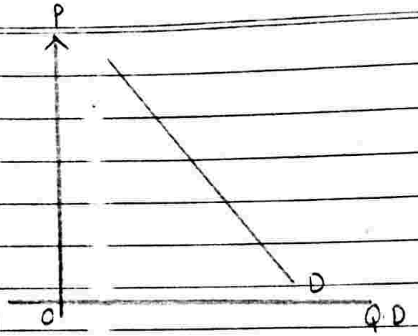
Price of substitute good rises.

(4)



Price of complimentary goods rises

(5)



Price rises (not the cause of shift demand) because it is price of the concern good.

Demand function

Demand function is the functional relationship between demand and factors affecting demand.

i.e $D = f(P, Y, Pr, T, A - - - -)$

where D = demand ; f = function of

P = Price, Y = Income, Pr = Price of related goods

T = Test and Prefrence A = Advertisement.

If we consider price only as a determinant of demand then demand function can be expressed as $D_x = f(P_x)$

Types of demand function

(1) Linear demand function
(2) Non-linear demand function

(1) Linear

If slope of demand curve remains same at every points of the curve then the demand function is said to be linear demand function.

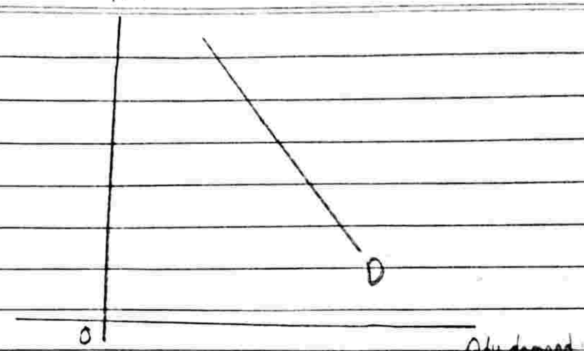


Fig:- Linear demand curve

Non-linear

(2) If slope of demand curve varies at every points of the curve then it is said to be non-linear curve. It is also known as rectangular hyperbola.

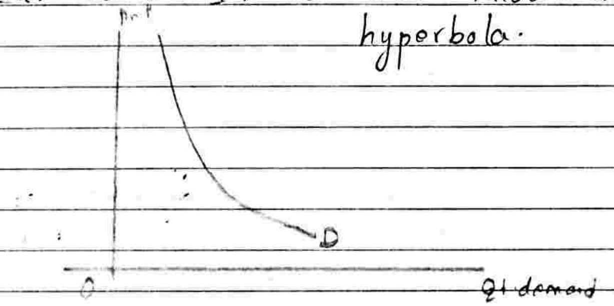
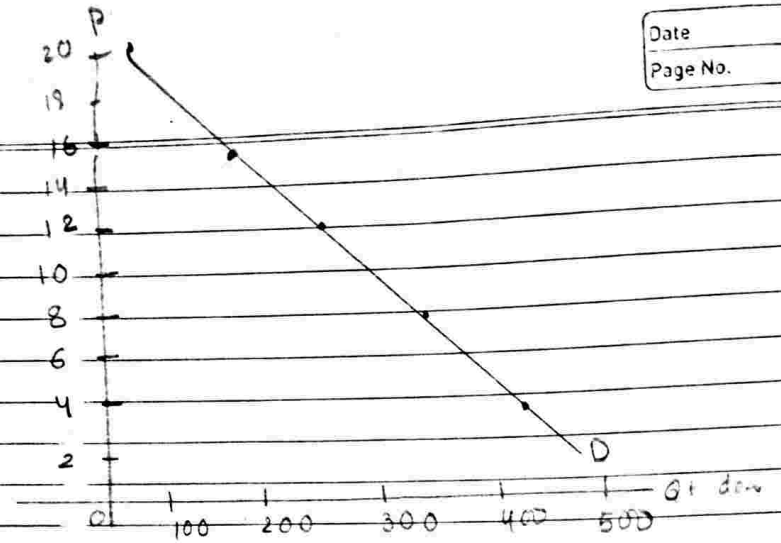


Fig:- Non-linear demand curve.

Example:- Draw demand schedule and graph with the help of following demand function.

$Qd = 500 - 20P$

Price	Quantity demand
4	420
8	340
12	260
16	180
20	100



Different terms in demand

- Price demand - affected by price
- Income demand - income
- Cross demand - price of related/substitute good
- Direct demand - final consumption
- Indirect demand - raw materials
- Joint demand - complementary goods - like car/petrol, toothbrush/paste, pen/ink
- Composite demand - demand for several purposes like electricity
- Derived demand - goods taken for factors of production
  - eg :- Labour demand, Bricks
- Expansion → if quantity is increase, it's expansion
- Contraction → if quantity decreased
- Effective demand → backup by ability.

Theory of supply

Meaning of supply:-

Supply is the quantity of commodity which is offered to sell in the market by the producer at given price within given time period.

Land
Labour
Capital
organisation
→ rent
→ wages
→ price of factors of production.

Determinants of Supply

(i) Price

There is positive relationship between price and quantity supply i.e if price rises quantity supply increases and if price falls quantity supply decreases.

(ii) Government tax policy

Tax is the compulsory payment to the governme
When government imposes high tax rate, it discourage producers as a result, supply decreases.

(iii) Subsidy - सहुलियत, दान

Subsidy is the grant given by government When government provide subsidy it encourge producers as a result supply increases.

(iv) Technology.

State of technology is also a major determinants of supply. Production activities increases along with technological advancement. So, advance technology support to increase supply.

(v) Price of factors of production.

It refers to the wedges rent, pric of raw materials. There is inverse relationship

between price of factors of production and supply.

(iii) Population size

Population size of the county also affect supply. Population of the county also refers labour force so there is positive relationship between size of the population and supply.

(iv) Infrastructure development.

Basic physical infrastructure refers to the transportation, communication, electricity. If these facilities are available supply increases.

Law of supply

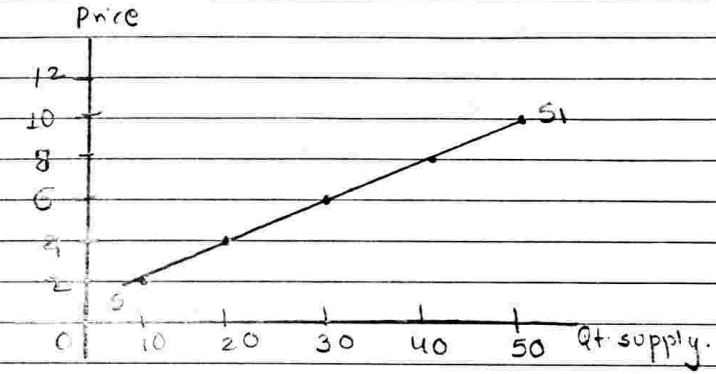
Law of supply states that there is positive relationship between price and quantity supply other things remaining same. That is law of supply explains when price rises quantity supply increases and when price falls, quantity supply decreases other things remaining same.

Assuption

- No change in government tax policy.
- No change in subsidy.
- No change in price of factors of production.
- No change in population size.
- No change in infrastructure development.

Consider the following ~~sub~~ schedule.

Price (Rs)	Quantity supply (kg)
2	10
4	20
6	30
8	40
10	50



In the above figure quantity supply is taken along horizontal axis and price along vertical axis. SS_1 represents supply curve which is upward sloaping from left to right. This shows positive relationship between price and quantity supply. In the above schedule, price rises from Rs 2 to Rs 4 --- to Rs 10, Quantity supply increases from 10 kg to 20 kg --- to 50 kg. This also shows positive relationship between price and quantity supply.

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Individual supply curve

The tabuler representation of quantity supply at various prices by the suppliers is know as Individual supply schedule. The graphical representation of individual supply schedule is known as individual supply curve

Consider the following schedule

Price	Qt supply kg
2	10
4	20
6	30
8	40
10	50

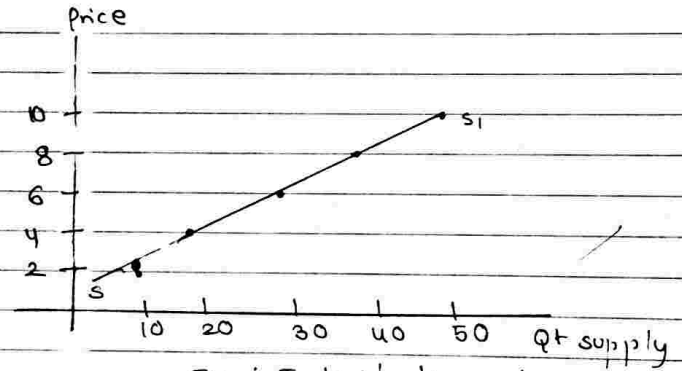

Fig :- Individual supply curve

In the above figure quantity supply represents the horizontal axis and price represents the vertical axis. SS_1 represents the individual supply curve upward sloping from left to right.
This curve shows that there is a +ve relationship between price and quantity supply.

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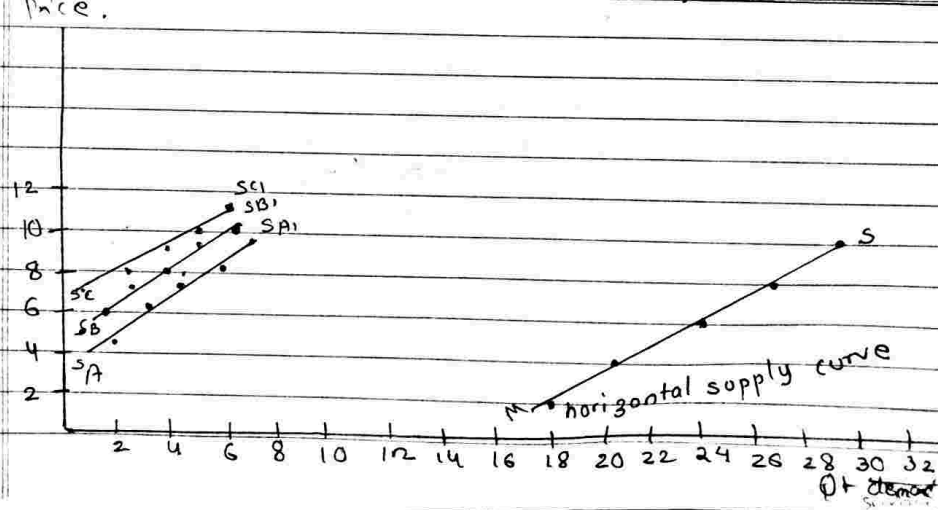
In the above schedule price increases from Rs 2 to Rs 4 --- to Rs 10 and quantity supply increases from 10 kg --- to 50 kg. This also shows that there is +ve relationship between the price and quantity supply.

Market supply curve

Market supply curve is the horizontal summation of individual supply curve i.e aggregate of individual supply gives market supply.

Consider a following schedule for simplify we can consider 3 A : B : C

	Qty Supplied by			Market Suppl
Price	Producer A	Producer B	Producer C	A+B+C
2	5	6	7	5+6+7=18
4	6	7	8	6+7+8=21
6	7	8	9	7+8+9=24
8	8	9	10	8+9+10=27
10	9	10	11	9+10+11=31



In the given figure quantity supply represented as the horizontal axis and price represents as the vertical axis. S_A, S_B and S_C are the individual supply curve and S_M represents the market supply curve. which is the sum of all individual supply curve.

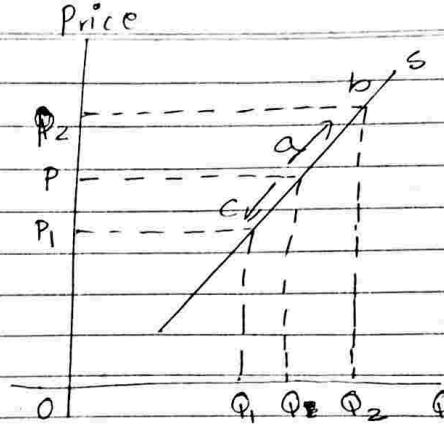
i.e $S_M = S_A + S_B + S_C$

Market supply curve represent the upward slaping from ~~right~~ left to ~~left~~ right as the individual supply curve. This shows that there is a +ve relationship between the price and the supply curve.

In the above schedule price rises from Rs 2 to Rs 4 -- Rs 10 and the market supply curve increases from 18 kg to 21 kg --- to 9+ kg. This shows that there is a +ve relationship between the price & the supply curve.

Movement along ~~demand~~ supply curve:

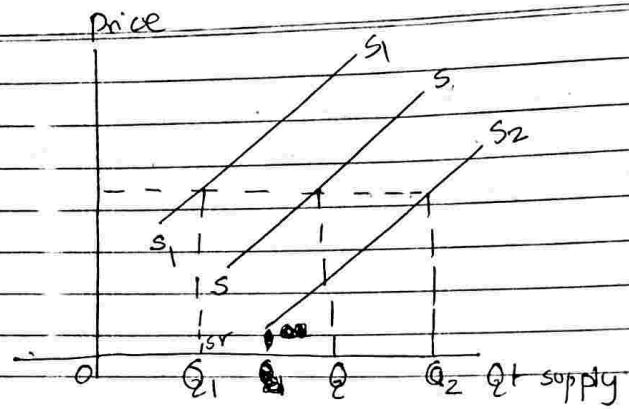
Movement along supply curve is increase or decrease in qty supply due to change in price but other factors that affects supply remains same. In case of movement, ~~consumer~~ producer moves from one point to another along in the same ~~demand~~ supply curve. Increase in quantity supply is known as expansion & decrease is known as contraction.



a → b: expansion
a → c: contraction.

The above figure shows movement along supply curve. Suppose, the initial price is OP_1 & OQ_1 is qty supply. when price increases ~~falls~~ from OP_1 to OP_2 quantity supply increases from OQ_1 to OQ_2 this is known as expansion. Similar when price falls from OP to OP_1, quantity supply decreases from OQ to OQ_1. This is known as contraction.

#: Shift in supply curve :- It is the increase or decrease in supply due to the change in other factors that affects supply but price remains same. In case of shift the position of ~~demand~~ supply curve changes. Rise in supply is known as increase in supply and fall in supply is decrease in supply. When supply increases supply curve shift to ~~left~~ right and when ~~demand~~ supply decreases, ~~demand~~ supply curve shift to ~~right. The~~ left.



The above figure shows shift in supply curve. Suppose the intial supply curve is SS_1 when supply increases supply curve shift to right SS to S_2S_2 position. Similarly, when supply decreases supply curve shift to left from SS to S_1S_1 position i.e right shift indicates increase in shift and left shift indicates decrease in shift.

Causes of shift in supply curve

(1) Change in government tax policy.
(2) Change in subsidy.
(3) Change in technology.
(4) Change in factors of production
(5) Change in population size.
(6) Change in objective of the firm.

(1) Change in goverenment tax policy

Tax is the compulsory payment to the goverenment. When goverenment imposes high tax rate, it discourage producers as a result supply decrease. The supply curve shift towards left.

Firms have various objectives. Ex:- Profit maximization (by differenciation of cost & revenue), Sales maximization, profit satisfying.

Supply function

Supply function is the function relationship between supply and factors affecting supply i.e $S = f(P, Ta, Su, P_F, T, -----)$

P = Price Ta = Tax f = function of

Su = Subsidy.

P_F = Factors of production

T = Technology

S = Supply

If we consider price only as a determinant of supply then supply function can be expressed as $S_x = f(P_x)$.

Types of supply function

(1) Linear supply function
(2) Non-linear supply function

(1) Linear

If slope of supply curve remains same at every points of the curve then the supply function is said to be linear supply function.

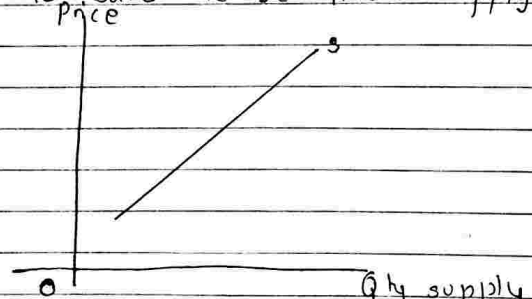


Fig:- Linear supply curve.

(2) Non-linear

If the slope of supply curve varies at every points of the curve then it is said to be non-linear curve. It is also known as rectangular hyperbola.

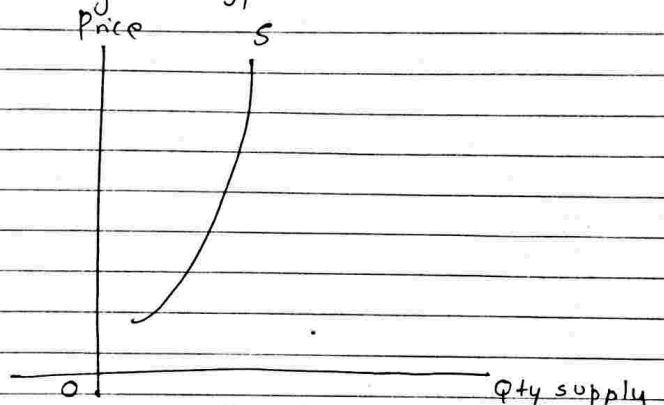


Fig:- Non-linear supply curve.

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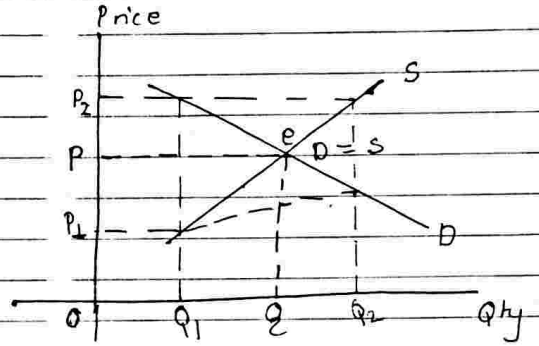
Market equilibrium

Market equilibrium is a sihation where demand & supply are equal. In others words, market equilibrium is such a point where demand & supply curves are intersected.
Market equilibrium is also known as market clearing condition This is because at the time of market equilibrium, there is no problem of scaricity as well as no problem of over stock.



In the above figure the downward sloaping demand curve (D) and upward sloping supply curve (S) are intercepted at point e which is market equilibrium point because at this point demand = supply. The price determined by equilibrium point is equilibrium price and quantity is equilibrium quantity. In the figure OP is equilibrium price and OQ is equilibrium quantity.

Supply more - Surplus / Stock
excess amount of item !
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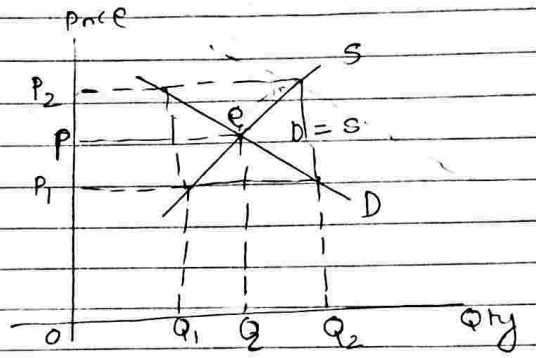


When price rises from OP to OP_2, i.e when price is higher than equilibrium price supply exceeds demand. Due to excess supply the problem of over stock arises. This force to reduce price. Similarly when the price is lower than equilibrium price, demand exceeds supply. Due to excess demand the problem of scarcity arises. This force to increase price (upward pressure). In this way market equilibrium is obtained.

$D = 10 - 5P$

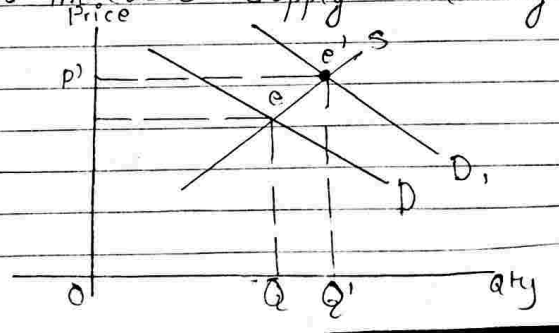
$S = 10 + 5P$

Since equad $10 - 5P = 10 + 5P$.

$P = 4$.

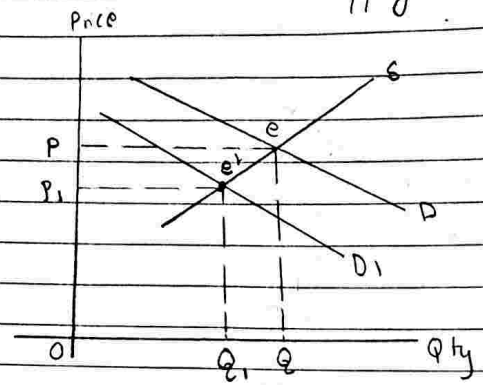
When demand or supply or both changes, equilibrium point also changes.

(1) Demand increases supply remaining same.



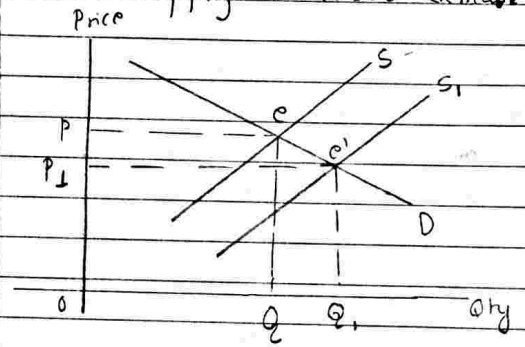
Both price and quantity rises.

(2) Demand decreases supply remaining same



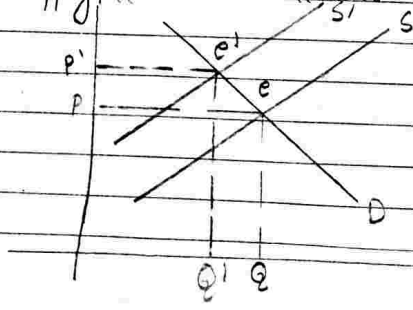
Both price and quantity decreases.

(3) When supply increases demand remaining same.



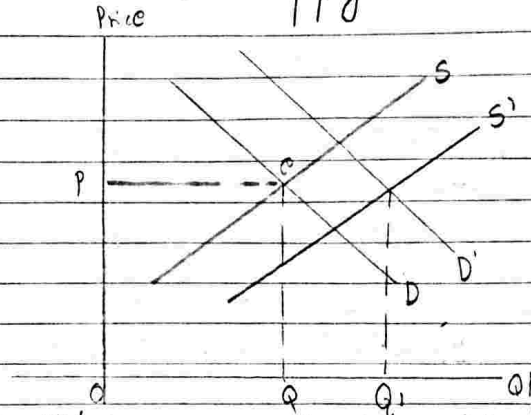
Price ~~in~~decreases and quantity increases.

(4) Supply decreases demand remaining same.



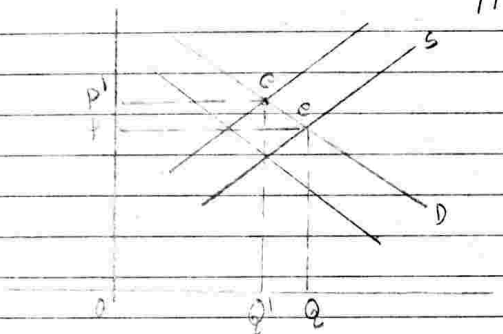
Price increases & quantity decreases

(5) Demand and supply increases.



Equilibrium quantity definately increases and price remains uncertain.

(6) Demand decreases and supply decreases.



Quantity decreases but price is uncertain.

When demand ~~and supply~~ increases tremendously (P) prices

When supply increases more then (P) ↓ decreases.

When in equal porportion increases P remains same.

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Elasticity of Demand

- Elasticity of demand is the degree of responsiveness in demand due to change in any one factor that affect demand.
- In other words, elasticity of demand is the ratio of porportionate change in quantity demand and porportionate change in any one factor that affects demand.

$$E_d = \frac{\text{Porportionate change in qty demand}}{\text{Proportionate change in any one factor that affects demand.}}$$

OR,

$$E_d = \frac{\%\text{ change in qt demand}}{\%\text{ change in any one factor that affects demand.}}$$

There are 3 types of elasticity of demand.

1. Price elasticity of Demad
2. Income elasticity of Demand
3. Cross elasticity of Demand.

(1) Price elasticity of Demand

- Price elasticity of demand is the degree of responsiveness in demand due to change in price.
- In other words, elasticity of demand is the ratio of porportionate change in quantity demand and porportionate change in price.

$$E_p = \frac{\text{Porportionate change in qty demand}}{\text{Porportionate change in price}}$$

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(2) Income elasticity of Demand

- Income elasticity of demand is the degree of responsiveness in demand due to change in demand of the consumer.
- In other words, income elasticity of demand is the ratio of porportionate change in income of the consumer.

$$E_y = \frac{\text{Porportionate change in qty demand}}{\text{Porp. change in income of the consumer}}$$

(3) Cross elasticity of demand

- Cross elasticity of demand is the degree of responsivness in demand for X good due to change in price of Y good. In other word, the ratio of percentage change in quantity demand for x goods to the percentage change in price of y goods.

$$E_c = \frac{\text{Porportionate change in qty demand of x goods}}{\text{Porportionate change in qty demand of y goods}}$$

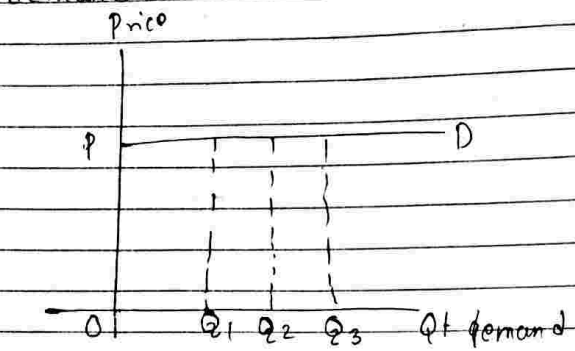
Degree/Type of Price elasticity of demand

(i) Perfectly elastic demand ($e_p = \infty$)
(ii) Elastic demand ($|e_p| > 1$) / Relatively elastic
(iii) Inelastic demand ($|e_p| < 1$)
(iv) Unitary elastic demand ($|e_p| = 1$)
(v) Perfectly inelastic demand ($e_p = 0$)

(i) Perfectly elastic demand ($e_p = \infty$)

If there is infinite change in quantity demand, with very small change in price then the demand is said to be perfectly elastic

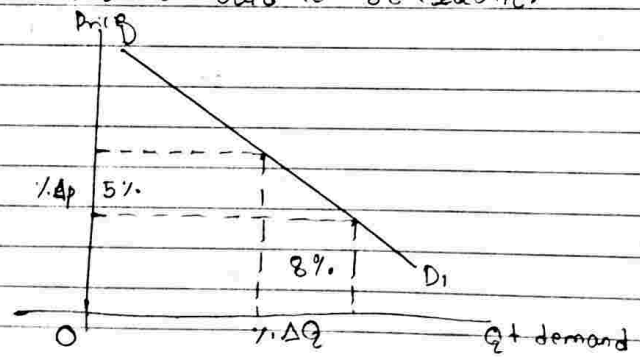
demand.



In the above figure PD represents perfectly elastic demand curve which is parallel to x-axis. Here qty demand increases from OQ_1 to OQ_2 to OQ_3 but price is OP.

(ii) Elastic demand ($|ep| > 1$)

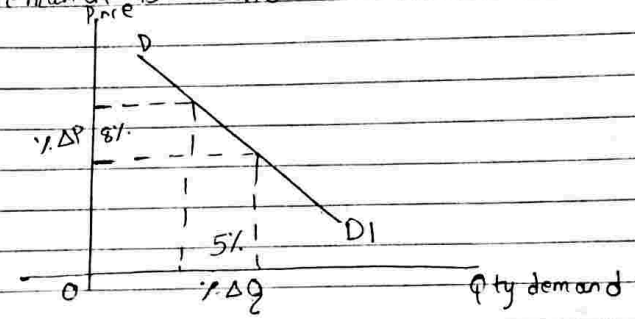
If percentage change in qty demand is greater than percentage change in price then the demand is said to be elastic.



In the above figure DD_1 represents elastic demand curve. Here % change in qty. demand (8%) is greater than percentage change in price (5%).

(iii) Inelastic demand ($|ep| < 1$)

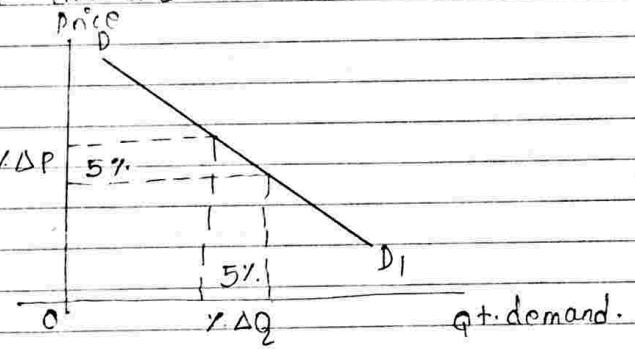
If percentage change in qty demand is less than the percentage change in price then the demand is said to be inelastic.



In the above figure DD_1 represents inelastic demand curve. Here % change in qty demand (5%) is less than percentage change in price (8%).

(iv) Unitary elastic demand ($|ep| = 1$)

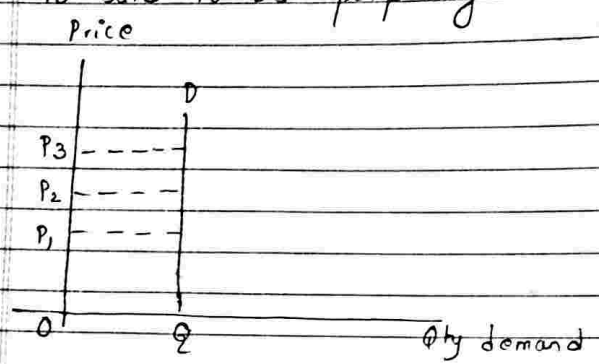
If percentage change in qty demand is equal to the percentage change in price then the demand is said to be unitary elastic demand.



In the above figure DD_1 represents unitary elastic demand curve. Here % change in qty demand (5%) is equal to % change in price (5%).

(v) Perfectly inelastic demand ($e_p = 0$)

If there is no change in qty demand with any change in price then the demand is said to be perfectly inelastic demand.



In the above figure DQ represents perfectly inelastic demand curve which is parallel to y axis. Here price rises from OP_1 to OP_2 to OP_3 but quantity demand remains same as OQ.

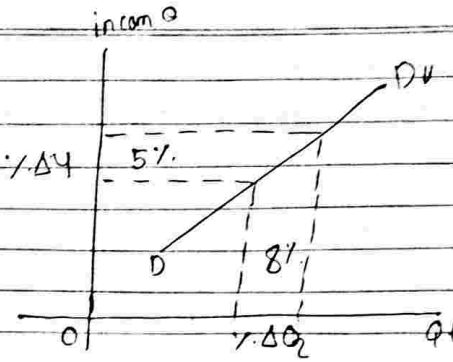
Long

Types of income elasticity of Demand

+ (i) Income elastic demand ($e_y > 1$)
+ (ii) Income inelastic demand ($e_y < 1$) → less than 1 more than zero
+ (iii) Unitary elastic demand ($e_y = 1$)
0 (iv) Zero elastic demand ($e_y = 0$)
− (v) Negative income elastic demand ($e_y < 0$)

(i) Income elastic demand ($e_y > 1$).

If percentage change in qty. demand is greater than percentage change in income of the consumer then the demand is said to be income elastic demand.

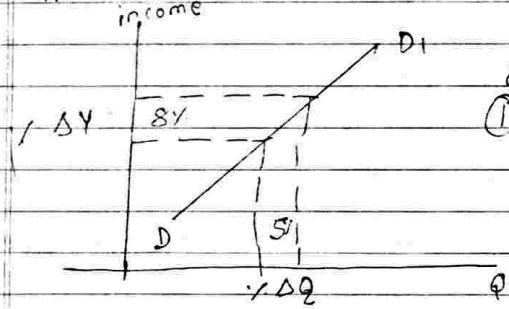


Example:-
(1) Luxurious/superior goods.
(2)

In the above figure DD_1 represent income elastic demand curve. Here % change in qty demand (8%) is greater than percentage change in income of the consumer.

(ii) Income inelastic demand ($e_y < 1$)

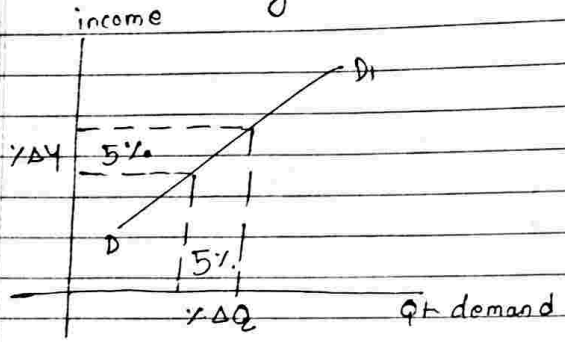
If percentage change in qty. demand is less than % change in income of the consumer then the demand is said to be income inelastic demand.



Example:-
(1) Normal goods.

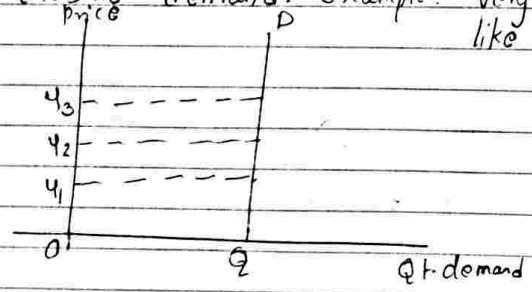
In the above figure DD1 represents income inelastic demand curve. Here % change in qty demand (5%) is less than percentage change in income of the income of the consumer.

(iii) Unitary elastic demand ($e_y = 1$)
If the percentage change in qty demand is equal to the percentage change in income of the consumer then the demand is said to be unitary elastic demand.



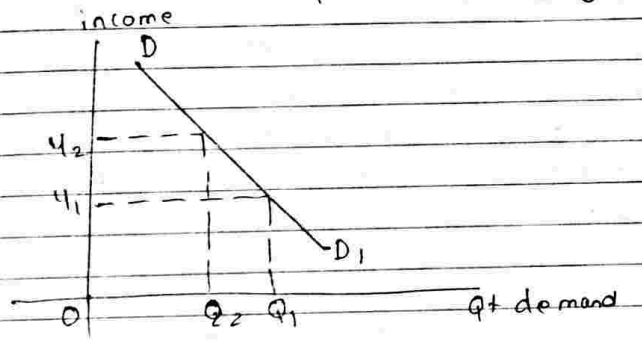
In the above figure, DD_1 represents the unitary elastic demand curve. Here % change in qty demand (5%) is equal to percentage change in income of the consumer.

(iv) Zero income elastic demand ($e_y = 0$)
If there is no percentage change in qty demand ~~is~~ with any change in income of the consumer then the demand is said to be zero income elastic demand. Example:- Very very essential goods like salt.



In the above figure DQ represent the zero income elastic demand. Here there is no % change in qty demand when income of the consumer changes.

(v) Negative income elastic demand ($e_y < 0$).
If demand ~~increases~~ decreases with rise in income of the consumer and vice versa the the demand is said to be negative income elastic demand. Example:- Inferior goods.

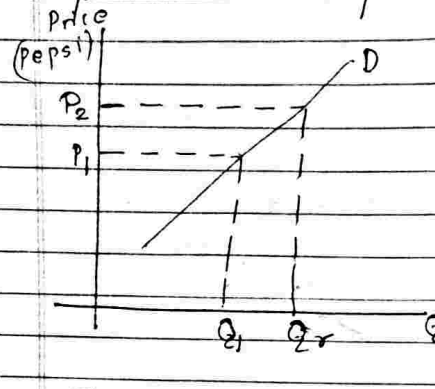


In the above figure, DD_1 represents negative income elastic demand. Here income rises from OY_1 to OY_2 qty demand decreases from OQ_1 to OQ_2.

3# Types of cross elasticity of demand
(i) Positive cross elasticity
(ii) Negative cross elasticity.

(i) Positive cross elasticity
Positive cross elasticity is observed if two goods are substitutes. In case of substitutes goods when price of one product rises the demand

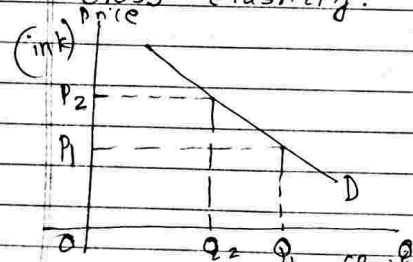
for other product increases. So, we get positive value of cross elasticity.



This above fig. shows positive cross elasticity. Here price of pepsi rises from OP_1 to OP_2, quantity demand for coke increases from OQ_1 to OQ_2.

(ii) Negative cross elasticity

Negative cross elasticity is observed if two goods are complementy. In case of complementary goods when price of one product increases the demand for other product decreases. So, we get negative value of cross elasticity.



The above fig. shows negative cross elasticity. Here price of ink rises from P_1 to P_2,

$\frac{2}{1}$ when price change by 1%. demand changes by 2%.

quantity demand for pen decreases from OQ_1 to OQ_2

Note :- If two goods are not related ie neither substitute nor complementary then value of cross elasticity becomes zero.

Measurement of price elasticity of demand.

(i) Proportionate Method

$$ep = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

$$\frac{\text{final} - \text{initial}}{\text{final} - \text{initial}} \quad \text{(**)} = \frac{\text{inital quantity} - \text{final quantity}}{\text{Change}} \cdot \frac{\text{Inital price}}{\text{inital}}$$

* The demand for cell phone increases from 50-60 units due to decrease in price from Rs 15,000 to Rs 12000. Calculate price elasticity of demand.

$$ep = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

$$= \frac{60-50}{12000-15000} \cdot \frac{15000}{50}$$

$$= \frac{10}{-3000} \cdot \frac{15000}{50}$$

$$= -1 \quad \#$$

$|-1| = 1$

So, the price of cell phone is unitary elastic.

(ii) Percentage method

$$ep = \frac{\text{\% change in qt demand}}{\text{\% change in price}}$$

Example :- The demand for pizza rises by 20% due to fall in price by 10%. Calculate price elasticity of demand.

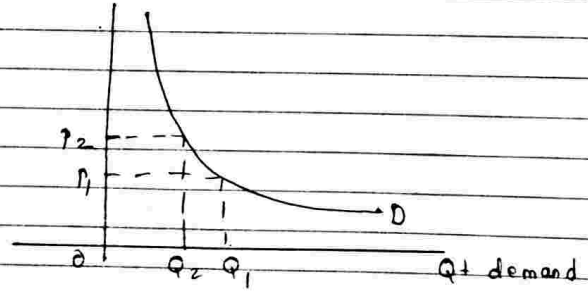
(Rise = % again + and fall = -).

$$ep = \frac{20}{-10}$$

$$= -2$$

(iii) Arc Method.

Price elasticity of demand can be measured with the help of arc method. This method is more applicable if there is greater change in price. In this method, we consider both initial and final price and quantity demand.



In the above figure, the initial price OP_1 and quantity is OQ_1. When price rises from OP_1 to OP_2 quantity demand decreases from OQ_1 to OQ_2. In arc method, both inital and final price and quantity demand is taken and the following formula is applicable.

$$ep = \frac{\Delta Q}{\Delta P} \cdot \frac{P_1 + P_2}{Q_1 + Q_2}$$

Q. Demand for cell phone increases from 50-60 units due to decrease in price from Rs 15,000 to Rs 12000. Calculate price elasticity of demand.

(First proportionate method use)

$$ep = \frac{60-50}{12000-15000} \cdot \frac{12000+15000}{50+60}$$

$$= \frac{10}{-3000} \times \frac{27000}{110}$$

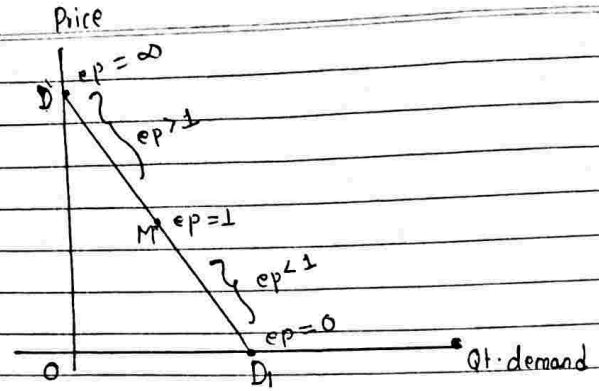
$$= \frac{270000}{-330000} \qquad \frac{27}{-3 \times 11}$$

$$= -0.81$$

(iv) Point Method (3-5 marks).

Price elasticity of demand can be measured with the help of point method. This method is more applicable if there is small change in price. The following formula is applicable to measure price elasticity of demand using point method.

$$ep = \frac{\text{lower segment}}{\text{upper segment}}$$

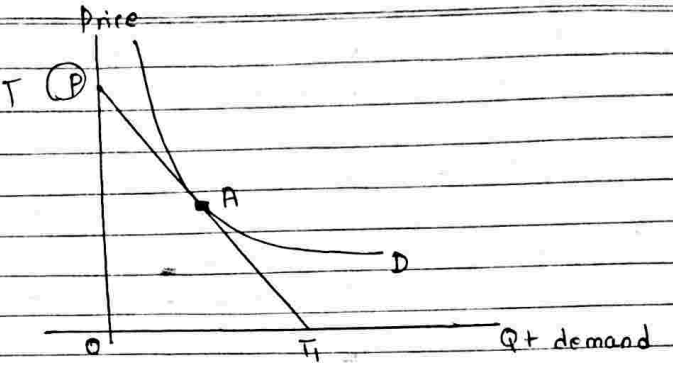


In the above figure, the linear demand curve touches both the axis. Suppose m is the mid point.

- Price elasity of demad at point M, ep = 1 [Lower segment is equal to upper segment]
- Price elasity of demand at higher point than M, ep > 1 [Lower segment ~~greater~~ than higher segment]
- Price elasity of demand at lower point than M, ep < 1 [lower segment < upper segment]
- Price elasity of demand at point D, ep = 0 [∵ Lower segment 0]
- Price elasticity of demand at pain D. ep = ∞ [Upper segment 0]

If the demand curve is non-linear then we have to draw a tangent from the point where elasticity has to be calculated and use the same formula as before

§ Elasicity at higher price higher and lower price lower



Price elasticity of demand at point A, $ep = \frac{AT_1}{AT}$

Here,

$ep > 1$ if $AT_1 > AT$

$ep = 1$ if $AT_1 = AT$

$ep < 1$ if $AT_1 < AT$.

* The length of demand curve is 15 cm. Calculate price elasticity of demand at the point where lower segment is 5cm.

$$ep = \frac{1}{2}$$

$$= 0.5.$$

15 − 5 = 10

(v) Total expenditure / Total outlay method.

Price elasticity of demand can be measured with the help of total outlay method. In this method we observe the impact of change in price in total expenditure of the consumer. We can explain total expenditure method with the help of following three statements.

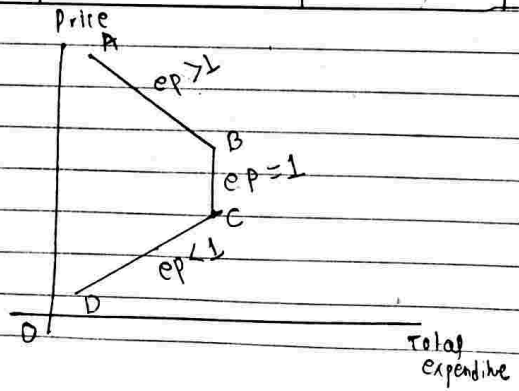
(i) If total expenditure falls with rise in price. or if total expenditure rises with fall in price then price elasticity of demand is said to be greater than unity ($ep > 1$).

(ii) If total expenditure remains same with rise or fall in price then price elasticity of demand is said to be equal to unity ($ep = 1$)

(iii) If total expenditure rises with rise in price or if total expenditure falls with fall in price then price elasticity of demand is said to be less than unity ($ep < 1$).

Consider the following schedule.

Price	Qty demand	Total expen.	Tendency	Elasticity
8	300	2400	P↓ Total exp↑	$ep > 1$
7	400	2800		
6	500	3000	P↓ Total exp same	$ep = 1$
5	600	3000		
4	700	2800	P↓ Total exp↓	$ep < 1$
3	800	2400		



The above schedule and graph can be explained dividing it in three parts.

- When price falls from Rs 8 to Rs 7, total expenditure increases from Rs 2400 to Rs 2800. Here, total expenditure increases with fall in price which shows price elasticity of demand greater than 1 ($ep > 1$). In the figure, the line segment AB represents $ep > 1$.

- When price falls from Rs 6 to Rs 5, total expenditure remains same i.e Rs. 3000. Here, no change in expenditure with fall in price which shows price elasticity of demand is unity ($ep = 1$). In the figure, the line segment BC represents $ep = 1$.

- When price falls from Rs 4 to Rs 3, total expenditure decreases from Rs 2800 to Rs 2400. Here, total expenditure decreases with fall in price which shows price elasticity of demand less than 1 ($ep < 1$). In the figure, the line segment CD represents $ep < 1$.

Measurement of income elasticity of demand

(1) Porportionate method.

$$e_p = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y}{Q}$$

Example :- The demand for restaurant food rises from 200 to 250 units. Due to increase in income of the consumer from Rs. 10,000 to Rs. 12,000. Calculate income elasticity of demand.

$$= \frac{200-250}{10,000-12000} \cdot \frac{10,000}{200}$$

$$= \frac{-50}{-1000} \cdot \frac{10,000}{200}$$

$$= \frac{5}{4} \#$$

$\frac{5}{4} > 1$ so income elastic.

+ = positive " " .

Since more than 1 it is luxorious good.

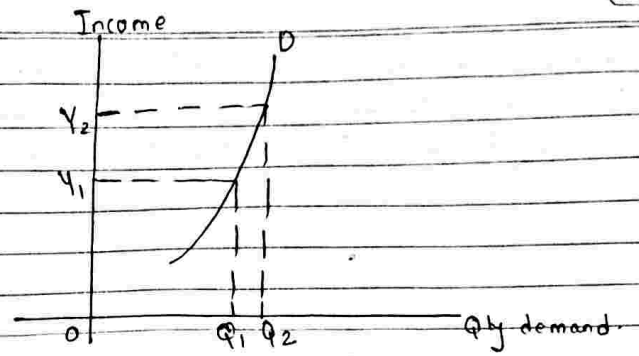
Suppose - 2 goods must be inferior.

(2) Percentage method.

$$e_y = \frac{\% \text{ change in qty demand}}{\% \text{ change in income of the consumer}}$$

(3) Arc method

Income elasticity of demand can be measured with the help of arc method. This method is more applicable in there is greater change in income. In this method we consider both initial and final ~~price~~ income and quantity demand.



In the above figure the inital income OY_1 and quantity is OQ_1. When income rises from OY_1 to OY_2 quanity demand increases from OQ_1 to OQ_2. In arc method, both inital & final price and quantity demand is taken and the following formula is applicable.

$$e_y = \frac{\Delta Q}{\Delta Y} \cdot \frac{Y_1 + Y_2}{Q_1 + Q_2}$$

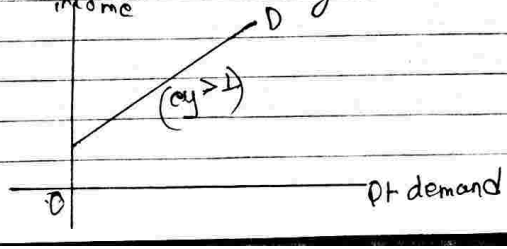
(4) Point method

Income elasticity of demand for linear and non-linear demand curve can be measured with the help of point method.

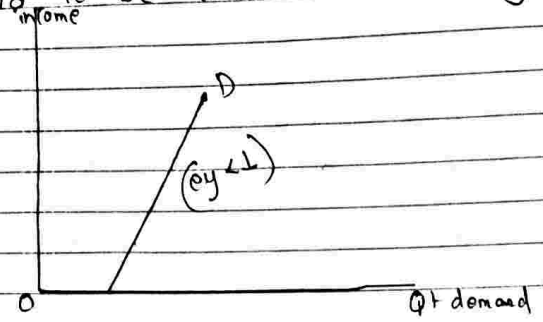
(a) Linear demand curve

We can explain point method to measure income elasticity in the case of linear demand curve with the help of following three statements.

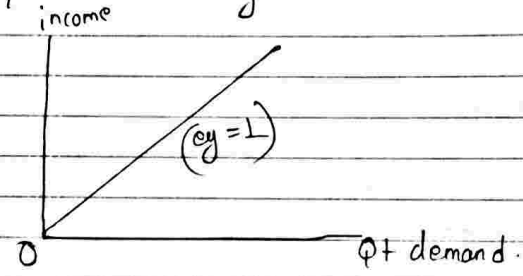
(i) If income demand curve touches verticle axis then income elasticity of demand is said to be greater than 1. ($e_y > 1$)



(ii) If income demand curve touches horizontal axis then income elasticity of demand is said to be less than 1. ($e_y < 1$).



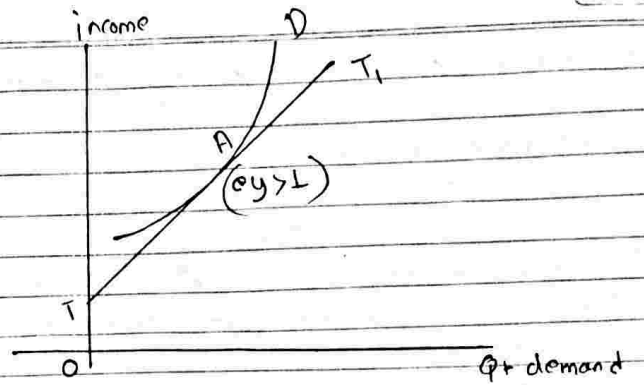
(iii) If income demand curve touches the origin the income elasticity of demand is said to be equal to 1 ($e_y = 1$).



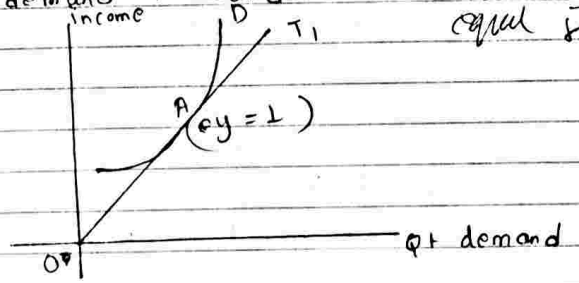
(b) Non-linear demand curve.

If the demand curve is non-linear then we have to draw tangent from the point where elasticity has to be calculated and observe the following 3 cases.

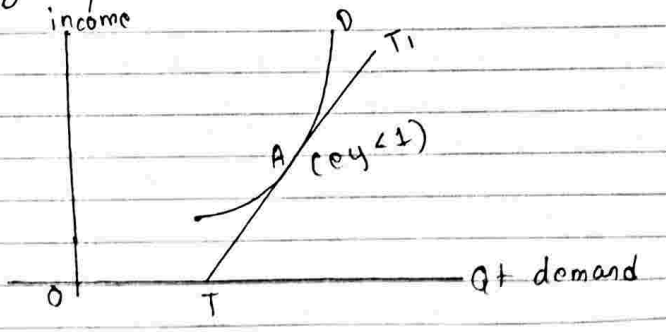
(1) If target drawn from the point of non-linear demand curve touches vertical axis then income elasticity of demand is said to be greater than 1 ($e_y > 1$).



(2) If the tangent drawn from the point of non linear demand curve touches the origin then income elasticity of demand is said to be ~~less than~~ equal to 1 ($e_y = 1$).



(3) If the tangent drawn from the point of non-linear demand curve touches the horizontal axis then income elasticity of demand is said to be less than 1 ($e_y <$



steeper - inelastic
45° — unitary
flatter - elastic
horizontally parallel - perfectly elastic

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Measurement of cross elasticity of demand

(1) Porporhionate method.

$$e_c = \frac{\Delta Q_x}{\Delta P_y} \cdot \frac{P_y}{Q_x}$$

* The demand ~~curve~~ For pepsi rises from 100 to 150 units due to increase in price of coke from Rs. 25 to Rs 35. Calculate cross elasticity of demand for pepsi.

$$e_c = \frac{100-150}{25-35} \cdot \frac{25}{100}$$

$$= \frac{-50}{-10} \cdot \frac{25}{100_2}$$

$$= \frac{5}{4} \quad \#.$$

+ve → Substitute.
more similar = 2, 3, 4, 5 = close substitute.

% and price method (same as price)

How to distinguish elastic and inelastic demand in case of price elasticity of demand.

(1) With the help of numerical value.
(2) With the help of graph.
(3) With the help of defination
(4) With the help of point method.
(5) With the help of total outlay method.
(6) Factors affecting price elasticity of demand (Determinats of price elasticity of demand)

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The following are the major determinants of price elasticity of demand.

(1) Availaibility of substitute goods.

Case I

If substitute goods are available in the market the demand for the product becomes elastic.

Case II

If less substitute goods are in the market, demand for the product becomes inelastic.

(2) Nature of the commodity

Case I

In case of luxirious and superior goods demand is elastic.

Case II

In case of essential and habitual goods demand is inelastic.

(3) Time periods.

Case I

~~In case.~~ If consumer have sufficient time period to respond price change, demand is elastic.

Case II

If consumer has less time period to respond price change demand is inelastic.

(4) Porportion of income spend on the product.

Case I

High porportion of income spend on the product dema

is elastic.

Case II

less porportion of the income spend on the product demand is inelastic.

(5) Goods of multiple uses

The demand for goods for having multiple uses like electricity is elastic. This is because when price of electricity falls consumer increases it's uses. Similarly, when price of electricity rises consumer limits it's uses.

Use / Importance of price elasticity of demand

1 The study of price elasticity of demand plays important role to determine price of output. If the demand for the product is elastic it is benificial to businessman to reduce price but if the demand for the output is inelastic it is benificial for the businessman to increase the price.

2. To determine government tax policy :-

If the demand for the product is elastic government shouldn't impose high tax rate. This is because demand decreases in greater porportion due to high tax rate as a result total consumption of the society decreases as well as living standard decreases.

3. International trade

The main composition of international trade are export and import. If the demand for the product that should be exported is elastic, it is benificial to the country to reduce price.

4. Exchange rate determination.

Exchange rate refers to the price of one currency in terms of other currency. If the demand for the goods that should be exported is elastic, it is benificial to devaluate the currency. Devaluation of currency make our product cheap to the foreigners.

5. Demand forecasting.

Demand forecasting refers to the estimation of future demand on the basis of past & present demand. If the demand for the product is elastic, producer should plan to reduce price.

Theory of Consumer behaviour (Utility Analysis)

Meaning of utility

Utility refers to the want satisfying power of the commodity. For example :- A consumer gets satisfaction having a cup of tea. Here, we can say tea has want satisfying power that is tea has utility.

Utility Analysis.

Cardinal Approach	Ordinal Approach
⊙ Law of diminishing marginal utility	⊙ Indifference curve analysis
⊙ Law of equimarginal utility	
⊙ Consumer surplus	

Cardinal Approach

- Cardinal approach advocates that utility can be measured in terms of hypothetical unit that is utils. Under this approach we have to study law of diminishing marginal utility, law of equimarginal utility and consumer surplus.

Ordinal Approach

Ordinal approach advocates that utility can't be measured but it can be compared. This is because Utility is a physcological term.

↳ After this TU AU & MU

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Law of diminishing marginal utility

TU, AU & MU

Total utility (TU)

It is the utility obtained by consuming given units of the commodity. In other words total utility is the sum of marginal utility.

i.e $TU = \Sigma MU$

Average utility (AU)

Average utility is the ration of total utility and units of commodity consumed i.e

$$AU = \frac{TU}{\text{units of commodity}}$$

Marginal utility (MU)

It is the utility obtained by consuming additional unit of the commodity. In other words marginal utility the ratio of change in total utility and change in units of commodity consumed i.e

$$MU = \frac{\Delta TU}{\Delta \text{units of commodity}}$$

when Δ units of commodity = 1 then,

$MU = TU_n - TU_{n-1}$

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* Law of diminsing marginal utility

Law of diminishing marginal utility states that utility obtained by consuming additional unit of the commodity diminishes. In other words, law of diminsing marginal utility explain when consumer consumes more and more and more units of the commodity, the utility obtained by consuming additional unit will be less and less.

* Asumptions

(1) Consumer should be rational.
(2) Utility can be measures ~~with the help~~ in terms of utils based on cardinal approach.
(3) There should not be time gap between consuming one unit and other unit of the commodity.
(4) The units of commodity should be homogeneous.
(5) Units of commodity should be appropriate.
(6) # Consider the following schedule:-

Units of commodity	TU	MU
1st	10	10
2nd	18	8
3rd	24	6
4th	28	4
5th	30	2
6th	30	0
7th	28	-2

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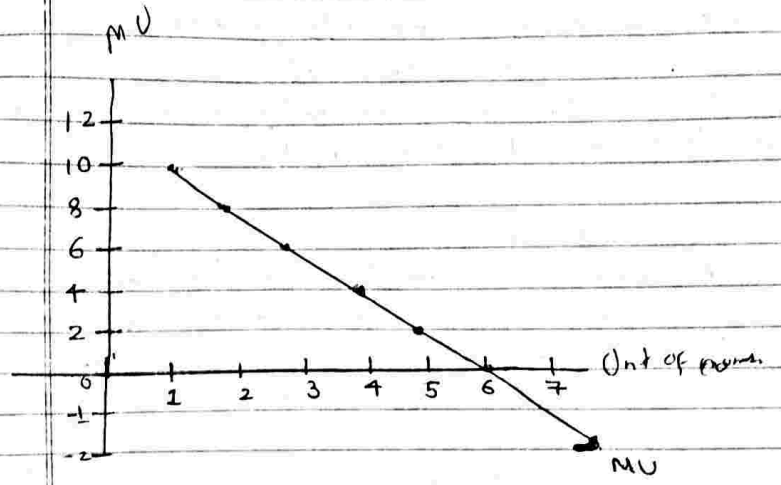


In the above figure MU represent marginal utility curve. The marginal utility is 10 from 1st unit of the commodity. Similarly, marginal utilities are 8, 6, 4, 2 from 2nd, 3rd, 4th and 5th units respectively. Here marginal utility diminishes. Marginal utility is zero from 6th unit. At this time total utility becomes maximum. When consumer consumes more than 6th unit then negative utility begins ie MU = -2 from 7th unit of the commodity.

Limitations / Exceptions

(1) ~~Con~~ Law of diminishing marginal utility is not applicable if the consumer is ignorant.
(2) This law doesn't apply in case of durable goods and habibal goods.
(3) ~~There shou~~ If there is time gap between consuming one unit and other unit this law is not applicable.

④ If the units of commodity is not homogenous this law is not applicable.

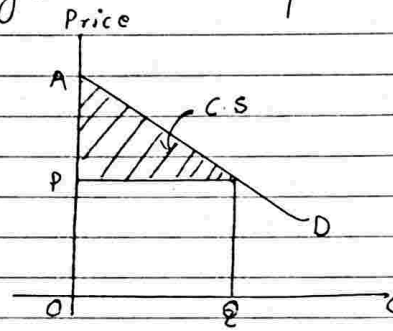
⑤ If the units of commodity is not appropriate this law is not applicable.

Consumer surplus

Consumer surplus is the difference between what a consumer is expected to pay and the actual price paid by the consumer.

Consumer surplus (C.S) = Expected Price - Actual price

Consumer surplus increases when expected price is high or actual price is low.



In the above figure the area below demand curve and above price line is consumer surplus. The shaded part shows consumer surplus.

Consumer surplus also can be explained using the concept of utility. Consumer surplus is the difference between total utility and total price.

C.S = TU - Total price

$TU = \Sigma MU$

$\Sigma MU = TU$

Consider the following schedule.

Units of commodity	Expected Price (MU)	Actual Price	CS
1st	10	4	10-4=6
2nd	8	4	8-4=4
3rd	6	4	2
4th	4	4	0
Total	28	16	12

As we know,

C.S = TU - Total price

= 28 - 16

= 12

Importance of consumer surplus:-

① To determine government tax policy.

Concept of consumer surplus play very important role in making government tax policy. Government can impose higher tax rate on those goods having higher consumer surplus. In this situation, government can collect sufficient tax revenue with out adverse effect among tax payers.

② Price determination

The concept of consumer surplus is equall important to determine price of goods and services. A business-man can raise price if there is high consumer surplus.

③ Cost benifit anyalysis.

Cost benifit anyalysis is very useful tool to ~~collecte~~ selet any project. Consumer surplus is measured as benifit so if benifit is greater than total cost, the project is selected.

④ Indicator of economic development

Amount of consumer surplus also reflects the situation of economic development. In case of develop countries, the purchasing power of the people is high which means greater consumer surplus.

⑤ To distinguish between value in use and value in exchange

The concept of consumer surplus is very important to distinguish between value in use and value in exchange of goods and services. In case of basic goods, higher consumer surplus, greater value in use.

Theory of Production

Factors of Production

In economics we describe 4 factors of production.

- Land
- Labour
- Capital
- Organization / Enterprises

a# Land

Meaning :- Land not only refers to the outer surface of the earth but also all natural resources like forest, water, mountains, air, sunlight.

Features of land

- free gift of nature
- passive factors of production
- immobile factors.
- differ in fertility. (differ in rent)
- limited in supply
- indestructival power.

b# Labour

People who are mentally and physically capable to do work and work for some economic advantage are labourers. So, people who are involved in physical work are not only labourers but also teachers, doctors, professors, lawers, chartered accountants are labourers if they work for economic advantage.

*? Features

- Mobile factors of productions

2. Active factors of production
3. Differ in efficiency
4. Labour and labourers can not be separated.
5. Labour dies along with labourer.
6. Perishable in nature.
7. Weak bargaining power.

Division of labour

Division of labour refers to the division of work on the basis of skill, interest experience. Division of labour is more suitable in case of large scale of production and different stages of production

Advantages of division of labour
- Increase efficiency
- Right man at right place.
- Reduce average cost of production.
- Saving of time.
- Quality product.
- Chance of innovation.

Disadvantages of division of labour
- Monotonous.
- Increase dependency.
- Lack of full responsibility.
- Out of job scope.

Efficiency of labour

Efficiency of labour refers to the capacity of doing work on the basis of time period.

Factors affecting efficiency of labour
1. Wedges.
2. Interest on work.
3. Working hour.
4. Interest on work
5. Working environment
6. Skill development program (Seminar, Training, education
7. Future prosperity
8. Other benifits (Child education allowance, health allowances, future benifits allowance, climate.).

c# Capital

Money can be considered as capital if it is invested in productive sectors. Capital goods are those goods which can be used for further production.

Features
1. Passive factors of production.
2. Man made object.
3. Elastic in sopply.
4. Can be transfomed from one place to other.
5. Capital is the results of saving.

Capital formation

Capital formation refers to the accumulation of capital. Capital formation is one of the major challanges for developing countries.

Process of capital formation
1. Saving
2. Mobilization of saving
3. Investment.

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Organigation

Organization is the collective body of all factors of production which are used in production line i.e organization plays very important role in production.

The head of the organization is known as entreprenure. The defining function of entreprenure is taking all types of risks involved in the business.

Production

Production is the process of transformation of factor inputs into output. In other words production is the creation of utility.

Production ~~of~~ function

Production function is the technological relationship between factor inputs and output.

i.e $Q = f(L, K, W - - - - -)$

where Q = output

f = function off

L = labour

K = capital

W = land

Types of production function.

There are two types of production function.

(1) Short run production function

(2) Long run production function.

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(1) Short run production function

If some factor inputs are fixed and some are variables then the production function is said to be short run production function.

Law of variable porportion is based on short run production function.

(2) Long run production function

If all factor inputs are considered as variable factors then the production function is said to be long run production function.

Laws of returns to scale is based on long run production function.

TP, AP and MP

(i) Total product (TP)

It is the product obtained by the employment of given units of factors input. In other words total product is the sum of marginal product.

i.e $T.P = \Sigma MP$

(ii) Average product (AP)

Average product is the ration of total product and number of factor inputs i.e

$$AP = \frac{T.P}{N_f \text{ (No of factor inputs)}}$$

Average product can be expressed in terms of labour and capital.

In terms of labour

$$AP_L = \frac{TP}{L}$$

In terms of capital

$$AP_K = \frac{TP}{K}$$

(iii) Marginal product (M.P)

It is the product obtained by the employment of additional unit of factor inputs. In other words, marginal product is the ratio of change in total product and change in number of factor inputs.

$$MP = \frac{\Delta TP}{\Delta N_f}$$

Marginal product can be experssed in terms of labour and capital.

In terms of labour

$$MP_L = \frac{\Delta TP}{\Delta L}$$

In terms of capital

$$MP_K = \frac{\Delta TP}{\Delta K}.$$

$$\boxed{MP = TP_n - TP_{n-1}}$$

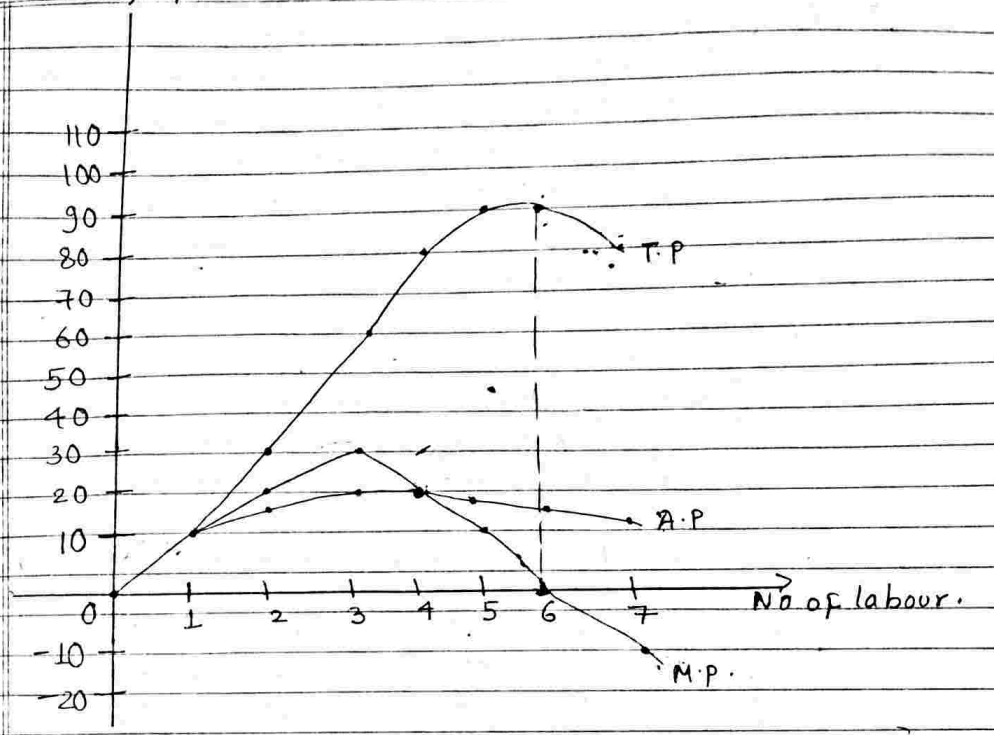
Derivation of TP, AP and NP

Consider the following schedule.

No of labours	T.P	A.P	M.P
0	0	—	—
1	10	10	10
2	30	15	20
3	60	20	30
4	80	20	20
5	90	18	10
6	90	15	0
7	80	11.4	-10

TP = Σ MP

$$M.P = \frac{\Delta T.P}{\Delta L}$$



Observation

(1) At first T.P increases in increasing rate then T.P increases in decreasing rate and finally T.P decreases.

(2) A.P and M.P increases at first then decreases.

(3) M.P is negative.

- When MP > 0 of +ve, TP increases
- When M.P = 0, TP maximum
- When MP < 0, -ve, TP decreases.

Reation between AP & MP

~ When MP > AP, AP increases
~ When MP = AP, AP maximum
~ When MP < AP, AP decreases

Law of variable porportion.

It is based on short run production function. Law of variable porportion explain when variable factor changes the ratio between fixed factor and variable factor also changes which is responsible to change production.

Assumptions

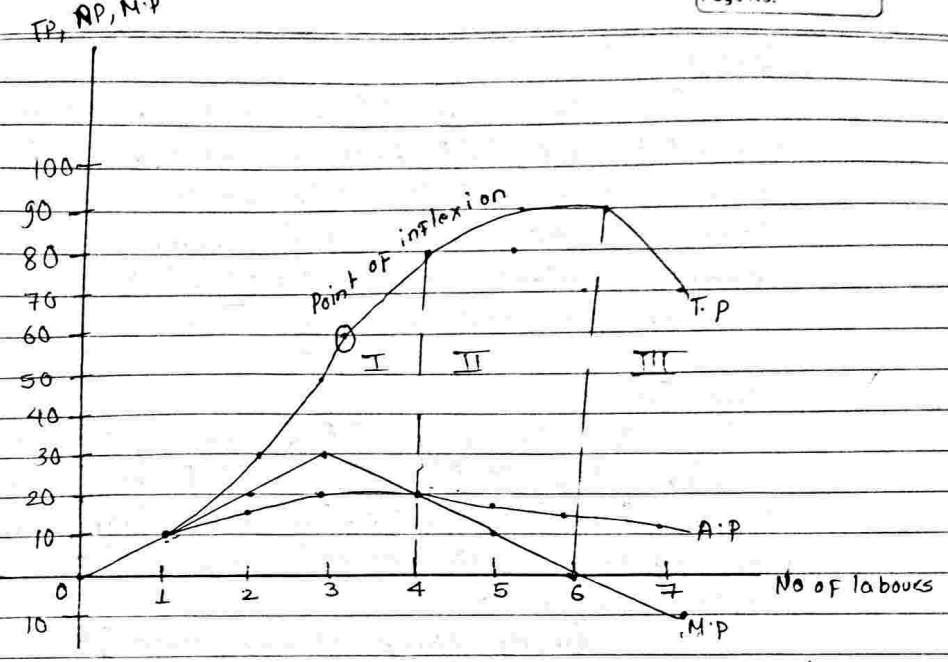
1. Technology remains same.
2. Factor inputs are homogenous.
3. Based on short run production function.

* Consider the following schedule. / Explain production theory based on short run.

No of labours	T.P	AP	M.P
0	₹0	–	—
1	10	10	10
2	30	15	20
3	60	20	30
4	80	20	20
5	90	18	10
6	90	15	0
7	80	11.4	−10

– Explain law of diminishing return.

P.O. Inflex → when M.P is max
point where slope of T.P changes.



Law of variable porportion can be ~~measured~~ explained dividing it in 3 stages.

Stage I :- Increasing returns
Stage II :- Diminishing returns
Stage III :- Negative returns

Stage I :-

In this stage T.P increases in increasing rate till the point of inflexion then tp increases in decreasing rate. M.P increases at first then decreases. M.P is greater than A.P. A.P increases in this stage only. In stage I number of fix factor exceeds number of variable factors. When A.P = M.P, A.P is maximum. This is the end of stage I.

Stage II :-

In this stage T.P increases in decreasing rate. A.P and M.P both decreases. AP is greater than M.P. In this stage number of fixed factor nearly equals number of variable factors. when M.P = 0, T.P is maximum. This is the end of stage II.

Stage III :-

In this stage TP decreases, AP is greater than M.P. AP and MP both decreases and M.P is negative. In this stage number of variable factor exceeds number of fixed factor.

Among three stages stage II is suitable because in this stage number of fixed factor nearly equals number of variable factors.

Laws of returns to scale

It is based on long run production function. The word scale refers to all factor inputs changes in same porportion. Laws of return to scale explain how production changes in long run with change in all factor inputs in same porportion.

Assumptions

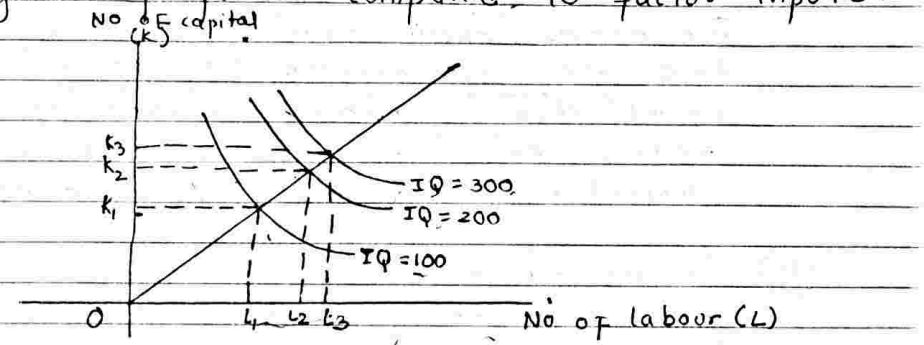
1. Factor inputs are homogenous.
2. All factor inputs are variable factors.
3. All factor inputs changes in same porportion.

Laws of returns to scale can be explained dividing it in 3 stages.

(i) Increasing returns
(ii) Constant returns
(iii) Decreasing returns

(i) Increasing returns

If % rise in output is greater than % rise in factor inputs then the returns is said to be increasing returns. i.e in case of increasing returns output increases in greater porportion compared to factor inputs.



The above figure shows increasing returns. Here the gap between isoquant decreases when we increase output by equal amount. This is because incase of increasing returns output increases in greater porportion compared to factor inputs.

(ii) Constant returns

If the percentage rise in output is equal to the factor inputs then the returns is said to be constant returns i.e in case of constant returns output increases in equal

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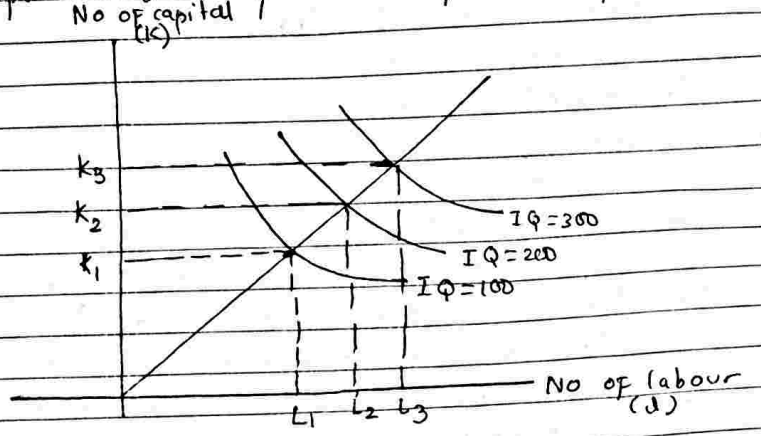
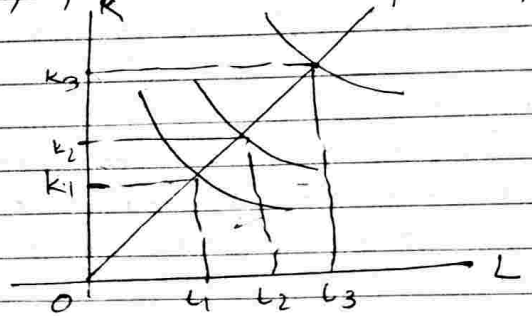
porportion as compared to factor inputs.



The above figure shows equal in sales returns. Here, the gap between the isoquant is equal when increases outputs by equal amount. This is because in case of constant returns, output increases in equal porportion on compared to factor input.

(iii) Decreasing returns

If the percentage rise in output is ~~greater~~ less than the percentage change in factor ~~output~~ input then the increase is said to be decreasing returns i.e in case of decreasing returns output ~~decreases~~ increases in less porporhon than the factor input.



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In the above figure, the decreasing returns. Here, the gap betn the isoquant increases. When we increase the output by equal time. In case of the decreasing return output increases by less porportion as compared to the factor input.

Theory of costs

Costs

Costs is derived function of production. This is because cost is associated with production.

Different terms of cost

① Total fixed cost (TFC):-

It is the cost which is independent with level of output i.e producer has to bear fixed cost even the output is zero.
Example:- Rent of building, salary of administrative staff, interest on loan amount

② Total variable cost (TVC):-

It is the cost which is dependent with level of output i.e total variable cost increases with increase in level of output. Example:- cost of raw materials, wedges of labour, fuel charges.

③ Total cost (TC)

Total cost is the sum of total fixed cost and total variable cost i.e

$$TC = TFC + TVC$$

④ Average fixed cost (AFC)

Average fixed cost is the ratio of total fixed cost and level of output.

i.e $$AFC = \frac{TFC}{Q}$$

AFC decreases continuously with rise in level of output.

⑤ Average variable cost (AVC).

Average variable cost is the ratio of total variable cost and level of output.

i.e $$AVC = \frac{TVC}{Q}$$

AVC depends on total variable cost and level of output.

⑥ Average cost (AC)

Average cost is the ratio of total cost and level of output.

i.e $$AC = \frac{TC}{Q}$$

Average cost also can be expressed in terms of AFC and AVC i.e $AC = \frac{TC}{Q}$

$$= \frac{TFC + TVC}{Q}$$

$$= \frac{TFC}{Q} + \frac{TVC}{Q}$$

$$= AFC + AVC$$

$$\therefore AC = AFC + AVC$$

⑦ Marginal cost (MC)

It is the cost to produce additional unit of output. In other words marginal cost is the ratio of change in total cost and change in level of output.

$$MC = \frac{\Delta TC}{\Delta Q}$$

Marginal cost is the

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

$$MC = \frac{\Delta TC}{\Delta Q}$$

$$= \frac{\Delta (TFC + TVC)}{\Delta Q}$$

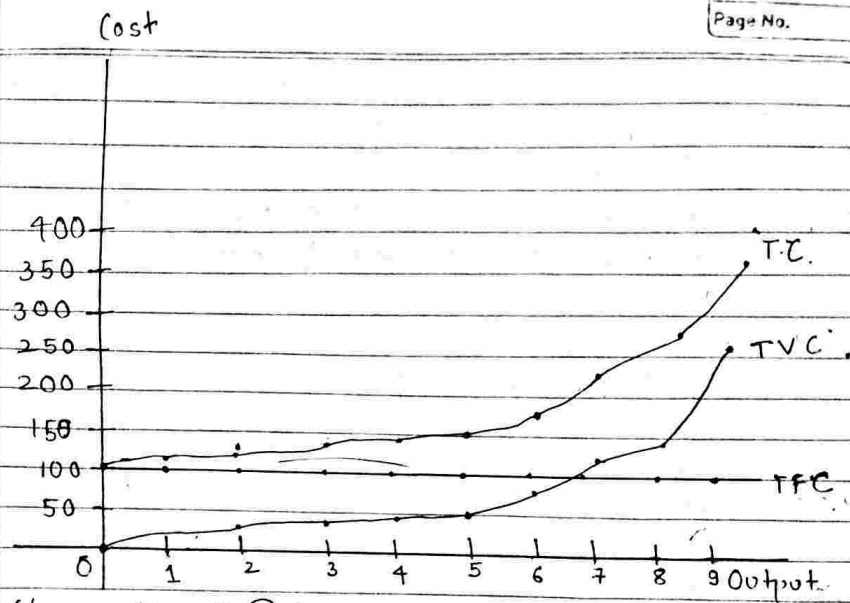
$$MC = \frac{\Delta TVC}{\Delta Q}$$

Marginal cost is closly connected to variable cost.

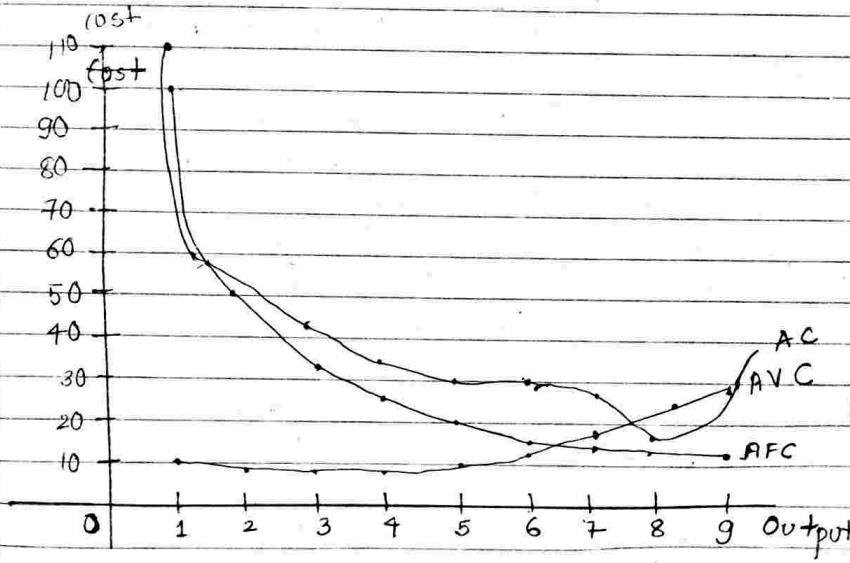
Derivation of TFC, TVC, TC, AFC, AVC, AC & MC

Consider the following schedule.

Output (Q)	TFC	TVC	TC	AFC ($= \frac{TFC}{Output}$)	AVC ($\frac{TVC}{Output}$)	AC ($\frac{TC}{Output}$)	MC ($\frac{\Delta TVC}{\Delta Q}$)
0	100	0	100	—	—	—	—
1	100	10	110	100	10	110	10
2	100	18	118	50	9	59	8
3	100	24	124	33.33	8	41.33	6
4	100	32	132	25	8	33	8
5	100	50	150	20	10	30	18
6	100	80	180	16.6	13.3	30	30
7	100	124	224	14.28	17.7	~~32~~ 47.7	44
8	100	180	280	12.5	22.5	~~22.5~~ 35	56
9	100	260	360	11.11	28.8	40	80



Observations :- ① A TFC curve is parallel to output axis. This shows fixed cost is independent with level of output. TC and TVC increases continuously with rise in level of output. ③ The gap bet^n TC & TVC is due to Fixed cost (TFC) i.e $TC = TFC + TVC$; $TC - TVC = TFC$.



U-shape-first increase then decrease

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(1) AFC decreases continuously with rise in level of output. (It is never U-shaped curve).
(2) AC & AVC are U-shaped.
(3) The gap between AC & AVC is due to average fixed cost. i.e AC = AFC + AVC i.e AC - AVC = AFC

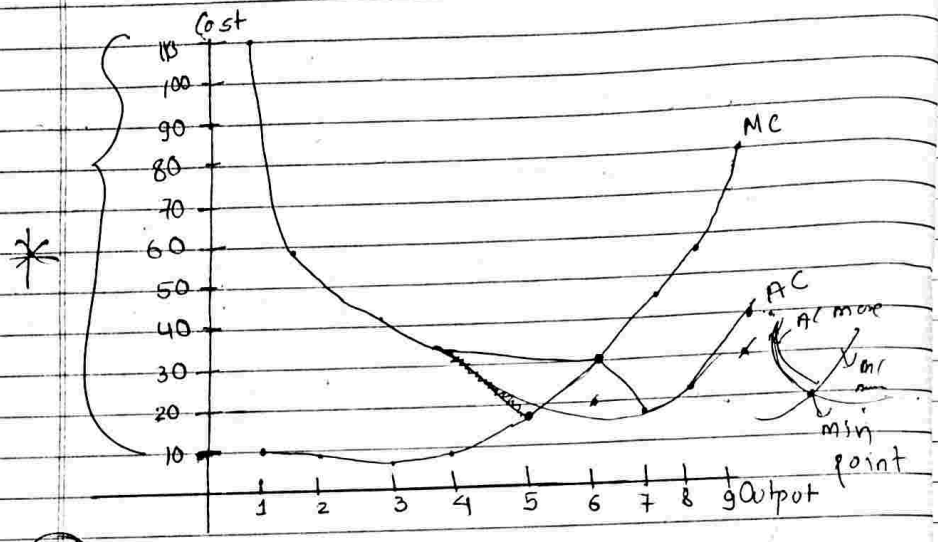
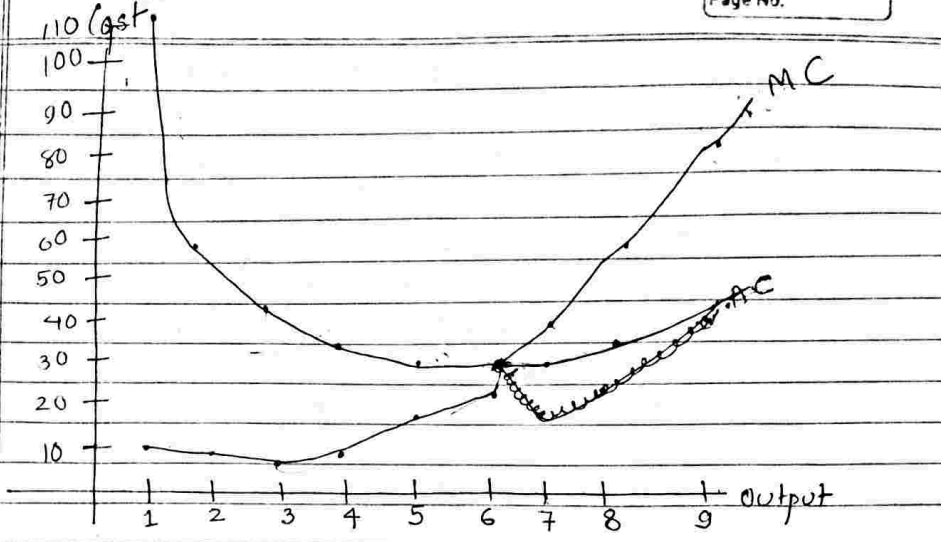


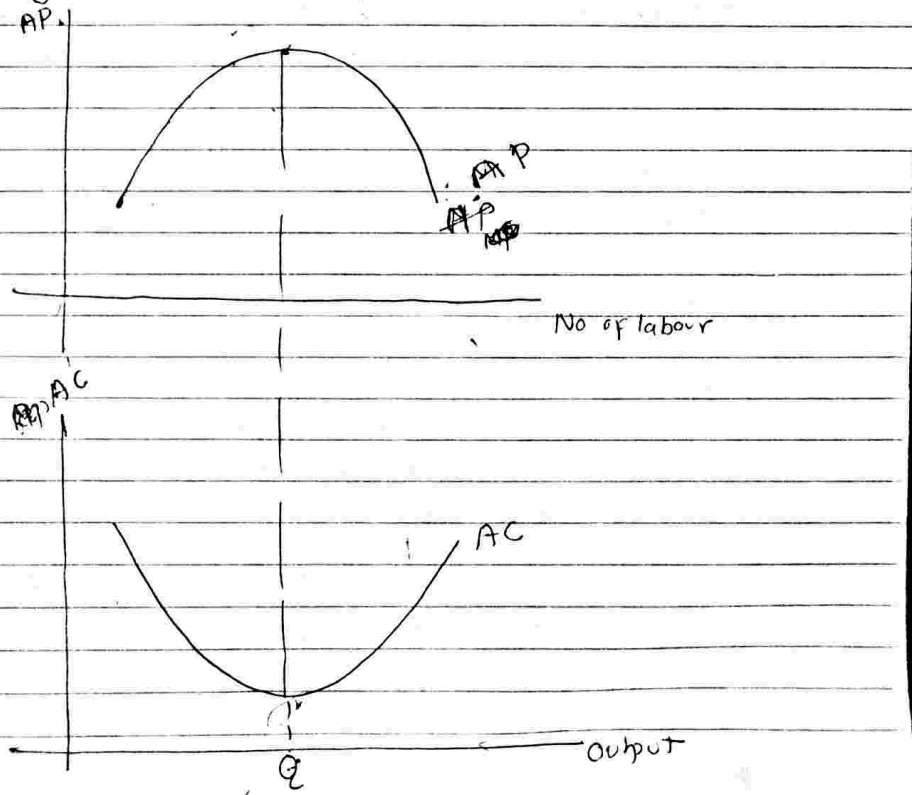
Fig (III)

(1) AC and MC are U-shaped.
(2) MC passes through minimum point of AC. (Average cost and marginal cost are equal when average cost is minimum)
(3) (i) When AC > MC, AC decreases.
(ii) When MC > AC, AC increases.

AC = TVC/Q + TFC/Q



Why is AC U-shaped?



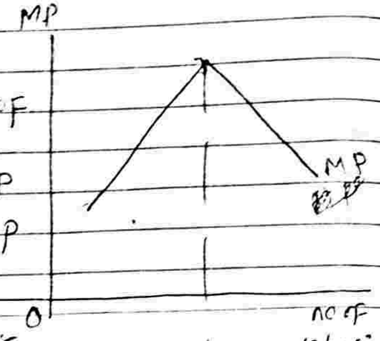
Short on marginal cost
MC
↓
SMC

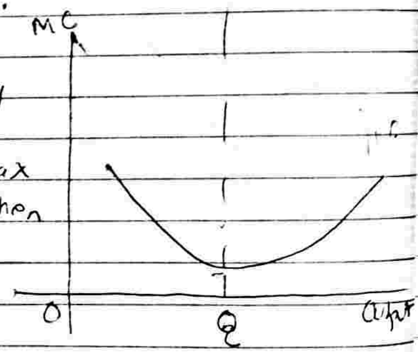
AC → ATC
SATC ↓ ATC

2. The reason of U-shaped of AC can be explain with the help of shape of A.P i.e. The shape of AC is determined by the shape of AP this is because cost is derived functional production.
When A.P increases due to increase in efficiency of factors inputs, AC decreases.
when AP is max; AC becomes minimum.
when AP decreases with decrease in efficiency of factors inputs. AC increases. Thus, AC is U-shaped.

② Why is MC U-shaped?

The reason for U-shaped of MC can be explain with the helped of shape of MP can be explain with the help of shape of MP. The shape of MC is determined by the shape of MP. This is because cost is derived from functional production. when M.P increases with the increase in efficiency of factor inputs MC decreases. when MP is max MC becomes minimum. When M.P decreases with the decreases in the efficiency of factor inputs. MC increases. Thus, MC is U-shaped.





Q	0	1	2	3
C	50	80	120	150

AFC ? 2 unit of output
AFC =

TFC / Q

$AC = \frac{TFC}{Q}$

0 level → T.F.C = 50/2 = 25 = 25,

AVC for 2 units.
AC = 120/2 = 60
AC = AFC + AVC
60 = AFC 25 + AVC
35 = AVC

AVC for 1 unit
TVC =
AC
50 80 − 50 = AVC
30 = AVC
30 = AVC.

Total cost (TC) for Q_{10} is 820
TC for 11th unit (Q_{11}) = 900.

$MC = TC_n - TC_{n-1} = \frac{\Delta TC}{Q} = \frac{80}{1}$
$= 900 - 820$
$= 80$.

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$TC - Q_{10} = 820 - 900 - 20 = 16$

$TC = Q_{15} = 900$

ATC for $- Q_{10} - 25 = TC = 250$

AFC for $- Q_{11} - 30 : TC = 330$.

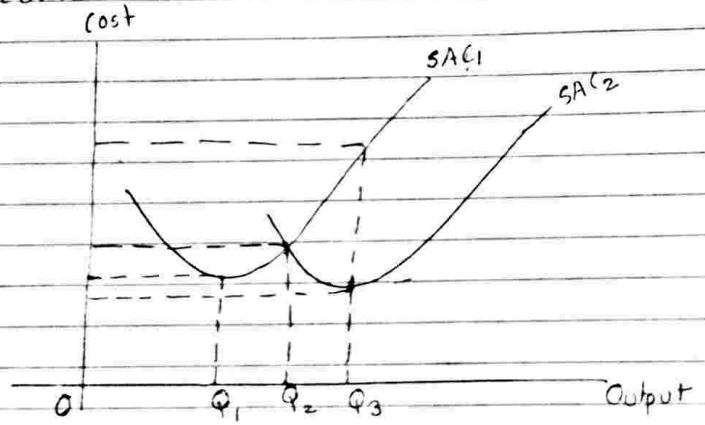
$MC = 30$.

$MC = 250 - 330$

$= 80$.

Long run average cost curve (LAC) :-

Long run average cost curve is obtained with the help of short run average cost curve. It is also known as envelope curve. In long run producer has to make various plans. so LAC is also known as planning curve.



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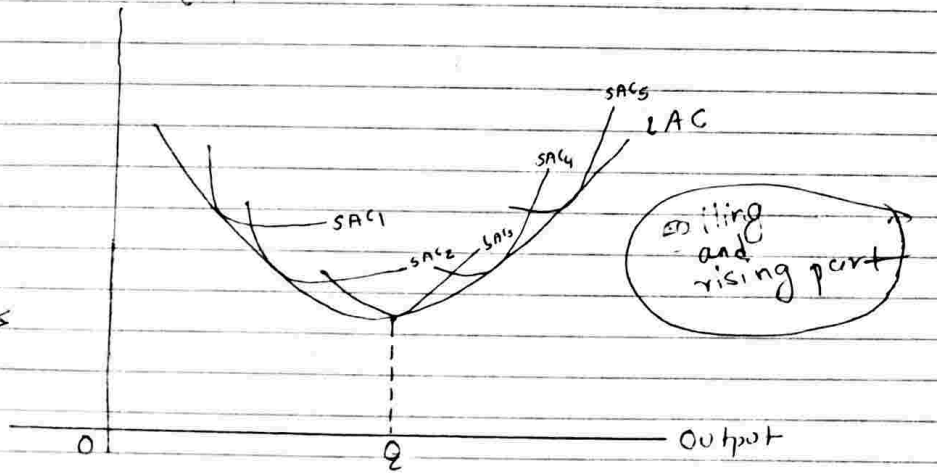
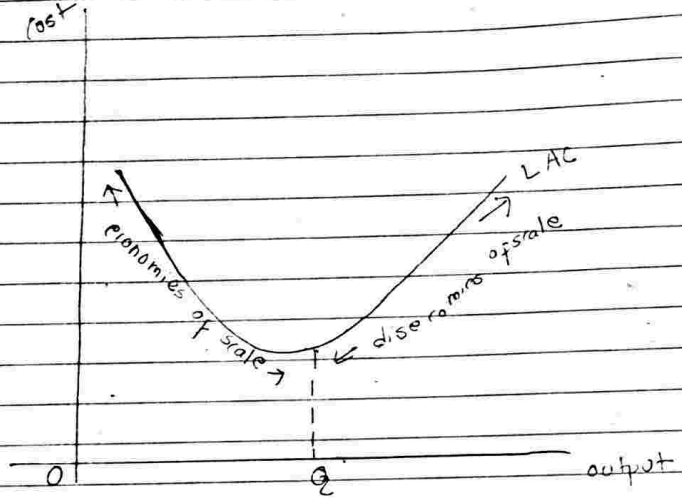
In the above figure, for simplicity, two short run average cost curves SAC_1 and SAC_2 are drawn where SAC_2 is more effecient than SAC_1. For Q_1 level of output producer uses ~~cost~~ First plant SCC_1. To produce Q_2 level of output producers has two options either to use SAC_1 or SAC_2. Since, average cost of production is same from both plants producer uses first plant. But to produce Q_3 level of output, producer uses SAC_2 because average cost of production is less using SAC_2, compared to SAC_1. In long run there are not only two plants, but many plants. So, with the help of these plants we get long run average cost curve.



In the above figure, LAC represents Long run average cost curve For simplicity there are 5 short run average cost curves SAC_1, SAC_2 SAC_3 and SAC_5. The falling part of

SAC touches the falling part of LAC. The minimum point of SAC touches the minimum point of LAC. The rising part of SAC touches the rising part of LAC.

Why LAC is U-shaped?



The reason for U-shaped LAC is economies and diseconomies of scale. At the time of economies long run average cost decreases. But at the time of diseconomies long run average cost increases. There are two types of economies.

(1) Internal economies
(2) External economies

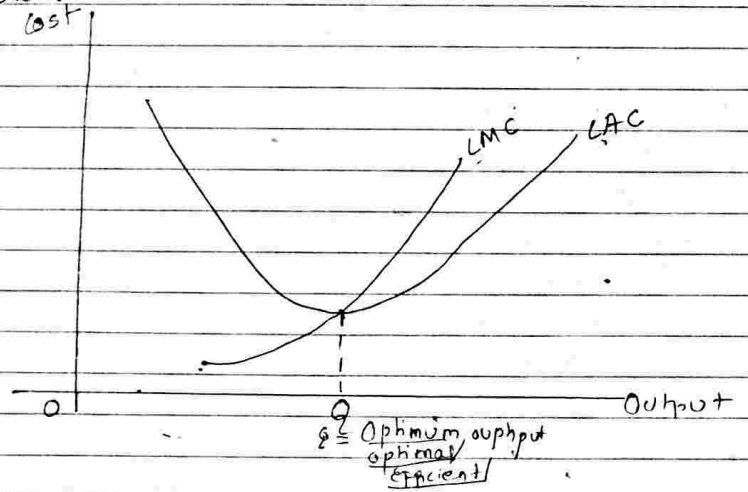
1 Internal economies

Internal economies occurs within the firm. There are various types of internal economies such as managerial economies, economies in transportation, bulk purchasing of raw material, technological economies, financial economies, risk bearing economies (product diversification and market diversification.)

2. External economies

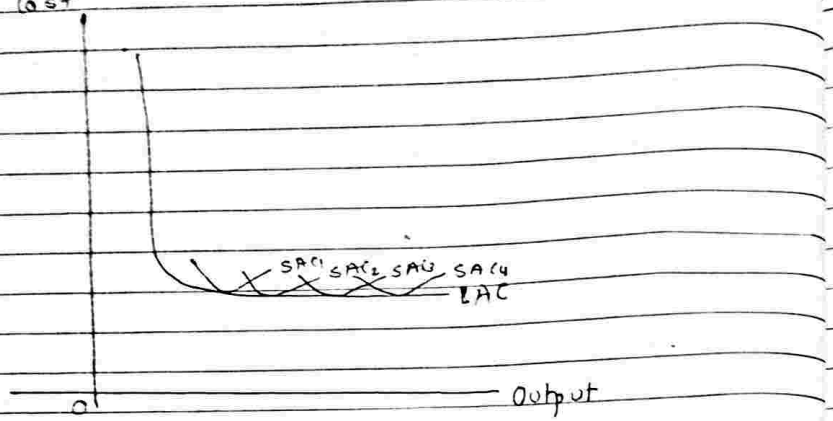
External economies occurs if there is group of firm. In case of group of firm (industry), total cost can be shared by various firms. For example :- Industrial training conducted by group of firms is external economies.

Note :-



LMC passes through minimum point of LAC.-

L-shaped LAC



All plants have equal level on minimum cost in L shaped LAC.

Different types of cost

1. Money cost
2. Real cost *
3. Implicit cost *
4. Explicit cost
5. Opportunity cost *
6. Accounting cost
7. Sunk cost

same + = Economic cost

1. Money cost

If the cost is expressed in terms of money it is said to be money cost. For example :- Salary of staff.

2. Real cost

It is the contribution of factors of production without any receipt. For example Contribution of family member of producer without any receipt is ~~implicit~~ real cost.

3. Implicit cost

It is the contribution of factors of production that a producer already has. For example :- Cost of building, cost of vehicles that a producer already has is implicit cost.

4. Explicit cost

Explicit cost is opposite of implicit cost. It is the cost to the factors of production that a producer doesn't have. For example :- cost of buildings, cost of vechile that a producer doesn't have is explicit cost.

5. Opportunity cost.

Opportunity cost is the next best (second best) alternative which is sacrified (forgone). Suppose a person has Rs 15, he wants to buy a CD and book, price of CD is Rs 12 and price of book is Rs 14. Here both things cannot be purchased. If he purchase book then opportunity cost is CD.

6. Accounting cost

Accounting cost is also a money cost. If the cost is expressed in terms of accounting system it is said to be accounting cost.

7. Sunk cost

Sunk cost refers to the unrecoverable cost when the business is closed or when the firms leave the industry.

Example:- Advertisment cost.

Theory of revenue

Revenue refers to the total receipts of the firm by selling output in the market.

TR, AR and MR

Total Revenue (TR)

It is the revenue obtained by selling given units of output. In other words Total revenue is the sum of marginal revenue.

Mathematically, $TR = \Sigma MR$.

$TR = P \times Q$

Price × Quantity

Average Revenue

Average revenue is the ratio of total revenue and number of output sold.

$AR = \frac{TR}{Q}$

Average Revenue also represents price.

$AR = \frac{TR}{Q}$

$AR = \frac{P \times Q}{Q}$

$\boxed{AR = P}$

$MR = \frac{\Delta R}{\Delta Q}$

Marginal Revenue

It is the revenue obtained by selling additional unit of output. In other words marginal revenue is the ratio of change in total revenue and change in number of output sold.

$MR = \frac{\Delta TR}{\Delta Q}$

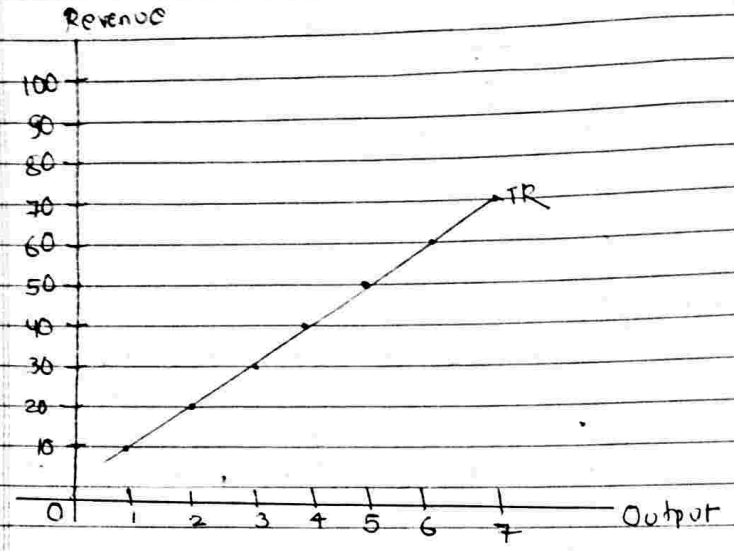
$MR = T_n - T_{n-1}$.

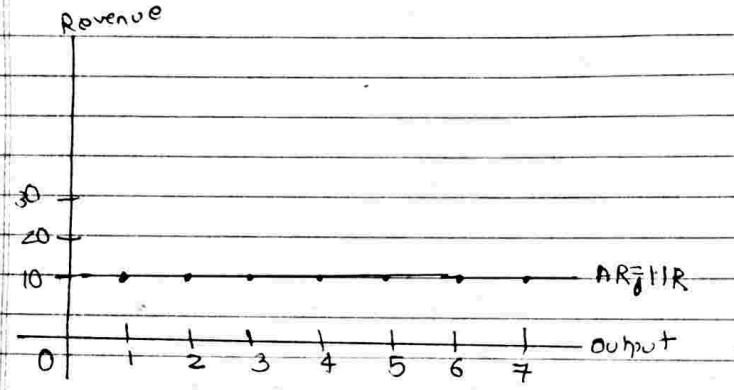
Derivation of revenue curves (TR, MR, AR) under perfect competition

To derive revenue curves under perfect competition, we assume that price of each unit of the commodity remains same.

Consider the following schedule

(Q) Output sold	Price (P)	T.R	A.R	M.R
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10
6	10	60	10	10
7	10	70	10	10





Observation

(1) TR increases continuously with rise in number of output sold.

(2) TR is straight line and it makes 45° with output ~~exces~~ axis.

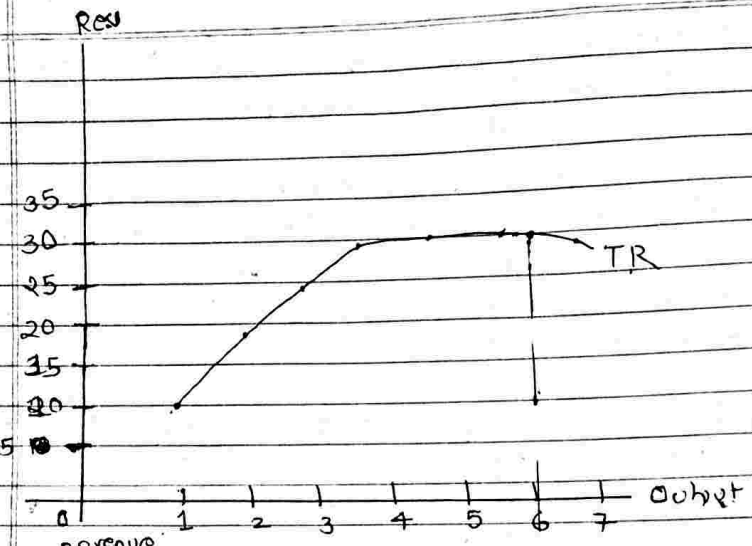
(3) AR and MR curve is represented by same line. ($P = AR = MR$).

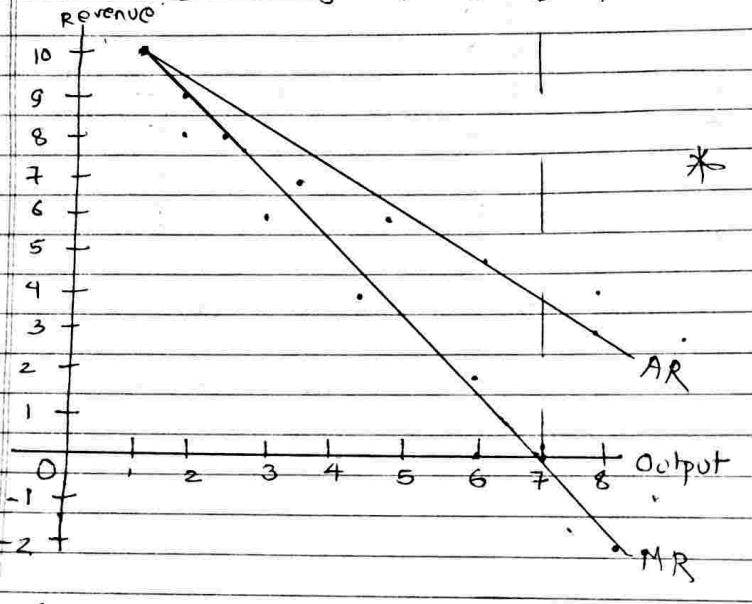
(4) AR / MR curve is parallel to output axis.

Derivation of revenue curve (TR, AR, MR) under monopoly and imperfect market

⇒ To derive revenue curves under monopoly & imperfect market we assume that price of each unit of the commodity decreases as we increase number of output sold. Consider the following schedule.

Output sold (Q)	Price (P)	TR	AR	MR
1	10	10	10	10
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4
5	6	30	6	2
6	5	30	5	0
7	4	28	4	-2





Observation:-

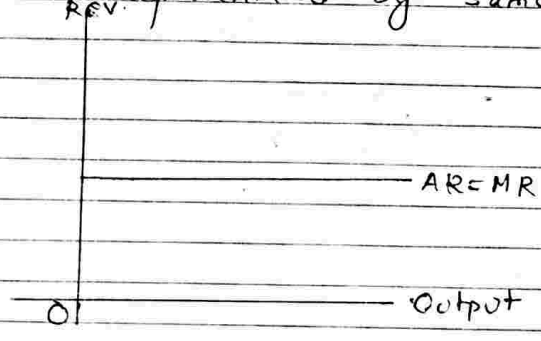
(1) TR increases upto certain limit then decreases.

(2) AR and MR curve slope downward from left to right but MR falls more rapidly than A.R.

(3) MR is negative
When MR > 0, TR increases.
When MR = 0, TR maximum.
When MR < 0, TR decreases.

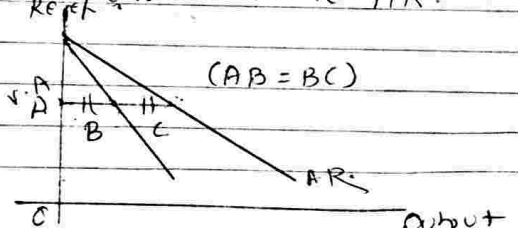
Relationship between AR & MR

(1) In perfect competitive market AR & MR curve is representated by same line (AR = MR)

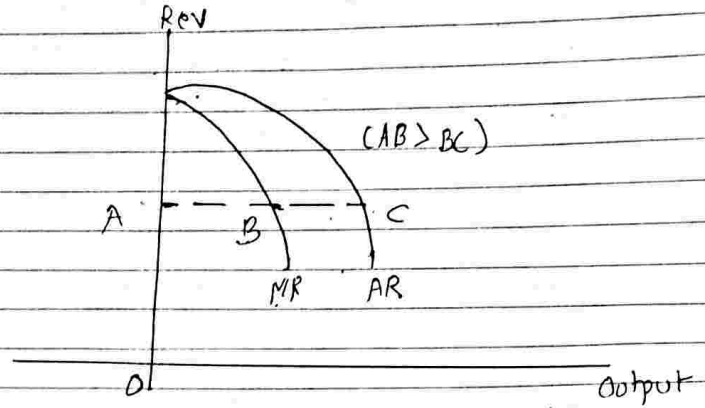


(2) In monopoly and imperfect market AR & MR curve slope downward from left to right but MR falls more rapidly than A.R. Here, we observe the following three cases:-

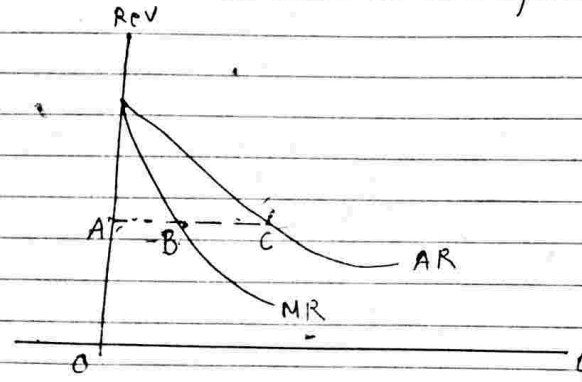
(a) If AR is straight line, MR is also straight line. In this case if we draw perpendicular line from AR to vertical axis the distance from vertical axis to MR is equa to the distance from MR to AR.



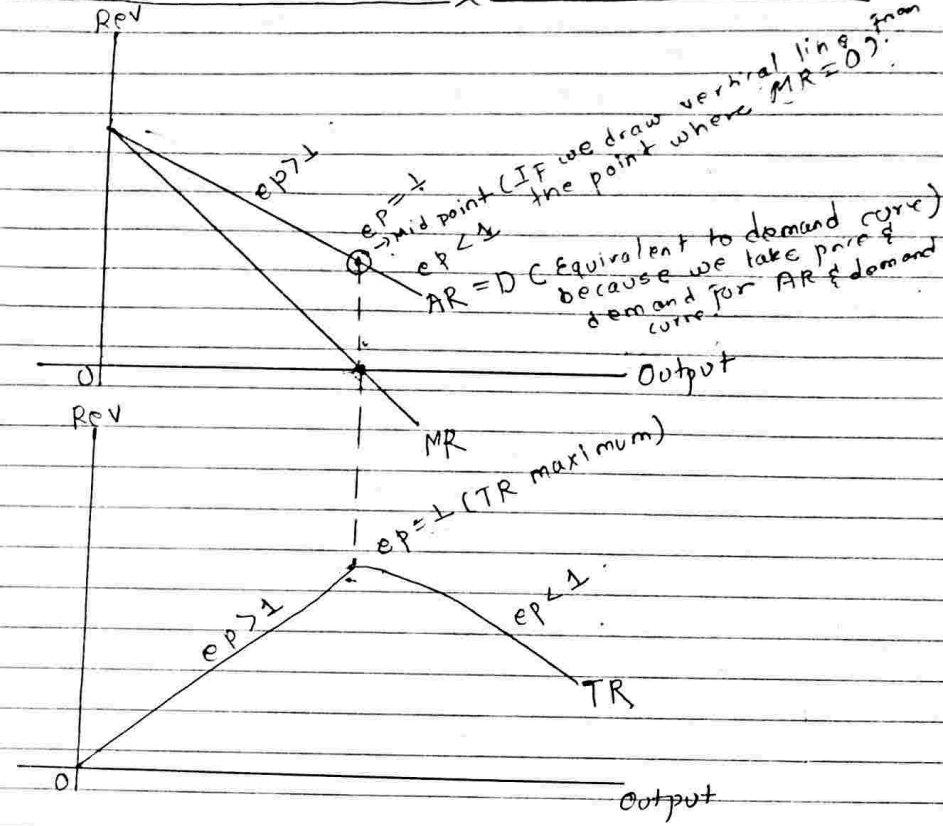
(b) If AR is concave to origin then MR is also concave to origin. In this case if we draw perpendicular line from AR to vertical axis, the distance from vertical axix to MR is ~~equal to~~ greater than the distance from MR to AR.



(c) If AR is convex to origin then MR is also convex to origin. In this case if we draw perpendicular line from AR to vertical axis, The distance from vertical axis to MR is less than the distance from MR to AR.



Relationship between Price elasticity of demand and revenue



When $ep = 1$, $MR = 0$

$\Rightarrow$ When $ep > 1$, MR +ve / MR greater than 0.

When $ep = 1$, TR is maximum, $MR = 0$.

When $ep < 1$, MR -ve / MR less than 0.

Formula for taking out ep

$$MR = AR\left(1 - \frac{1}{ep}\right)$$

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Ex
Calculate price elasticity of demand when marginal revenue is Rs 20 and price is Rs 40.

$$MR = AR\left(1 - \frac{1}{ep}\right)$$

MR = 20

Price 40

$$20 = 40\left(1 - \frac{1}{ep}\right)$$

$$0.5 = \frac{ep-1}{ep}$$

$$0.5ep = ep - 1$$

$$-0.5ep = -1$$

$$ep = 2 \#\#$$

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Market

Theory of price and output determination:

Market

- 0 → Perfect competition
  - Not decided by the firm
  - By the demand & supply
  - Firm is (price taker)
- Some control → Imperfect market
- (100) → Monopoly
  - (100% control over price by firm itself)
  - Firm is (price maker)

Imperfect market:
- Monopolistic competition
- Oligopoly
- Dipoly

Perfect competition

- Perfect competition is a market structure having the following charackrshics.

1. There is large number of buyers and sellers.
2. There is perfect knowledge among buyers and sellers about existing market.
3. There is freedom to entry and exist of firms in the industry.
4. All firms produce homogenous output under the industry.
5. No individual firm can influence in price.
6. Price is determined by demand and supply factors in the industry so firm is price taker.
7. There is no government intervension.

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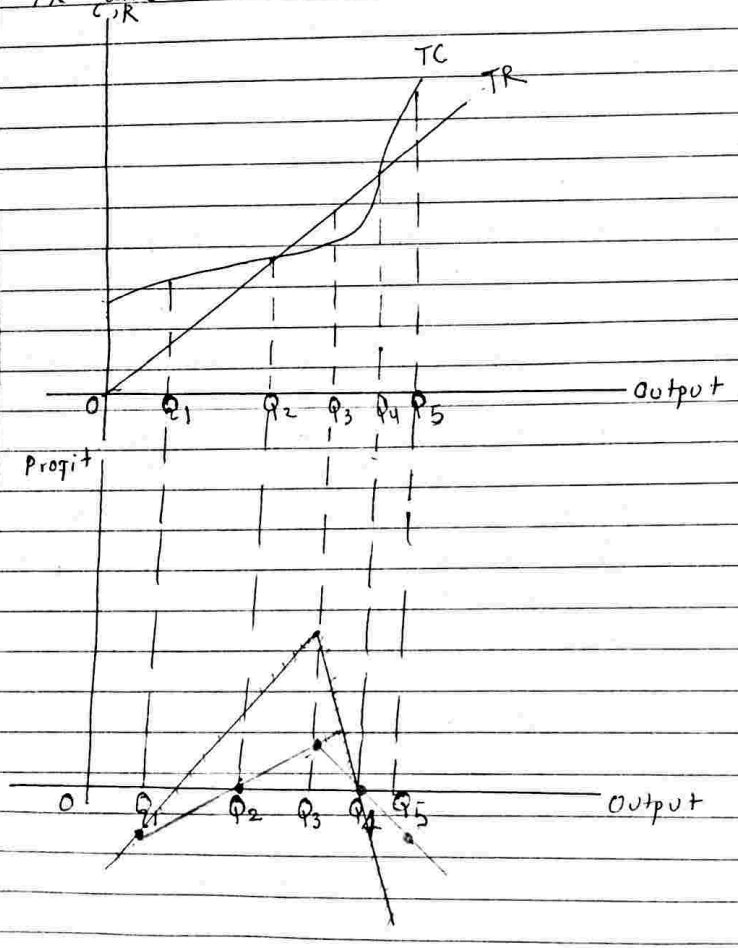
Firm's equilibrium under Perfect competition using TR-TC approach:

A firm is said to be in equilibrium when there is maximum profit to the firm. Since TR - TC = π (Profit) So, any firm will be in equilibrium when there is maximum gap between TR and TC.



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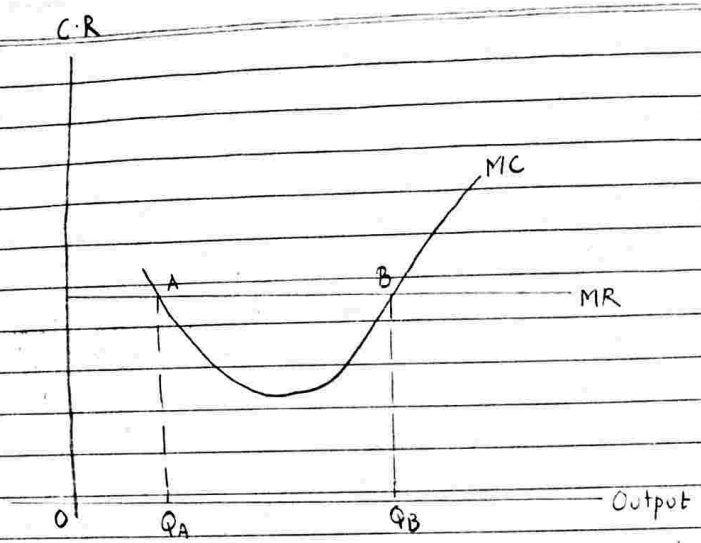
In the above figure (1st figure), TR represents total revenue curve which makes 45° with output axis. TC represents total cost curve which is drawn as usual. For Q_1 level of output TC > TR so there is loss to the firm. For Q_2 level of output TR = TC which shows breakeven condition. For Q_3 level of output TR > TC so there is profit to the firm. Similarly for Q_4 and Q_5 level of output there is breakeven condition and loss respectively to the firm. From this explanation it is clear that the maximum profit is obtained at Q_3 level of output so Q_3 is equilibrium output. Translating this information we get profit function (π) pie which is shown in the second figure.

Firms equilibrium under Perfect competition using MC-MR approach

The concept of firms equilibrium can be explained with the help of marginal cost and marginal revenue. The following two condition should be satisfied for firms equilibrium.

i) MC = MR (necessary)

ii) Slope of MC > slope of MR (Suppirient)
or
MC cats MR from below.



In the above figure MR represents marginal revenue curve which is parallel to output axis. MC represents marginal cost curve which is U-shaped. Marginal cost and marginal revenue are equal in both points A and B. But the second condition of equilibrium C condition i.e slope of MC > slope of MR) is not satisfied at point A. Both the conditions of equilibrium are satisfied at point B so point B is firm equilibrium point. Moreover the level of output is greater at point B compared to point A (QB > QA).

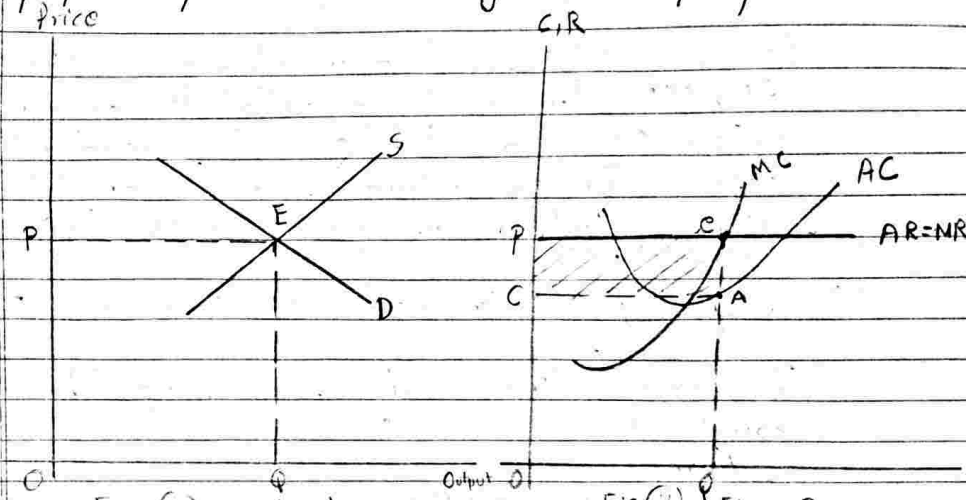
Price and output determination under Perfect competition in short run.

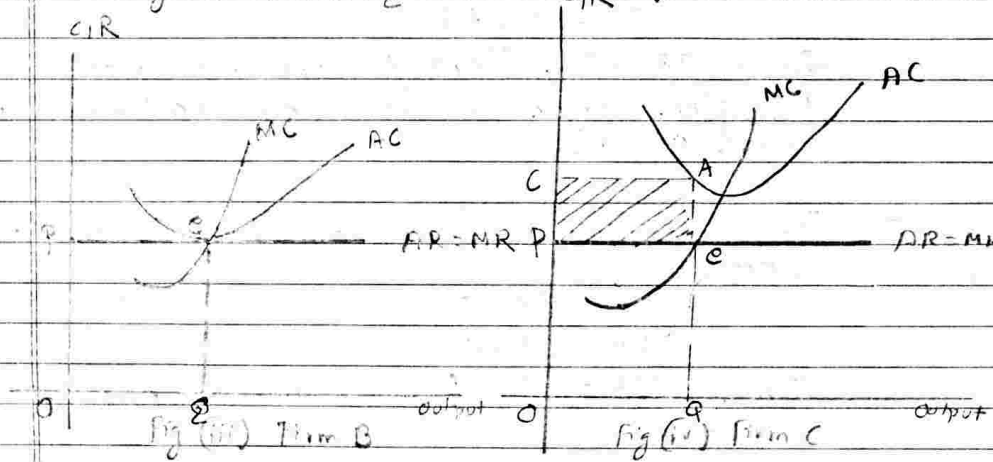
AR > AC
TR > TC

AR = AC
TR = TC

TC > TR ← loss

There is abnormal profit, normal profit or loss to the firm under perfect competition in short run. The condition of loss and profit depends on average cost of production.





Consider fig (i) which shows industry the demand and supply curves are intersected at Point E determining equilibrium price OP and quantity OQ. Since firm is price taker under perfect competition, it follow the price

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determine by the industry.

- Consider figure (ii) which shows firm A. AR/MR curve is parallel to output axis. AC and MC are U-shaped. MC passes through minimum point of AC. The firm's equilibrium point is e because
(i) MC = MR
(ii) Slope of MC greater than slope of MR.

The vertical line is drawn from equilibrium point

Here,
TR = OPEQ
TC = OCAQ

Since TR > TC, there is abnormal profit to the firm which is shown by the shaded area. (CPECA)

- Consider figure (iii) which shows firm B.

Here,
TR = OPeQ
TC = OPeQ

Since TR = TC, there is normal profit to the firm.

- Consider figure (iv) which shows firm C

Here,
TR = OPeQ
TC = OCAQ

Since TC > TR, there is loss to the firm which is shown by the shaded area.

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Price and output determination under Perfect competition in long run

There is always normal profit to the firm under perfect competition in long run. This is because there is freedom to entry and exist of firms in the industry and at the same time all firms produce homogenous output under the industry.

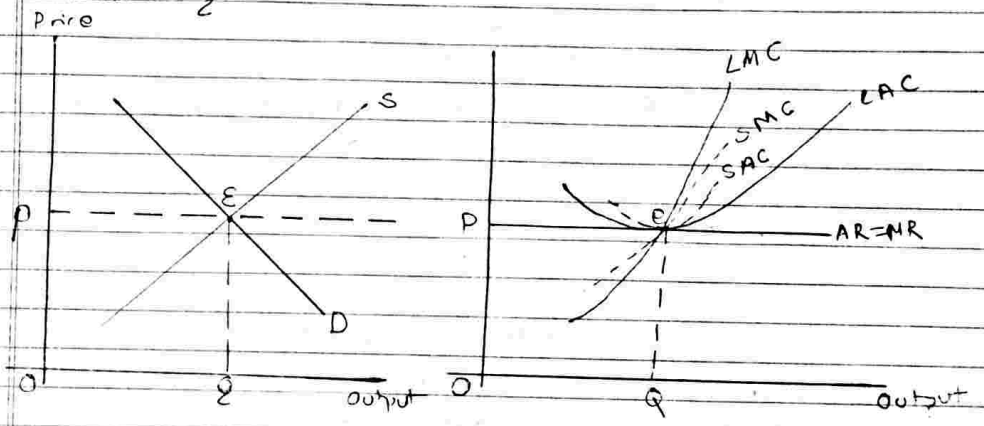


Fig (i) industry Fig (ii) firm

Consider Fig (i) which shows industry the demand and supply curve are intersected at point E determining equilibrium price OP and quantity OQ. Since firm is price taker. Since firm is price taker it follows the price determined by the industry. Consider fig (ii) which shows firm. AR, MR curve is parallel to output axix. LAC and LMC are U-shaped. LMC passes through minimum point of LAC. Suppose OQ level of output is produce

using SAC plant, SAC passes through min point of SMC. The long run equilibrium point of firm is E. because at point E,

$$LAC = LMC = SAC = SMC = AR = MR = P$$

The verticle line is drawn from equilibrium point.

Here,

$$TR = OPeQ$$
$$TC = OPeQ$$

Since TR = TC there is normal profit to the firm.

Monopoly

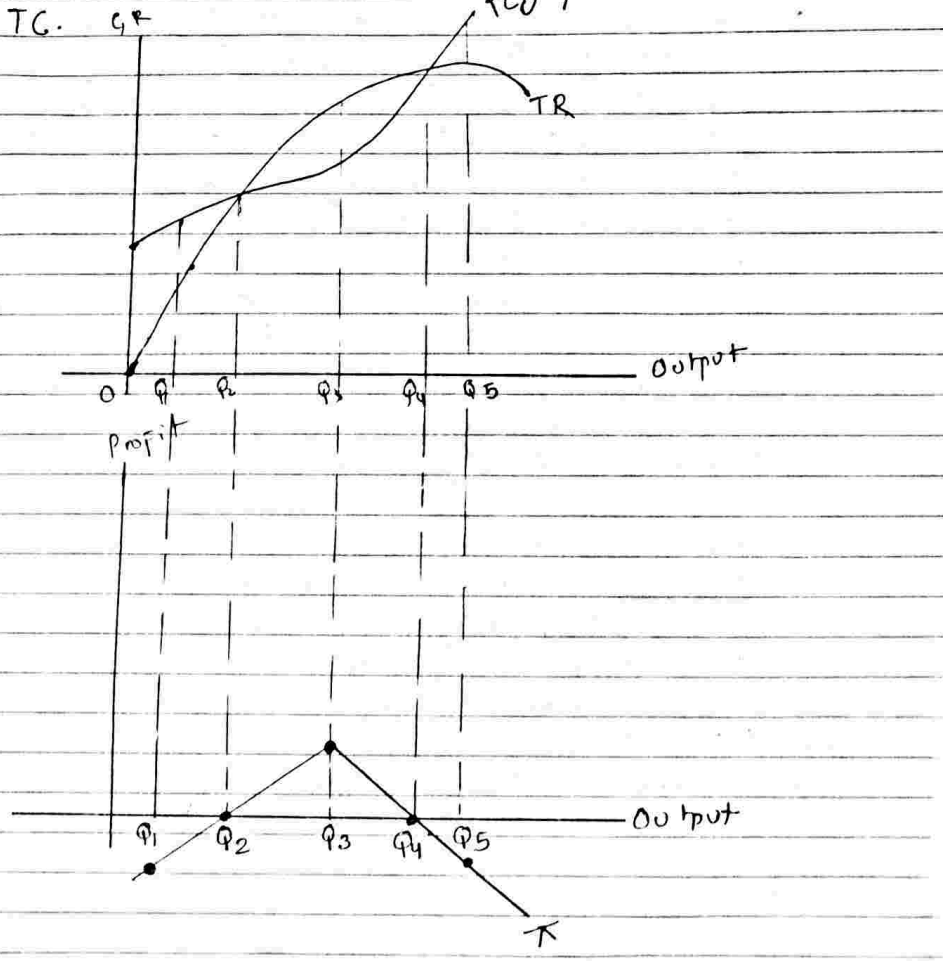
Mono + Poly
↓ ↓
Single Seller

Monopoly is a market structure having the following characteristics.

1. There is only one seller.
2. There is strong barrier to entry of new firms in monopoly.
3. Firm is price maker under monopoly.
4. There are no close substitutes of the product produced by the monopolist in the market.
5. There is downward sloaping AR, MR curve.

Firm's equilibrium under monopoly using TR-TC approach

A firm is said to be in equilibrium when there is maximum profit to the firm. Since TR - TC = π (Profit). So any firm will be in equilibrium when there is maximum gap between TR and TC.



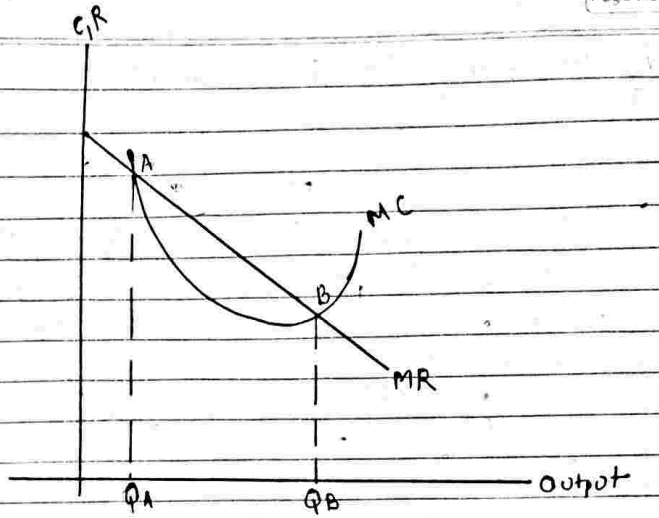
In the above figure (1st figure) TR represents Total revenue curve which increases upto certain limit and then decreases. TC represents total cost curve which is drawn as usual. For Q_1 level of output TC > TR so there is loss to the firm. For Q_2 level of output TC = TR so there is breakeven condition. For Q_3 level of output TR > TC so there is profit to the firm. Similarly, for Q_4 and Q_5 level of output there is breakeven condition and loss to the firm respectively. From this condition we can find that at Q_3 level of output there is maximum profit to the firm so Q_3 is equilibrium output. Translating this information we get profit function (π) which is shown in the second figure.

Firms under equilibrium monoply using MR - MC approach

The concept of firms equilibrium can be explained with the help of marginal cost and marginal revenue. The following two conditions should be satisfied to get firms equilibrium.

(i) MR = MC

(ii) Slope of MC > Slope of MR



In the above figure MR represents marginal revenue curve which is downward sloaping from left to right. MC represents marginal cost curve which is U-shaped. Marginal cost and marginal revenue curve are equal in both point A and B. But the second condition of equilibrium (condition i.e slope of MC > Slope of MR) is not satisfied at point A. Both the conditions of equilibrium are satisfied at point B so point B is firm equilibrium point. Moreover the level of output is greater at point B compared to point A ($Q_B > Q_A$).

Price and output determination under monopoly in short run:

There is abnormal profit, normal profit or loss to the firm under monopoly in short run. The condition of loss occurs due to less demand for the product produced

by the monopolist in the market.

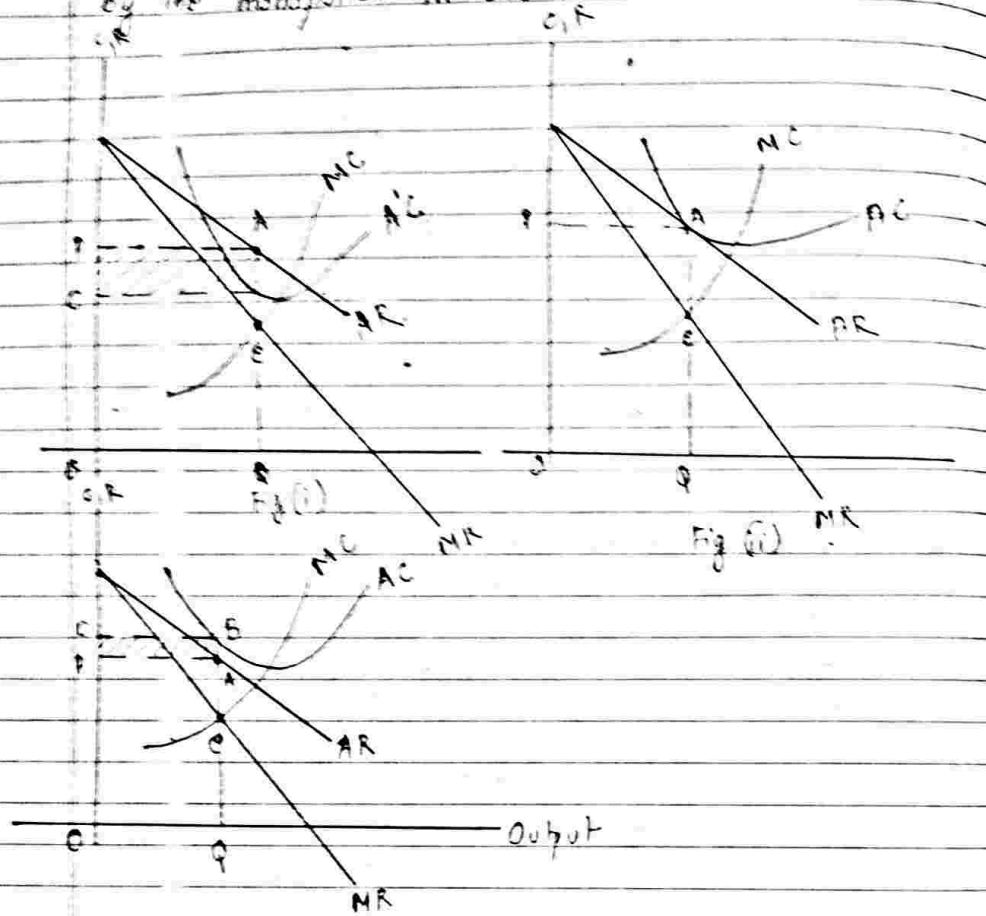


Fig (i) Fig (ii) Fig (iii)

Consider fig (i) AR and MR curves slope downward from left to right but MR falls more rapidly than AR. AC and MC are U-shaped. MC passes through minimum point of AC. The firms equilibrium point is E because at this point

(i) MC = MR

(ii) Slope of MC > Slope of MR.

The vertical line is drawn from equilibrium point.

Here,

TR = OPAQ

TC = OCBQ

Since TR > TC, there is abnormal profit to the firm which is shown by the shaded area. (CPAe)

Consider fig (ii)

TR = OPAQ

TC = OPAQ.

Since TR = TC there is normal profit to the firm.

Consider fig (iii)

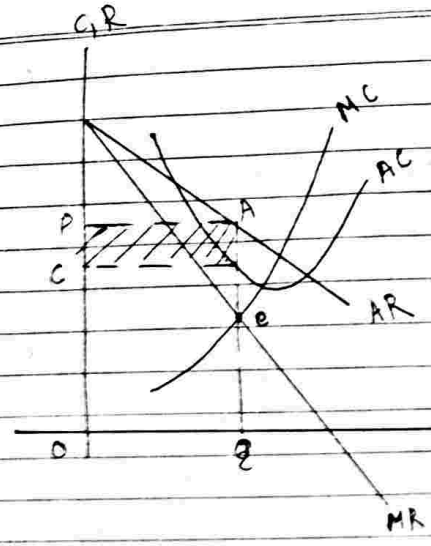
TR = OPAQ

TC = OQBC

Since TC > TR there is loss to the firm.

Price and output determination under monopoly in long run

There is always abnormal profit to the firm under monopoly in long run. This is because there are no close substitutes of the product produced by the monopolist in the market and at the same time firm is price maker under monopoly.



In the above figure, AR and MR curve slope downward from left to right but MR falls more rapidly than AR. AC and MC are U-shaped & MC passes through the minimum point of AC. The firm equilibrium point is e because at this point,

(i) MC = MR
(ii) Slope of MC > Slope of MR

The vertical line is drawn from equilibrium point Here,

TR = OPAQ
TC = OCBQ

Since TR > TC, there is abnormal profit to the firm which is shown by the shaded area (CPAB).

Price discrimination

Price discrimination is the charging of different prices for the same commodity. Price discrimination occurs in monopoly market and at the same time the following three conditions should be fulfilled for price discrimination.

(1) There should be strong hold of monopolist over the market.
(2) There is possibility of division of market in sub-markets.
(3) There is no possibility of transfer of goods from low price of market to high sub-market.

Monopolist charges different prices in different sub-markets on the basis of price elasticity of demand.

Monopolist charges higher price in case of inelastic sub-market and lower price in case of elastic sub-market.

Degree of price discrimination

There are three types of price discrimination.

(1) 1st Degree price discrimination
(2) 2nd degree price discrimination
(3) 3rd degree price discrimination.

(1) 1st Degree price discrimination.

1st Degree price discrimination occurs when monopolist charges different prices

for each and every units of the same commodity.
In practise 1st Degree price discrimination is very difficult. In case of 1st Degree price discrimination, consumer surplus becomes zero.

(2) 2nd Degree Price discrimination

2nd Degree Price discrimination occurs when monopolist charges higher price for some 1st units than subsequent units for the same commodity.
In other words 2nd degree price discrimination occurs when there is peak rate and off peak rate.

(3) 3rd Degree Price discrimination

3rd Degree Price discrimination occurs when monopolist charges different prices in different sub-market. Monopolist charges higher price in case of inelastic submarket and lower price in case of elastic sub-market.

Monopolistic competition

Perfect competition and monopoly are two extreme and opposite limit of market structure. The blend of these two market is imperfect market and ~~mope~~ monopolist competition is one of the imperfect market where there is where there is large numbers of buyers and sellers and the group of firm (industry) is known as product group.

Feabres

(1) There is large numbers of buyers and sellers.
(2) There is freedom to entry and exist of firms in the product group. (Few barrier)
(3) Firms produce differentiated product output under the product group.
(4) There is downward sloaping AR and MR curve.
(5) There is ~~known~~ non-price competition among the firms.

Firms equilibrium under monopolist competition using TR - TC approach

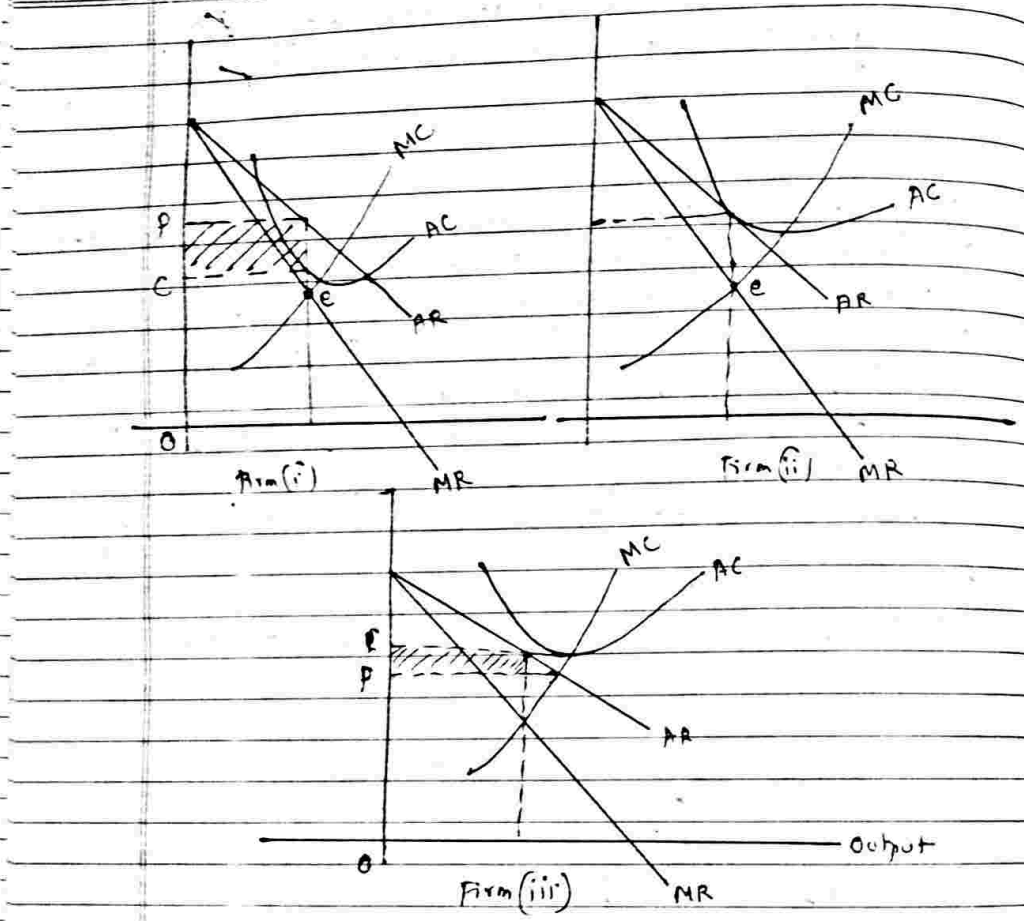
{ Same as monopoly }.

Firms equilibrium under monopolist competition under MR - MC - approach

{ Same as monopoly }.

Price and output determination under monopolistic competition in short run.

There is abnormal profit, normal profit or loss to the firm under monopolist competition ~~of~~ in short run. We can ~~se~~ explain this with the help of following figure.



Consider fig (i) AR and MR curve slope downward from left to right but MR falls more rapidly than AR. AC and MC are U-shaped. AC passes through minimum point of MC. The firms equilibrium point is E because at this price

(i) MR = MC

(ii) Slope of MR > slope of MC

The vertical line is drawn from equilibium point

Here, TR = OPAQ

TC = OCBQ

Since TR > TC, there is abnormal profit to the firm which is shown by the shaded area. (CCPAe).

Consider fig (ii)

TR = OPAQ

TC = OPAQ

Since TR = TC ther is normal profit to the firm.

Consider fig (ii)

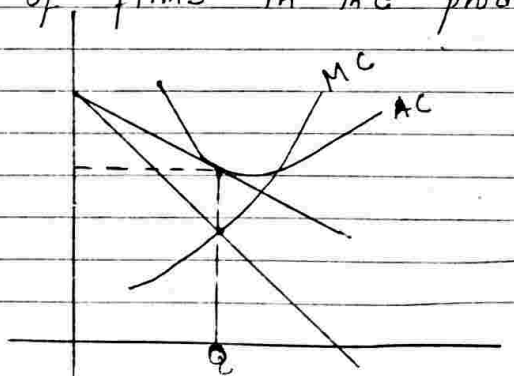
TR = OPAQ

TC = OQBC

Since TC > TR thee is loss to the firm.

Price and output determination under monopolistic competition in long run

There is always normal profit to the firm under mopopolistic competition in long run. This is because there is freedom to entry and exist of firms in the product group.



In the above figure, AR and MR curve slope downward from left to right but MR falls more rapidly than AR. AC and MC are U-shaped. AC passes through minimum point of MC. The firms equilibrium point is e and at this point

(i) MC = MR

(ii) Slope of MC > Slope of MR

Here,

TR = OPAQ

TC = OPAQ

Since TR = TC, there is normal profit to the firm.

Oligopoly

Oligo + Poly
few seller

Oligopoly is most prevailing market structure in the world where there is few number of firms. (up to 10). In oligopoly firms produce similar or differentiated output. If firms produce similar output it is said to be pure oligopoly or perfect oligopoly. If firms produce differentiated output it is said to be differentiated oligopoly or imperfect oligopoly. If there is only two firms under oligopoly it is said to be duopoly.

In oligopoly market there may or maynot be general agreement among the firms. If there is general agreement among the firms regarding price, output and market. It is said to be collusive oligopoly. If there is no general agreement among the firms regarding price, output and market, it is said to be non-collusive.)

Features

(1) Interdependency.

(2) In oligopoly firms are interdepent to each other in both cases collusive and non-collusive. In case of collusive oligopoly firm shows price leadership character and in case of non-collusive there is price war.

(3) Barrier to entry (difficult to enter an oligopoly and compete as a small company)

(2) Role of advertisment.

There is vital role of advertisment in oligopoly market. Without advertisment it is difficult to sell the output in the market.

(3) Group behaviour.

In oligopoly firm shows group behaviour character. This is because firms are interdependent to each other.

(4) Demand curve isn't fixed.

In oligopoly market when one firm changes the price other firm also changes the price so demand curve isn't fixed.

Moreover, we observe kinked demand curve in oligopoly market.

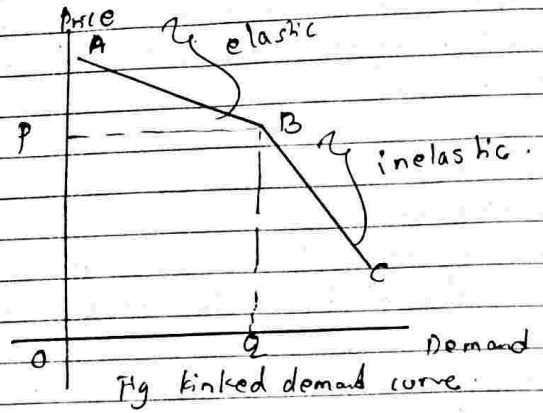


Fig kinked demand curve.

Primary sector - agriculture
Secondary " - industry
Tertiary " - service

Nepalese Economy

Characteristics of Nepalese Economy (Developing countries).

1. Predominance of agriculture
2. High Rate of Growth of Population.
3. Deficiency of capital
4. Technological backwardness
5. Low level of productivity
6. Underdevelop infrastructure.
7. Low level of living.
   - cost of living - high, - living standard - low.

Agriculture

Importance of agriculture

1. Major source of food
2. Employment opportunities
3. Major source of industrial raw material.
4. Major source of national income
5. Major source of export.
6. Basis of Tertiary sector.

Problems of nepalese agriculture

1. Lack of sufficient credit facility
2. Lack of marketing facility
3. Lack of irrigation facility
4. Lack of Systematic agricultural research.
5. Lack of modern technology.
6. Lack of land reform policy
   & land fragmentation.

Remedies

1. Provide sufficient credit facility.
2. Provide marketing facilities.
3. Provide imigation facilities.
4.

Agriculture Marketing

Agriculture Marketing not only includes buying and selling of agricultural products but also quality controls, grading, uniformity in measurements e.t.c.

Problems of Agriculture Marketing

1. Lack of Adequate Institutional Credit.
2. Lack of transport facility
3. Lack of warehouse.
4. Existance of middle-man.
5. Lack of Grading and Standerdized Facilities.
6. Lack of uniform weights and measurements.

Remedies

1. Provide adequate Institutional credit.
2. Provide transport facility
3. Provide warehouse
4. Ponde grading and Standerdized Facilities.
5. Provide uniform weights and measrements.

Sources of Agriculture Finance

Mainly there are two sources of agriculture finance.

(1) ~~Insitiutie~~ Institutional sources
(2) Non-institutional sources.

(1) Institutional sources

Institutional sources includes

(i) Co-operative society
(ii) Agriculture Development Bank.
(iii) Commercial Banks.
(iv) Grameen Bikash Bank.
(v) Grameen Swabalamban Fund

(2) Non-institutional sources

Non-institutional sources include.

(i) Moneylenders and landlords.
(ii) Traders and Private Borrowings.

Tourism Industry

People who travels from one country to another or one place to another place within the country are known as tourist. The tourist related business like hotels, motels, restrants, travel agency, trekking agent, rafting, paraglyding, bugee jumping is known as tourism industry.

Role of tourism industry

(1) Foreign Exchange earning
(2) Employment opportunities.

(3) Support to develop infrastructure.
(4) Cultural Exchange
(5) Promotion of Cottage industry.

Problems of Tourism industry.

1. Lack of transport facility.
2. Lack of recreation facility.
3. Lack of quality Hotels.
4. Lack of tourist centre.
5. Lack of Security
6. Lack of effective government policy.

Remedies

1. Provide transportation facility.
2. Provide recreation facility.
3. Provide quality hotels.
4. Provide tourist centres.
5. Provide Security.
6. Provide effective government policy.

Prospects of tourism industry

(1) Natural Beauty
(2) Ancient Art and Architecture
(3) Religious Places
(4) Cultural Variety
(5) Climatic Variety
(6) Birthplace of Brave Person.

Industry

Industries play vital role in rapid economic growth of nation. It is a backbone of economic growth. The first organized industry of Nepal is Biratnagar Jute Mill. on the basis of investment industries are classified on 4 types.

(1) Cottage industry. less than 10 million.
(2) Small scale industries up to 10 " .
(3) Medium scale industries. = 10 - 50 million
(4) large scale industries. = above 50 million

Importance of cottage and small scale industry

(1) Employment opportunities
(2) Utilization of local resources
(3) Easy to establish.
(4) less Requirement of capital
(5) Increase government revenue.
(6) Promote Handicrafts.

Problems of cottage and small scale industries

(1) Difficult to compete with large industries.
(2) Lack of market facilities.
(3) Lack of protection.
(4) Existance of middle man.
(5) primitive technology.
(6) Lack of infrastructure.

Importance of medium and large scale industry.

- Rapid economic growth.
- Modernization of agriculture.
- Capital formation
- Increase government revenue
- Increase export and reduce import.
- Utilization of resources

Problems of medium and large scale industry

- lack of adequate capital
- lack of infrastructure facility
- limited market
- lack of effective industrial policy
- Absence of Entrepreneurial Class
- Irregular Supply of Raw Materials

Transport and Communication

- Role of Transport and communications in Economic Dev:

(1) Dev. of primary sector.
(2) Dev of Secondary sector.
(3) Dev of tertiary sector.
(4) Market expansion
(5) Mobility of factors of production.
(6) National integration
(7) Security

Transport

Means of transport

a. Surface transport
b. Air transport

a. Surface transport

Surface transport ~~ind~~ includes:-

(i) Road transport - Nepal big popⁿ use this, highest % age of popⁿ
(ii) Railway - lim
(iii) Ropeway
(iv) Cable car

Railway - limited, development in low pace may be because of geographical, Janakpur - Jaynagar 52 km.

Ropeway - Makhwanpur district - hetauda
- kathmandu district - tekv.
Currently it is not in operation.

Cable car - Chitwan - kurintar, Manakamana of Gorkha.
"Manakamana Darshan Pvt. Ltd".

~~Means~~ Air transport → Hilly region. sole means of transport. 1st → Nepal Airlines.
It provides facility, currently others are also there,
→ 25 registered airports.
32 airlines have taken licences.

Means of Communication

1. Postal Service
2. Telecommunication service
3. Radio - Broadcasting services
4. Television service
5. Newspaper

Postal - oldest, 1 general post office
Regional post office - 5.
District post office - 70
Area post office - 842

Telecommunication - first service provider (NTC).
NTC - provides telecome through landline, telephone, mobilephone provides STD, ISTD services, email, internet services, currently other companies are private

Radio - Broadcasting services - First S.P is Radio-Nepal, Short wave, Medium wave frequency and FM in 3 types. Radio Nepal - 2007 B.S, ~~25 of~~ 19 different languages,

T.V Broadcasting service - Nepal television, effective because it is both audio-and visual; other programs, 2042 BS, other entertaining program, other private television.
Major newspaper - Gorkhapatra, Rising Nepal, Kantipur.
6590 newspaper, all together and magazines.

International Trade

Meaning
It is also known as foreign trade. It referes to the exchange of goods and services between countries that is foreign trade is cross-boarder trade. There is use of foreign currency in international trade.

Importance of international trade

1. Benefits of Specialization
2. Benefits to Consumer - Price is low to consumers.
3. Market expansion
4. Prevention of monopoly
5. Cultural development

Free trade

GATT → General agreement on Trade on Tariff
↳ WTO ← SAFTA / NAFTA → Free trade area

Free trade refers to the no restriction in trade.

EU → Economic union
→ Free trade zone

Custom union → Common external tariff → taxing external.

Arguments in favour of trade

1. Benifits of Specilization
2. Benifits to consumers
3. Market expansion
4. Prevention of monoply

(5) Cultural exchage

Arguments agimst free trade

(1) Difficult to compete with developed countries.
(2) It increases dumping → supply low cost goods to other countries
(3) Increase dependency.
(4) No safeguard to infant industry.
(5) Balance of payment arguments.

Trade protection

Protection means protecting the home industries from foreign competition.

Methods of trade protection

(i) Tariff - tax on import
(ii) Quota - volume restriction / yeti vanda badi nagauchha
(iii) Exchange control
(iv) Export subsidy.

Arguments in favour of trade protection

1. Safeguard to infact industry.
2. Increase employment.
3. Prevent dumping
4. Increase self-sufficiency
5. 'Balance of Payment' Argument
6. Patriotism Argument.

Arguments against trade protection

1. Increase monopoly
2. Loss to the consumers
3. Producer becomes less competitive
4. Unequal distribution of income
5. Conflict between countries.
   ↳ Mutual relationship won't be good.

Problems of Nepalese Foreign Trade

1. Open boarder
2. Landlocked countries
3. Production of bulky materials.
4. Lack of quality product (Low quality).
5. Difficult for compete with developed countries.
6. Lack of effective government policy.
7. Less export more import.
8. Lack of co-ordination 8. Lack of research.

Balance of Trade (BOT):

The main composition of international trade are export and import composition. It refers to the difference between value of export and value of import. If value of export is greater than value of import, it is said to be surplus trade. If the value of export is equal to the value of import, it is said to be balanced trade. And, if the value of import is greater than value of export it is said to be deficit trade. i.e.

$X - M > 0$: Surplus trade
$X - M = 0$: Balance trade
$X - M < 0$: Deficit trade

Balance of Payment (BOP)

It shows the total financial transactions between the country and rest of the world. In other words balance of payment is the difference between total receipts from foreign countries and total payment to the foreign countries. If total receipts is greater than total payment it is said to be favourable BOP. If total payment is greater than total receipts then it is said to be unfavourable BOP.

Balance of payment should be balanced.

Balance of payment is measured mainly in three accounts :- Current account, Capital account and financial account.

Current account includes visible and invisible goods (Service), income from abroad, current transfer.

Capital account includes buying and selling of capital asset.

Financial account includes capital outflow and capital inflow.

Unit - 1

Introduction to Microeconomics

Origin of economics

The word economics is originated from greek word 'Oikonomia' having the meaning household.

Defination of economics

A. Wealth defination
B. Welfare defination
C. Scarcity and choice

A. Wealth defination:

- This defination is given by Adam Smith.
- Adam Smith - Classical economist.
- Adam Smith poporaly known as father of economics.
- He published the book in title "An equire into the nature and causes of wealth of nation". Shortly known as wealth of nation.
- The book was published in the year 1776.
- According to Adam Smith economics is science of wealth.

B. Welfare defination

- This defination is given by Alfred Marshall.
- Alfred Marshall - neo classical economist.
- He published the book in title Principles of Economics.
- The book was published in the year 1890.
- According to Alfred Marshall economics is science of material welfare.

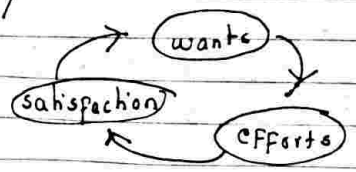
- Economic is the study of mankind in ordinary business of life. but it is not concerned with extra ordinary business of life.

C. Scarcity and choice defination.
- This defination given by Lionel Robbins..
- He is known as modern economist.
- He published the book Nature and Significance of Economic Science.
- The book was published in the year 1932.
- According to Robbins economics is science of scarcity and choice.
- Resources are limited but human wants are unlimited.
- All human wants cannot be pulfilled at a time. So we have to make choice on the basis of urgency.

Subject Matter of Economics

A. Classical Approach

According to Adam Smith, subject matter of economics is wealth. According to Marshall, subject matter of economics is material welfare. According to Robins subject matter of economics is scarcity and choice.
Subject matter of economics also can be presented in cyclical form as



B. Modern Approach

According to Modern approach subject matter of economics is microeconomics and macroeconomics.

C. Others

Production, Distribution, Exchange, consomptions public finance.

Nature of economics

1. Pure science ?

Laws of pure science are 100 % ptrue. For example :- $C + O_2 \rightarrow CO_2$ but economic laws are not 100 % true. For example law of demad, law of diminishing marginal utility. So, economics is not pure science.

2. Social science ?

All economic activities are affected by the society that is production patent is influenie by society. So economics is social science.

3. Art ?

Art refers to the creation of new things In economics there is planning, policies, program strategies which require creativity. So, economics is art.

Thus, we conclude that economics is not pore science but it is social science and an art.

Basic economic issues

(i) Scarcity and Choice
(ii) Allocation of Resources
(iii) PPC

(i) Scarcity and Choice

The word scarcity is a relative term. It depends on demand and supply factors. Scarcity occurs when demand exceeds supply. Resources (means) are limited but human wants (ends) are unlimited. All human wants cannot be fulfilled at a time. So, we have to make choice. There are various alternative uses of resources

(ii) Allocation of Resources

(1) What to produce?

What types of goods (consumer goods, capital goods, military goods) and at what quantity is to be produced.

(2) How to produce?

Weather the production technique is labour intensive or capital intensive. Labour intensive means more priority given to labour and capital intensive means more priority given to machine.

(3) For whom to produce?

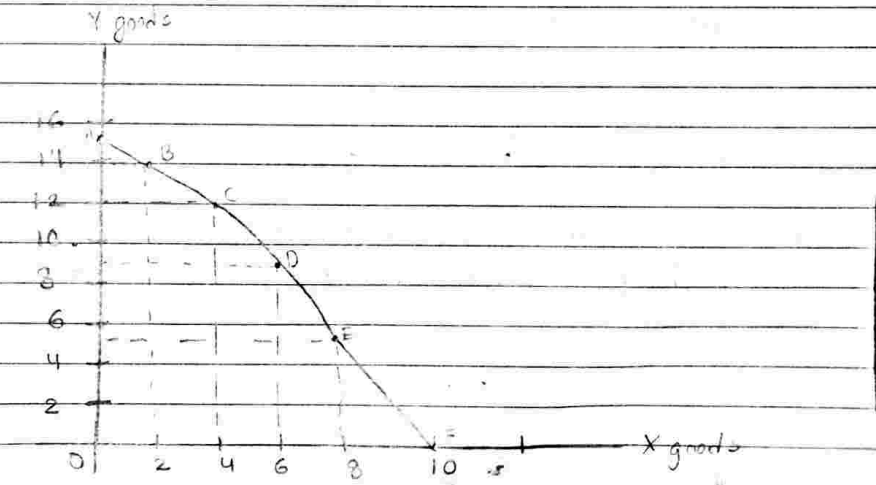
Weather the produce goods is for equitable distribution or functional distribution. Equitable distribution means produced goods is for all and functional distribution means produce goods for particular group.

(iv) Production Possibility curve (PPC) (Production Frontier) (PPF) (Production transformation curve) (PTC)

PPC is based on the assumption of full employment. It is the locus of points obtained by the combination of any two goods. (X and Y goods) that an economy can produce with full utilization of resources i.e every points at PPC indicate resources are utilized efficiently.

Consider the following schedule.

Combination	Y goods	X goods
A	15	0
B	14	2
C	12	4
D	9	6
E	5	8
F	0	10

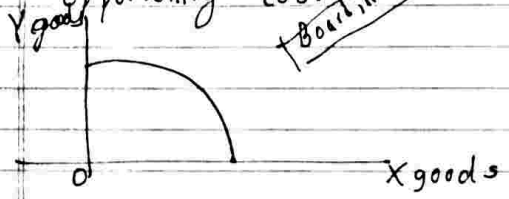


In the above figure no of X good is taken along horizontal axis and no of Y good is taken along vertical axis. At point A, 15 units of Y good is produced without producing X good. Here resources are fully utilized. At point B two units of X goods and 14 units of Y goods are produced. Here also resources are fully utilized. Similarly other combinations are C(4, 12) D(6, 9), E(8, 5), F(10, 0). Joining all these combinations A, B, C, D, E, F, we get a curve which is known as production possibility curve and all these points show full utilization of resources.

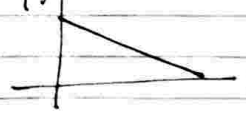
For MCQ

Anlyasis on PPC

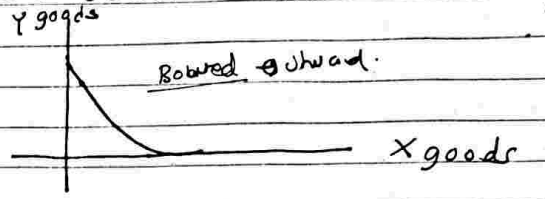
(1) Generally PPC is concave to origin. In this case we observe increasing in opportunity cost.



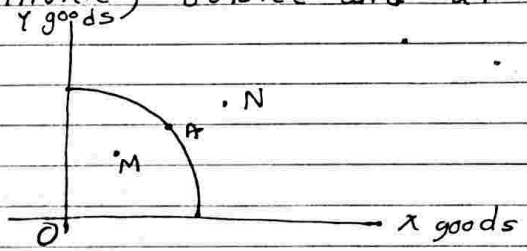
(2) Sometimes PPC may be linear / straight line. In this case we observe constant opportunity cost.



(3) Sometimes PPC may be convex to origin. In this case we observe decrease in opportunity cost.

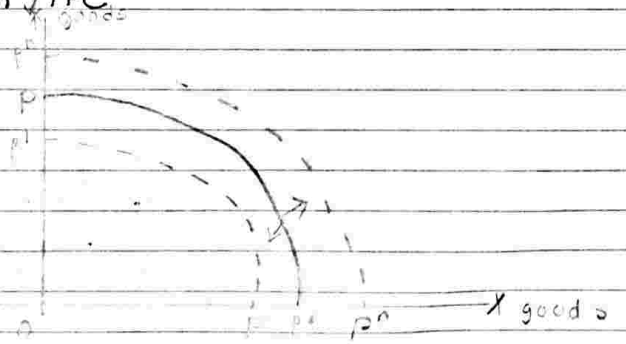


(4) Points inside, outside and at PPC.



- Point M is inside PPC. This shows underutilization of resources.
- Point A is at PPC. This shows full utilization of resources.
- Point N is outside PPC. This shows unattainable point with existing resources.

(5) Shift in PPC.



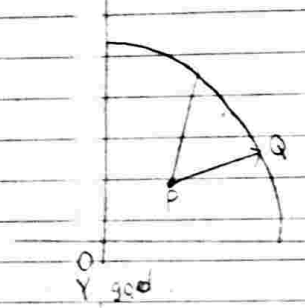
PPC shift outward due to the following reasons

(i) Economic growth
(ii) Increase in population
(iii) Technological advancement
(iv) Increase in productivity of labour
(v) Increase in capital stock.

Inward → Depletion of natural resources.

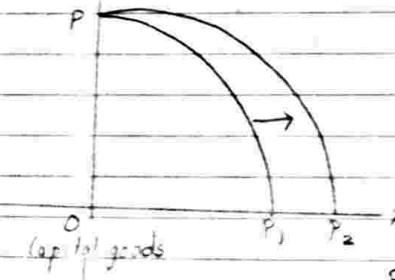
Note :-

(1)



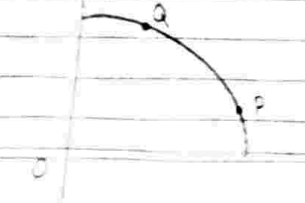
This shows decrease in unemployment. That is why it is full employment.
Employment - is not cause for shift

(2)

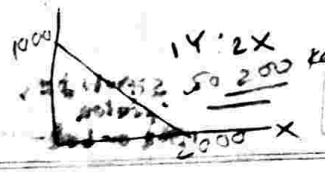


Increase in specialization in X-good.

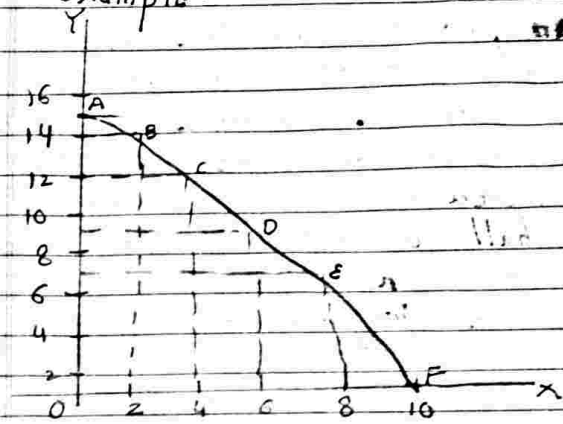
(3)



Point P shows current living standard high, Future living standard low.
Point Q shows current living standard low future living standard high.



Example.



(Q) What is the opportunity cost moving from A to B?
→ 1 Y.
(Q) Moving from B to C?
→ 2 Y
(Q) ~~Moving from~~ To produce 2 units of X?
→ 1Y
(Q) Moving from F to E.
→ 2 X

Positive and Normative Economics (science)

Positive → Positive statements are those statement where we can put the questions like what is, what was and what will be. These are direct statements and do not give any opinion. For example :- GDP growth rate of Nepal is 3.6%. Accordings to Robins economics is positive science.

Should be → Normative
Opinion
Good or bad → Normative

Normative → Normative statements are those statements where we can put the questions like what should be or what ought to be. Normative statement give opinion. Example :- Various productive industries should be established in Nepal to increase GDP. According to Alfered Marshall economics is Normative science. Moreover normative statements are based on value judgement.

Basic differences between microeconomics and macroeconomics

	Microeconomic	Macroeconomics
(i)	The word micro is derived from greek word "mikros" having the meaning small.	(i) The word macro is derived from greek word "makros" having the meaning large.
(ii)	So microeconomics is the study of individual unit of economic variables such as price, income, demand, supply, theory of firm/industry.	(ii) So macroeconomics is the study of economics as a whole (aggregate study) such as inflation, deflation, aggregate demand, aggregate supply, national income, employment, unemployment, consumption, saving, investment, monetary policy, fiscal policy.
(iii)	Microeconomics is also known as price theory.	Macroeconomics is also known as income and employment theory.
(iv)	Microeconomics is older than macroeconomics.	Study of Macroeconomics started after the publication of book "General Theory" by J.M. keynes in 1936.
(v)	Scope of microeconomics includes theory of demand and supply, theory of consumer behaviour, theory of production, theory of output pricing, theory of factor pricing. (Rent, Labour, organization wages, wages, profit)	Scope of macroeconomics includes macroeconomic theory (income theory, employment theory, price establishing theory, macroeconomy problems (inflation, unemployment), macroeconomic policies (monetary policy, fiscal policy).
(vi)	Study of microeconomics is also known as slicing method.	Study of macroeconomics is also known as lumping method.

Scope of microeconomics

1. Theory of Demand.
2. Theory of consumer behaviour
3. Theory of production
4. Theory of output pricing
5. Theory of factor pricing

Date
Page No.

Use / Importance of microeconomics

1. To understand the operation of economy.
2. To provide tool for economic policy.
3. Efficient allocation of resources.
4. Useful in international trade
5. Useful in Business Decision making

~ Use / Importance of microeconomics in business decision making

1. Optimal Resource Allocation
2. Basis for Prediction (Forecasting).
3. Price determination
4. International trade (Useful)
5. Linear programming.

Revision

Q. Why demand curve slope downward? / How does law of demand operates? / Why there is inverse realionship between price and demand?

→ (i) Price effect
(ii) Income effect
(iii) Substitution effect
(iv) Law of diminishing marginal utility
(v) Multiple uses

+ve part MU represents demand curve.
-ve part doesn't " " ".

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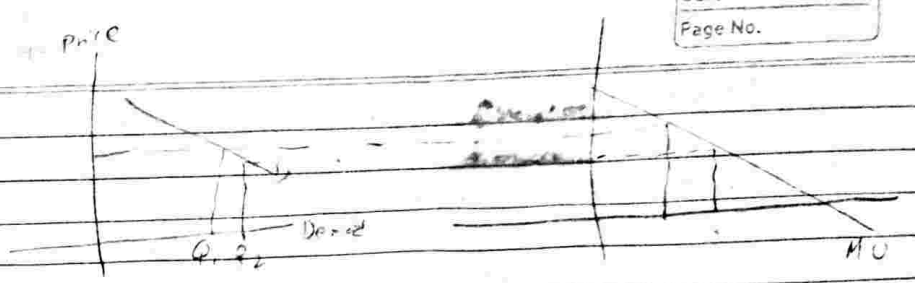


(Q) Explain individual and market demand curve.
{ Individual – defⁿ only
Market – defⁿ + table + graph.
Indiv Market.

Date
Page No.

Reasons for increasing returns

(i) Increase in productivity of factor inputs.
(ii) Increase in specialization indivisibility of factor inputs.
(iii) Dimensional effect.
(iv)

Reasons for constant returns

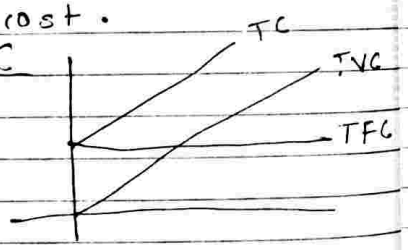
Generally ~~to~~ constant returns do not occur in production. For constant returns factor inputs should be divisible in nature which is almost impossible.

Reasons for decreasing returns

- Decrease in efficiency of factor inputs.
- Mangerial complexicity.
- Due to overwork / overload to the producer.

Cost

Explain short run total cost.
TFC, TVC and TC
(Plan)



Explain short run average cost.
AFC, AVC, AC
(Paragraph)

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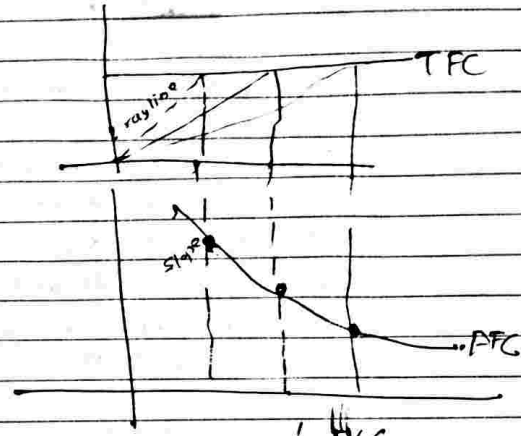
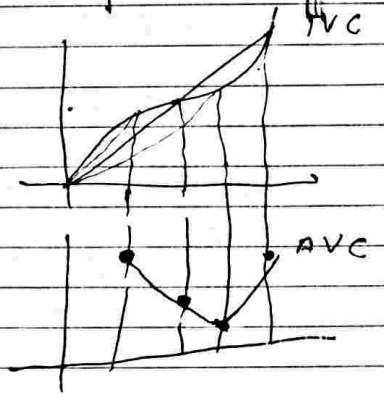
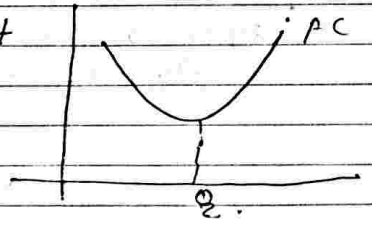
How to Derive AFC from TFC.



How AVC from TVC



Productive efficiency
→ If output is produced at minimum average cost.
It is achieved when AC = MC.

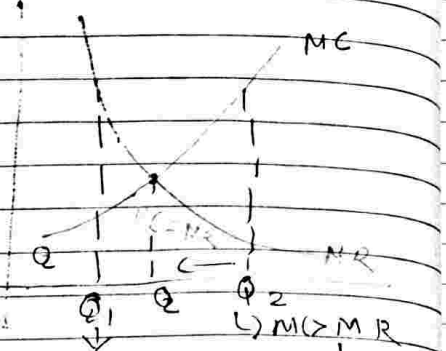


Allocative efficiency
→ P = MC (Consumer become more happy).
Price = Marginal cost.
AR = MC.

Profit maximizing condition

MC = MR.

Q = Profit maximizing output.



Q is the max profit so in Q_2 we should decrease the production for the better result because we are in loss.

the firm should increase output ← MR > MC Marginal Profit.

Q_2 → MC > MR ↓ Marginal loss.

Firm shut down condition

TVC > TR

because TVC contains wages to workers who dine nai pugena vane shut down not TC > TR → it is loss not shut down.

also

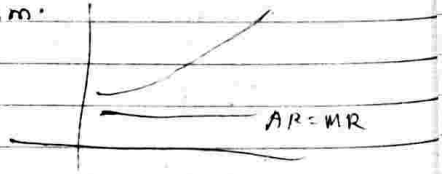
AVC > AR → Price.

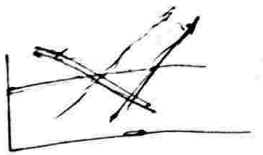
↳ then also shut down

Firm operates until

P >= AVC
TR >= TVC

Marginal cost above AVC represents short run ~~average~~ supply curve of the firm.

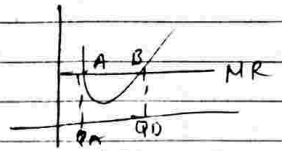


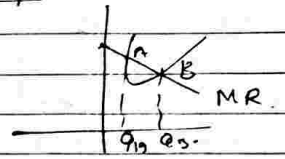


Explain firm's equilibrium condition. (MC-MR approach)

MC = MR is not the sufficient condition ~~if~~ ~~is~~ for firm equilibrium. Explain.

same para before graph and then two graph together.





Fig(i) Perfect comp. Fig(ii) monopoly and imperfect market

Explaination :- Add :- Fig (i) shows perfect comp, so MR curve is horizontally parallel.

Fig (ii) shows — — — — — — —

slopes downward from left to right.

For 6 marks → Is monopoly price always higher?

→ It is generally assumed that price under monopoly is higher and output is less than under perfect competition but it is not that monopoly price is always higher. The following are the reasons that explain monopoly price is not always higher.

1. Economise of scale.
2. Fear of government
3. Fear of boycotting the product.

5 to 3.

Factors causing oligopoly

1. Huge Investment.
2. Economies of scale
3. Patent Rights

7. Control Over Certain Raw Materials
5. Merger and Takeover.

5 marks

(Q) How price and output are determined under discriminating monopoly ? / OR explain 3rd degree price discrimination / OR monopolist charges different prices in different submarkets on the basis of ep (price elasticity of demand, explain.

→ less higher
~~Higher~~ price in elastic, ~~lower~~ in inelastic / point in monopoly.

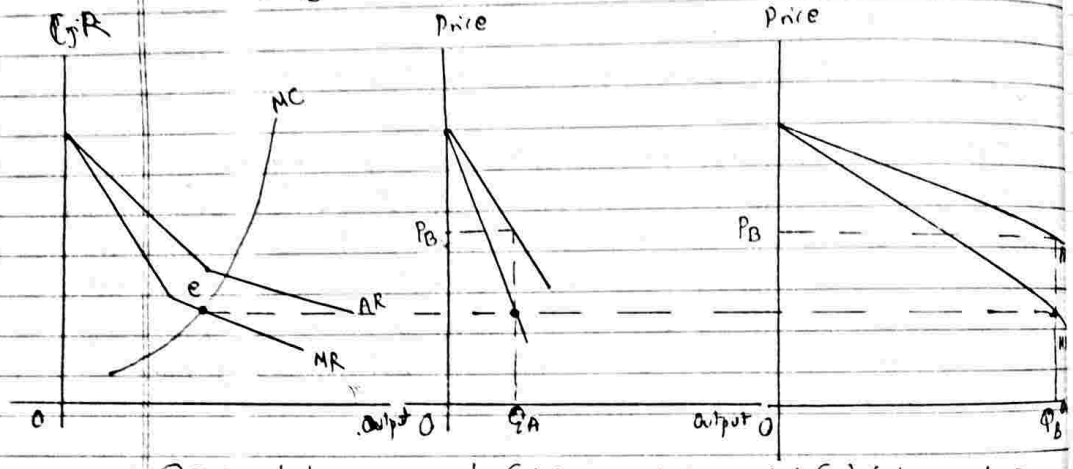


Fig - (i) Total market Fig:- (ii) Sub market A Fig:- (iii) Sub market B

~~Consid~~ Consider fig (i) which shows total market. The marginal cost and marginal revenue curves are intersected at point e determining firms equilibrium point.

Fig (ii) shows sub-market A which is inelastic and fig (iii) shows sub-market B which is elastic. Since marginal cost of total market is same for sub-market A and sub-market B, the equilibrium point of total market will be same for sub market A and sub-market B. Monopolists charges P_A price in sub-market A and charges P_B price in sub-market B. Here price charged by monopolist in sub-market A is higher than sub-market B ($P_A > P_B$). Thus, we conclude that monopolist charge high price in case of inelastic submarket and charges lower price in case of elastic sub-market.

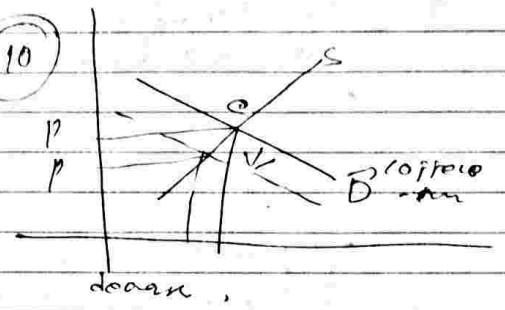
(2) $\frac{1}{3} = \frac{n}{35}$ $ep = \frac{\Delta Q}{\Delta P}$

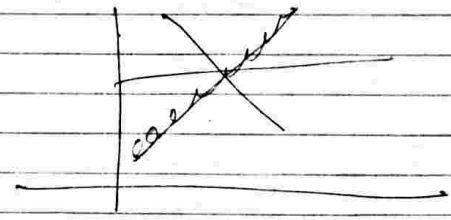
$n = 10.5$

$5.5 = \frac{Q}{3}$

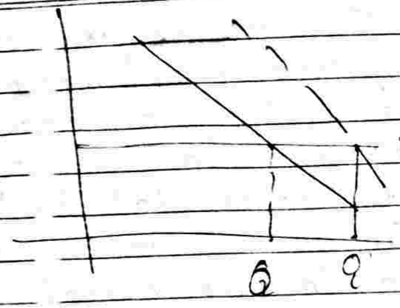
$Q = 16.5$

(10)

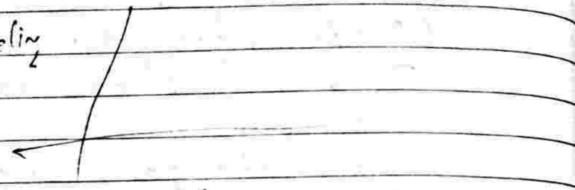




(12)

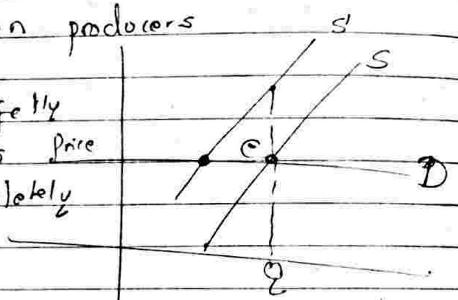


In case of celing

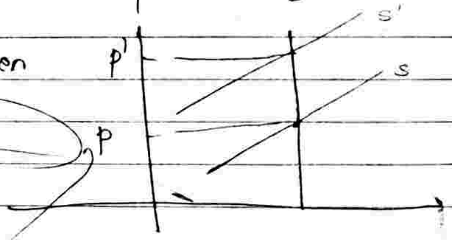


Tax burder depends on producers

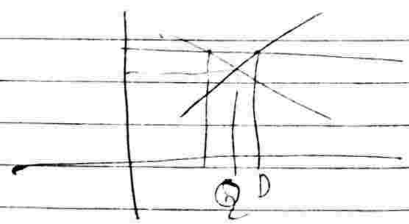
(14) IF Demand curve is perfectly elastic tax burder goes to the producers completely



IF perfectly inelastic then 100% burder goes to the consumer.



#. Supply - more, Demand - less } Surplus



(17)

$2 = \frac{80}{40} \times C$ $\qquad$ $2 = \frac{m-80}{1} \times \frac{4}{80}$

$2 = \frac{80}{4} \times \frac{9+5}{Q}$

$2Q = 20 \times 9$

$2Q = 180$

Tomatoes { short time → elastic
long time → inelastic
immediate supply → }

Buget = Price of X good × Qty of X good + $P_y Y$

$B = P_x X + P_y Y$.

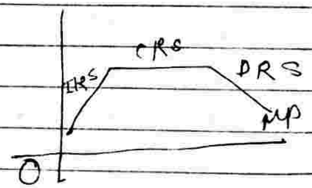
$120 = 20 \times X + 10 Y$.

$120 - 20X = 10Y$

$12 - 2X = Y$

No of worker = 2
Production = 120
No of worker = 3
Production = 150

M.P's



Accounting profit = Revenue − Explict cost

Economic profit = (Revenue − (Explict + implicit) cost)

(12) Calculate implicit cost, explicit cost and economic cost.

Items	Amt
Wages paid to labour	10,000
Rent forgone of self-owned building	Rs 4000
leasing expenses of capital equipments	Rs 2,000
Interest foregone of fund	Rs 1,200
Stationary expenses	Rs 800

Implicit cost = 4,000 + 1200
= 5,200

Explicit cost = 10,000 + 2,000 + 800
= 12,800

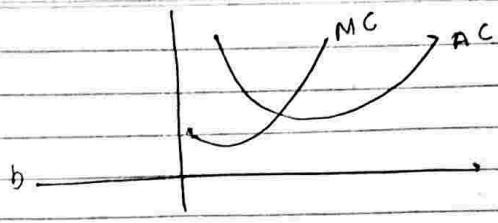
Economic cost = ~~Implicit~~ (Explicit + implict) cost
= 5200 + 12,800
= ——

tt Suppose that a sole proprietorship is earning total revenue of 1,00,000 and is incurring explicit cost of Rs 75,000. If the owner could work for another company for Rs 30,000 a year, We would conclude that

(a) The firm is incurring an economic loss
(b) ~~The cost~~ Implict cost are Rs 45,000
(c) The total economic cost are Rs 1,00,000
(d) The individual is earning an economic profit of Rs 25,000

Read

(13)



(14) Long run supply curve of industry:

(i) Increasing cost industry
→ Supply curve upward.
Average cost increases (AC↗)

(ii) Constant cost industry
→ Supply curve horizontally parallel
AC remains same.

(iii) Decreasing cost industry
→ Supply curve downward sloaping.
AC decreases.

Important Use of price elasticity of demand
→ Product pricing
→ Pricing of input
→ Joint product pricing
→ Demand forecasting
→ Analysis of Market
→ Determination of Business Strategies.

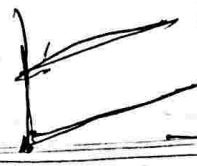
P and L Statement

Particulars	Amt	Particulars	Amt
Opening Stock	7,000		
		Sales 60,720	60,720
Purchase 71,280		(-) Return	1000
(-) Drawing 1,500	51348		59720
(-) Opening stock 7,000			
(-) Return 11,432		Closing stock	25,600
Wages	1,800		
To gross profit	25172		
	85,320		85,320
Trade Charges	920	Discount	22,000
Rent	12,540	By gross profit A/C	25172
Traveling expenses	5,000		
Depreciation	154.		
Stationery charges	1,200.		
Salaries	16,780		
Commission for sales rep.	2986		
Provision for D.D	1158		
Discount	540		
Extra Commission	281		
To net profit transferred to balance sheet	5613		47172
	47172.		

5894 × 5/105.

Balance Sheet as on 31.3.05.

Particulars	Amt	Particulars	Amt
		F&F 1,540	1386
		(-) 154	
Capital 60,000		Computer	18,380
Drawing (5200 + 1,500) = 6700	5813		
	58,913		
(+) Net profit 5613.			
		Bills receivable	6,720
		Closing stock	25,600
Bills payable 10,220	4220		
- 6,000		Debtor 34,156	
Outstanding charges	1,200	- 6,000	
Creditors	13,000	- 5,000	24,998
Rent due	320.	23,156	
O/S Commission	3267	(Provision) (-) 1158	
2986 + 281			
		Cash at Bank	4,000
	80920	Cash in Hand	2,836
	80920		80920



(28900)

Date
Page No.

P & L Statement

Particulars	Amt	Particulars	Amt
Opening stock	4,08,000	Sales	12,24,000
Purchase 4,08,000	2,85,600		
(-) Loss 81,600			
(-) Drawing 40,800	204,000		
Wages and Salary		Closing stock	8,16,000
To gross profit	11,42,400		
To depn 40,800	20,40,000		20,40,000
Interest on loan.	24,480	Interest on income	
To insurance	61,200	To gross profit	11,42,400
Depn	40,800	Commission received	40,800
Rent and Tax 61,200	52,700	~~Reserve & surplus~~	
(-) Advance 8,500		Bad debt recovered	40,800
Salary and Wages	1,63,200	Interest on investment	20400
~~Rent and Tax~~	~~61200~~	Discount	204,00
Discount	20,400.		
			12,32,160
955060 = Net profit	902020		1252560
12240			12648 00
32640			

Date
Page No.

Balance Sheet

Particulars	Amt	Particulars	Amt
		Machinery 4,08,000	3,67,200
		(-) 40,800	
Cap 2,04,000			
(-) Drawing 40,800	10,65,220		
Add net (+) 9,02,020		Land 2,04,000	2,44,800
		(+) 40800	
		closing stock	8,16,000
		Insurance claim	81,600
		Goodwill	40,800
		~~Investment~~	~~204,000~~
		B/R	81,600
		~~Reserve & surplus~~	~~40,800~~
Creditors 4,08,000	381600	Advance rent	8,500
(-) 20400		Prepaid insurance	
B/Payable	2,44,1800	81,600	20400
~~Creditors~~	~~4,08,000~~	- 61,200	
10% loan	2,44,800		
Stock in trade	1,34,6640	~~Debtors~~	2,04,000
Bank overdraft	40,800	Cash and Bank	1,83,200
10% loan + interest	2,69,280	Debtors 2,04,000	183600
Revaluation reserve,	40,800	(-) Dis 20,400	
reserve	40,800		
	2223940	Investment	2,62,440
		2,04,000	
		Accrued 12,240	
			28,23,940
	21,62,440		
10%	20,07,700		