

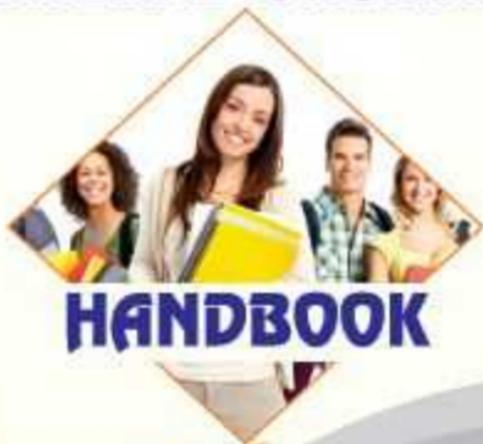


Sadhana Education Society

L. S. RAHEJA

**COLLEGE OF ARTS & COMMERCE,
SANTACRUZ (W), MUMBAI - 400 054.**

BUSINESS ECONOMICS - I



HANDBOOK

PREPARED BY

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Business Economics - I

Tutorials compiled by Ms. Jyoti Parimal Sarkar,
Assistant Professor (Economics)

Acknowledgement

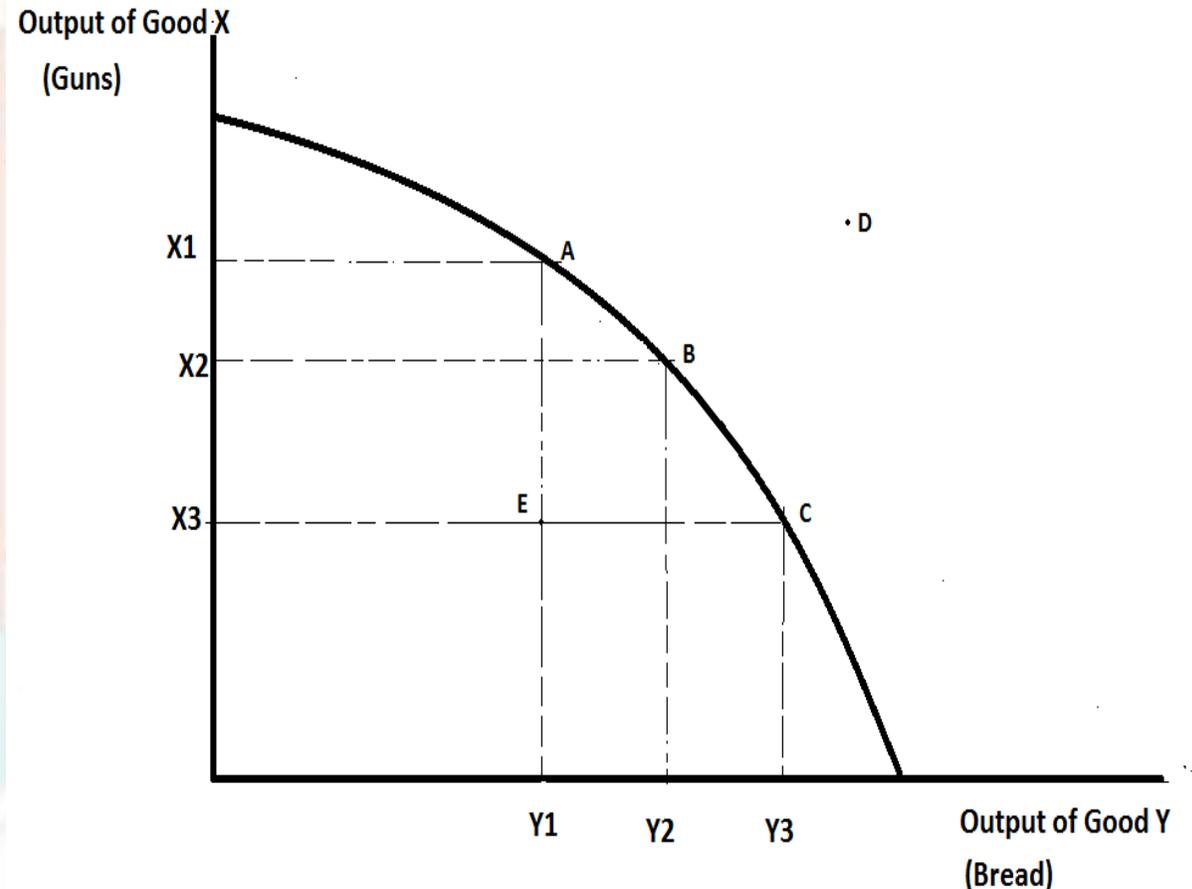
This workbook has been compiled keeping in mind syllabus of the Business Economics-I for the First Year SFCs (Self Finance Courses) in Mumbai University. It is hoped that the practice of the concepts with the aid of diagrams would help them get rid of the fear of the subject. While I understood this with my experience of teaching students and interacting with them, I was nudged into doing this by the principal of the college, Dr. Debajit N. Sarkar. It is due to his unwavering support that the workbook has seen the light of the day. This exercise has borne fruit also because of the moral support from the course co-ordinators of the SFCs. I would specially like to thank Mr. Justin Tuscano for the IT support provided by him to bring out this workbook.

Jyoti Parimal Sarkar

Chapter 1: Introduction of Business Economics

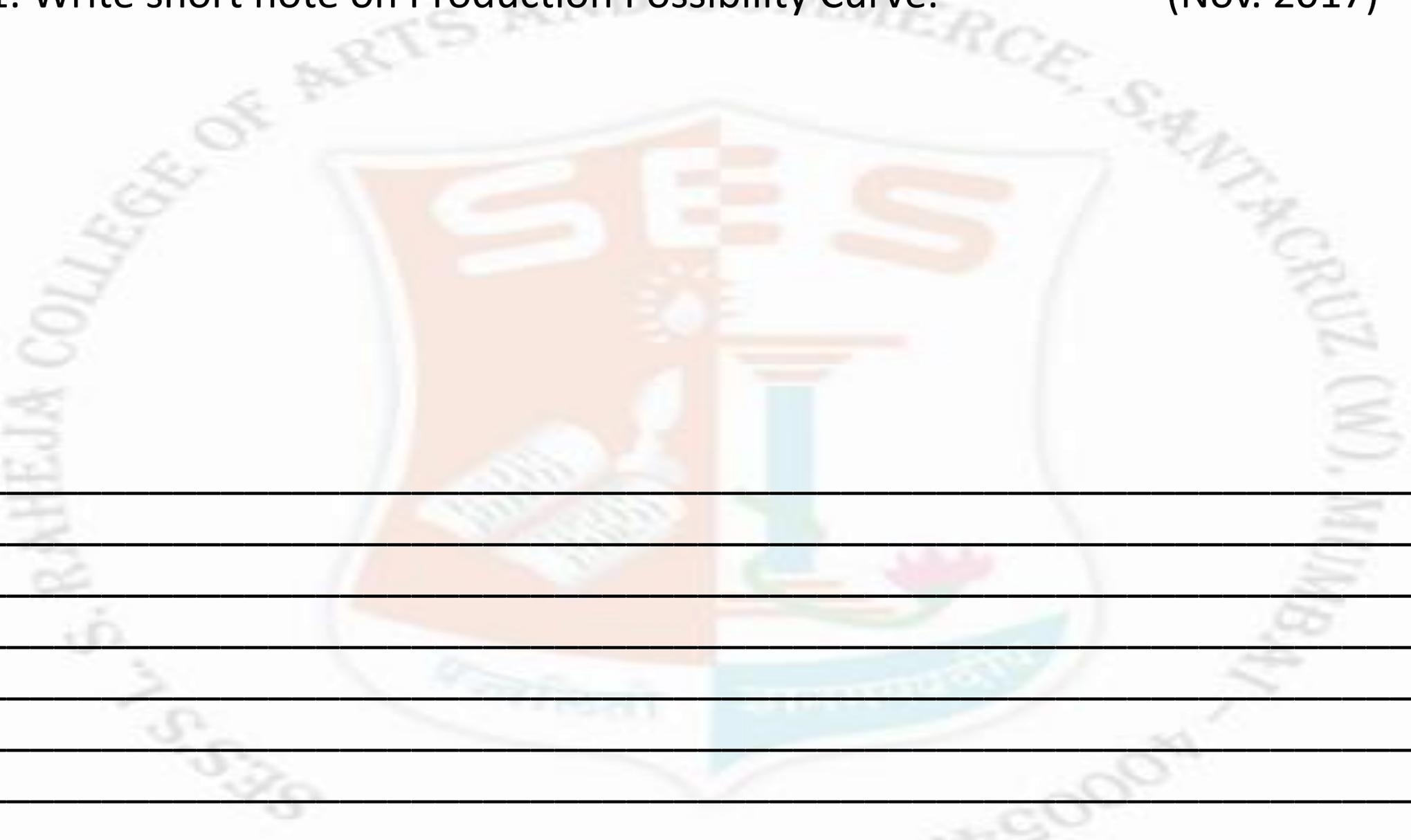
- **Production Possibility Frontier (PPF)/ Production Possibility Curve (PPC)**

- Given by famous economists Prof. Samuelson
- Explains the basic concept of economics— scarcity of resources and efficient utilization of these scarce resources.
- Points A, B and C on the PPC shows full utilization of all the available resources.
- The movement from point A to B requires sacrifice of production of $X_1 - X_2$ units of X to produce extra $Y_1 - Y_2$ units of Y.
- At point E, resources are under utilised to produce both X and Y.
- Production at point D is unattainable.
- PPC is concave to the origin and is explained by the law of diminishing marginal utility.



Q 1. Write short note on Production Possibility Curve.

(Nov. 2017)

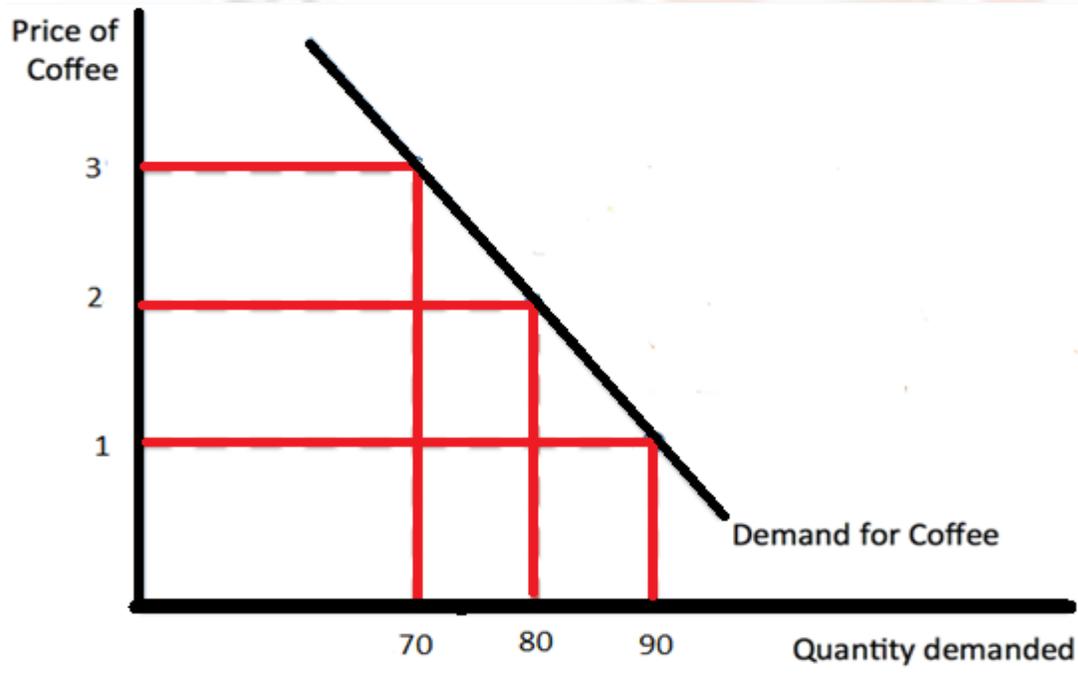


A large, faint watermark of the L. S. Raheja College of Arts and Commerce logo is centered on the page. The logo features a shield with the letters 'L S R' and a book. Below the shield is a banner with the motto '॥ ॐ ॥'. The text 'L. S. RAHEJA COLLEGE OF ARTS AND COMMERCE, SANTACRUZ (W), MUMBAI - 400054.' is written in a circular path around the shield.

Chapter 2: Demand and Supply Analysis

I. Demand

Individual Demand Curve



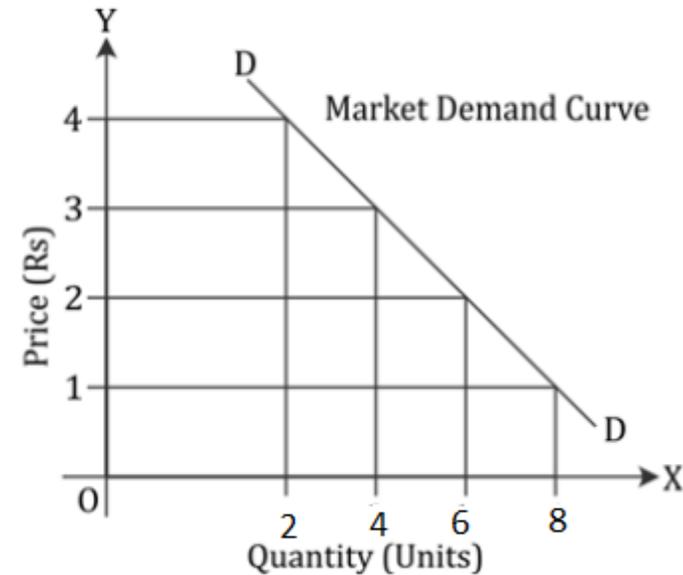
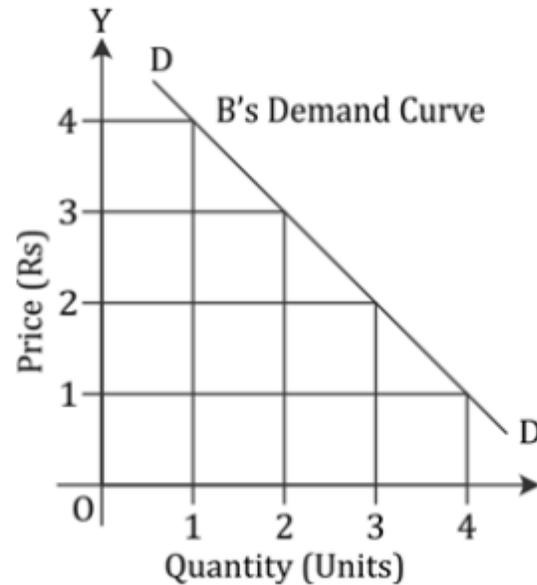
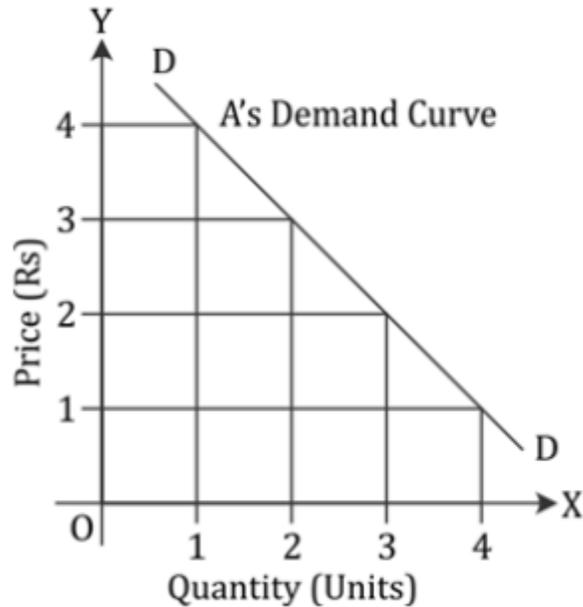
- Demand curve is **downward sloping**

Demand Schedule

Price of Coffee (in ₹)	Quantity Demanded ($Q_x = 100 - 10 P_x$)
1	90
2	80
3	70

- According to the **Law of Demand**, there is an **inverse relationship between price and quantity demanded** for a commodity, all other factors remaining constant.
- The linear demand function is expressed as:
 $Q_x = 100 - 10 P_x$
- The Individual demand curve and demand schedule shows inverse relationship between price and quantity demanded.

II. Market Demand Curve

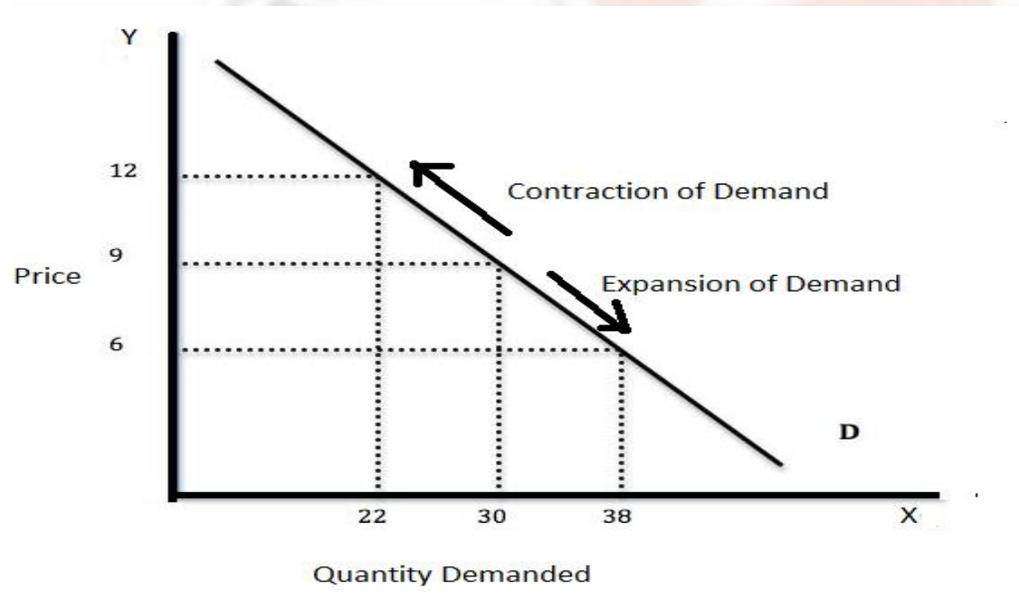


Market demand curve is a horizontal summation of demand for all the consumers in the market. Here, assuming there are only two consumers in the market.

Market Demand Curve = A's Demand Curve + B's Demand Curve

III. Changes in Demand

Movement along the Demand Curve

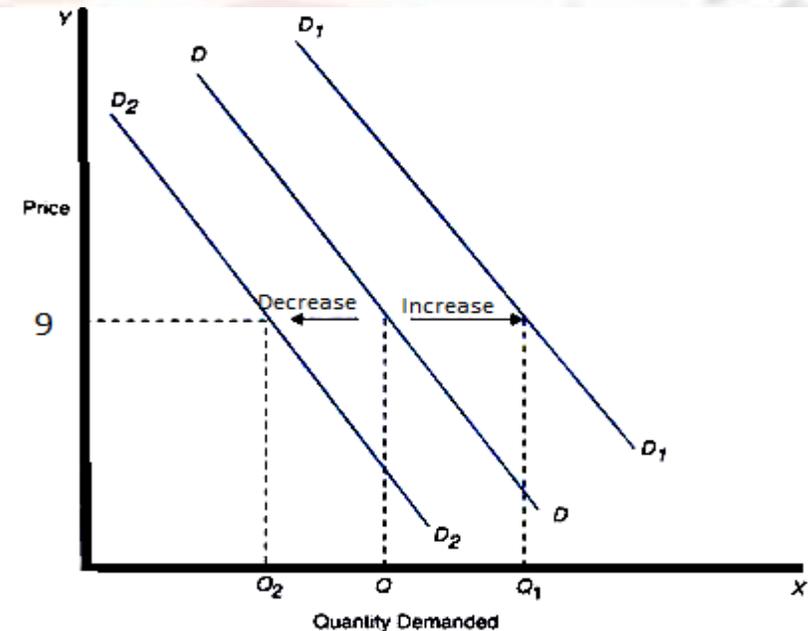


When the **price of product changes**, other determinants remaining constant.

$P \uparrow \rightarrow Q \downarrow$ ----- Contraction of Demand

$P \downarrow \rightarrow Q \uparrow$ ----- Expansion of Demand

Shifts in Demand Curve



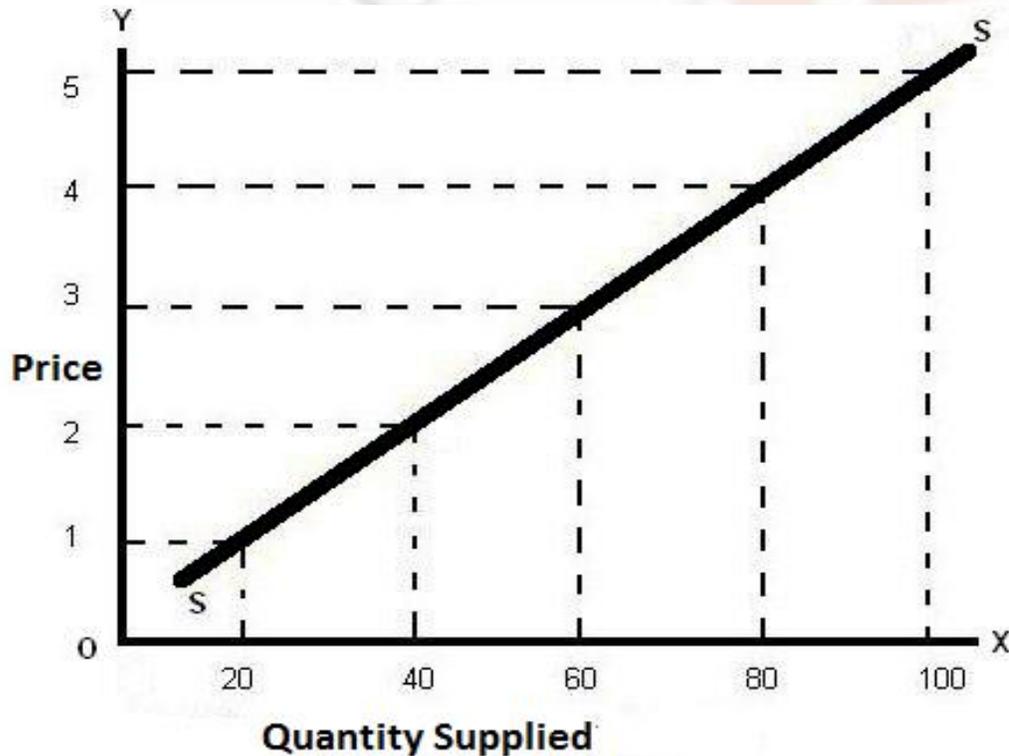
When **other determinants of demand of the product** changes, price remaining constant (say, price of substitute or income of the consumer (M), etc.)

$M \uparrow \rightarrow Q \uparrow$ ----- Increase in Demand

$M \downarrow \rightarrow Q \downarrow$ ----- Decrease in Demand

IV. Supply

Individual Supply Curve



- The Supply Curve **slopes upwards**

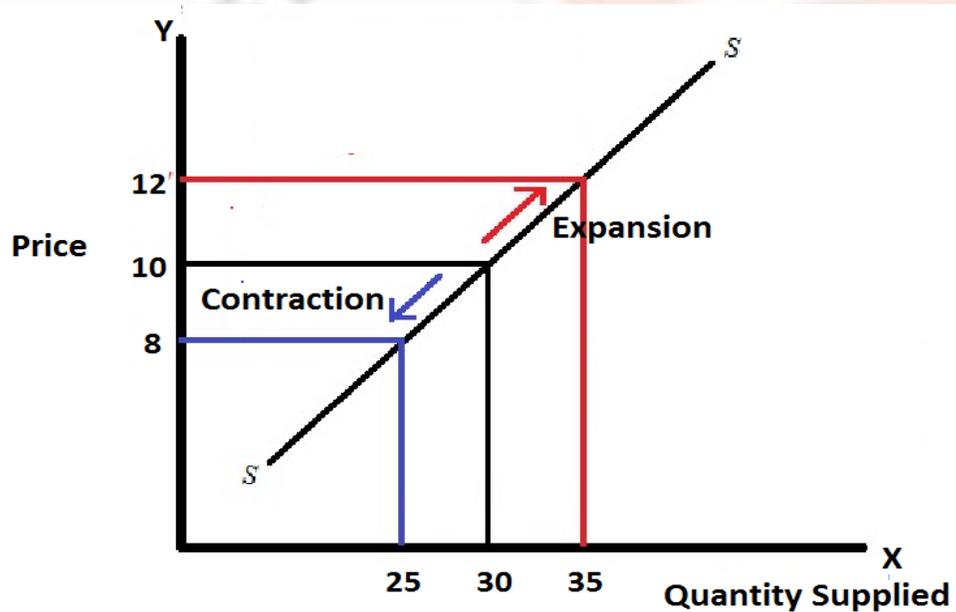
Supply Schedule

Price (₹)	Quantity Supplied
1	20
2	30
3	40
4	50
5	60

- According to the **Law of Supply**, there is a **direct functional relationship between the quantity supplied of a commodity and its price**, other things remaining constant.
- The Individual supply curve and supply schedule shows direct relationship between price and quantity demanded.

VI. Changes in Supply Curve

Movement along the Supply Curve

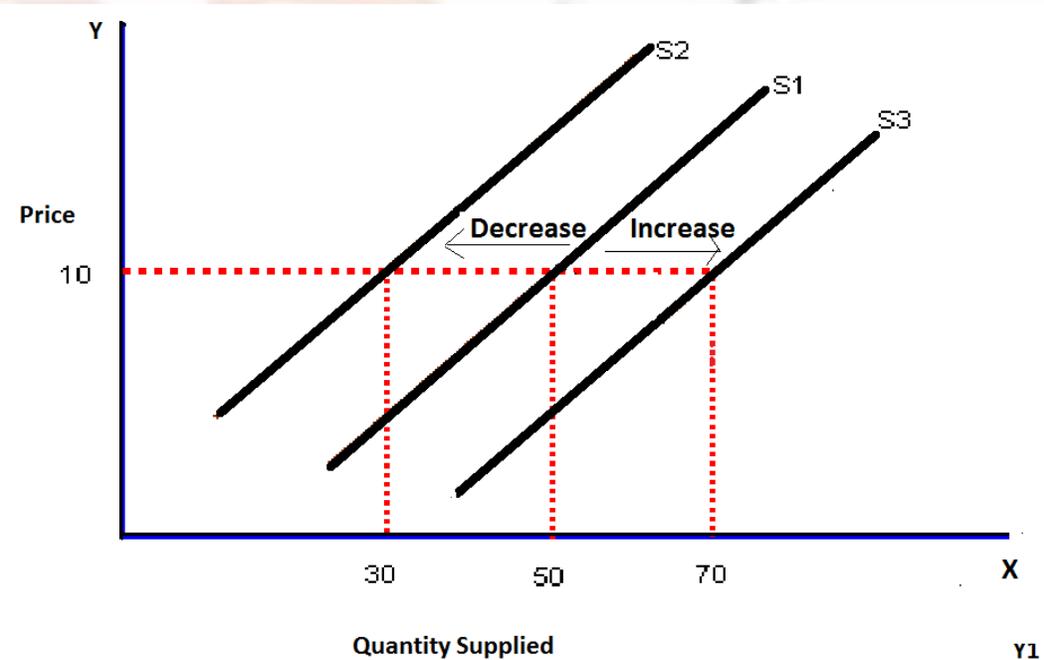


When the **price of product** changes, other determinants remaining constant.

$P \uparrow \rightarrow Q \uparrow$ ----- Expansion of Supply

$P \downarrow \rightarrow Q \downarrow$ ----- Contraction of Supply

Shifts in Supply Curve



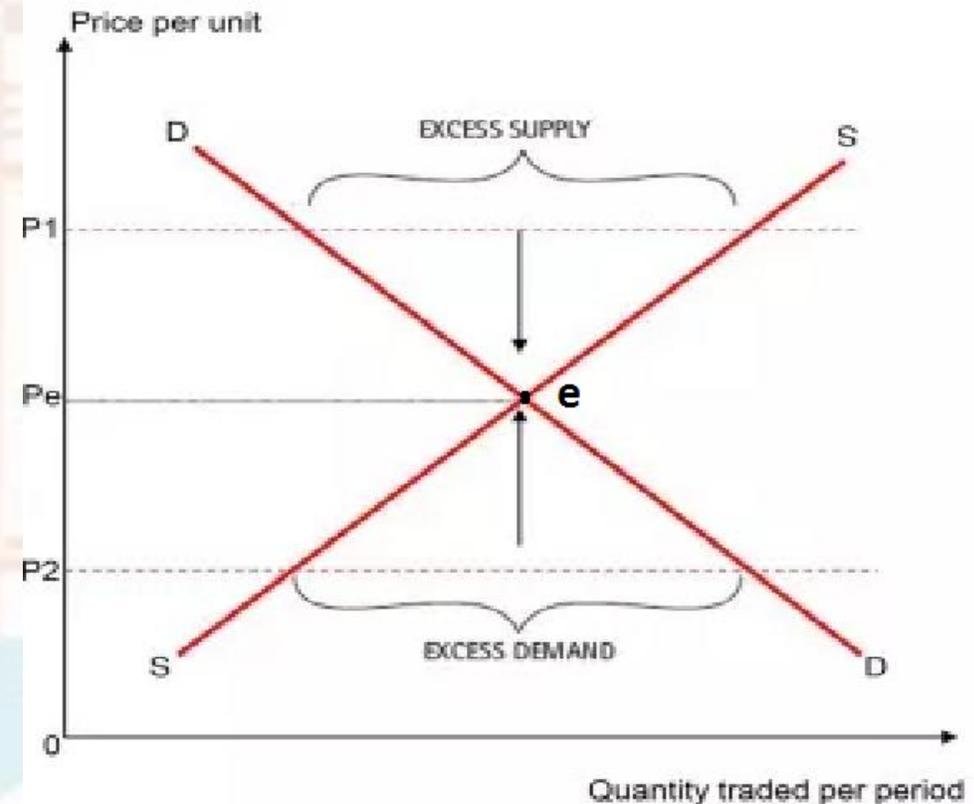
When **other determinants of the product** changes, price remaining constant (say, price of raw materials, P_{RM}).

$P_{RM} \downarrow \rightarrow Q \uparrow$ ----- Increase in Supply

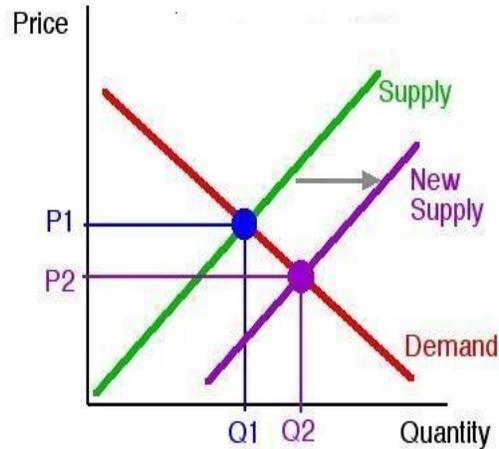
$P_{RM} \uparrow \rightarrow Q \downarrow$ ----- Decrease in Supply

VII. Market Equilibrium

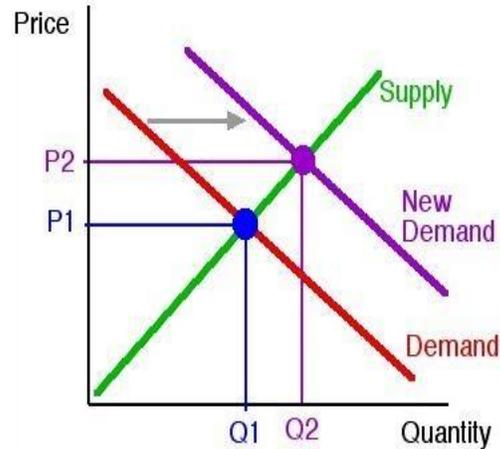
- Market equilibrium (e) is attained when quantity demanded (Q_d) is equal to quantity supplied (Q_s).
- At e, $Q_d = Q_s = Q$
- P_e is the equilibrium price.
- Any price above P_e , say $P_1 \rightarrow$ Excess supply ($D < S$), **Surplus**
- Any price below P_e , say $P_2 \rightarrow$ Excess demand ($D > S$), **Shortage**.



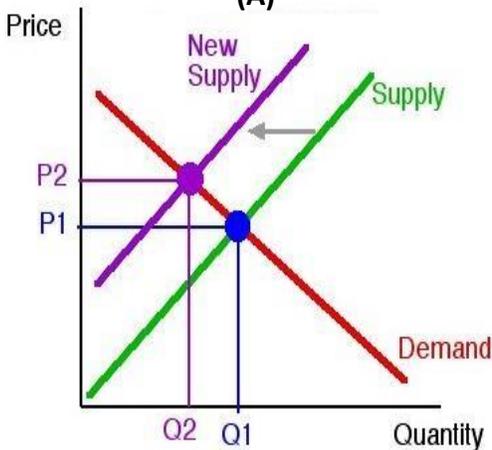
VIII. Changes in Market Equilibrium



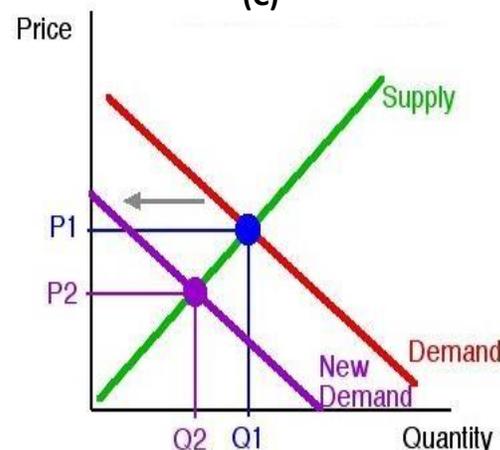
(A)



(B)



(C)



(D)

- In diagram (A) and (B), equilibrium has changed due to increase and decrease in supply curve
 - When $S \uparrow$ (D unchanged) $\rightarrow Q \uparrow \& P \downarrow$
 - When $S \downarrow$ (D unchanged) $\rightarrow Q \downarrow \& P \uparrow$
- In diagram (C) and (D), equilibrium has changed due to increase and decrease in demand curve
 - When $D \uparrow$ (S unchanged) $\rightarrow Q \uparrow \& P \uparrow$
 - When $D \downarrow$ (S unchanged) $\rightarrow Q \downarrow \& P \downarrow$

Q 1. Write Short Note on:

a) Law of Demand

(Oct. 2016)

b) Market Demand Curve



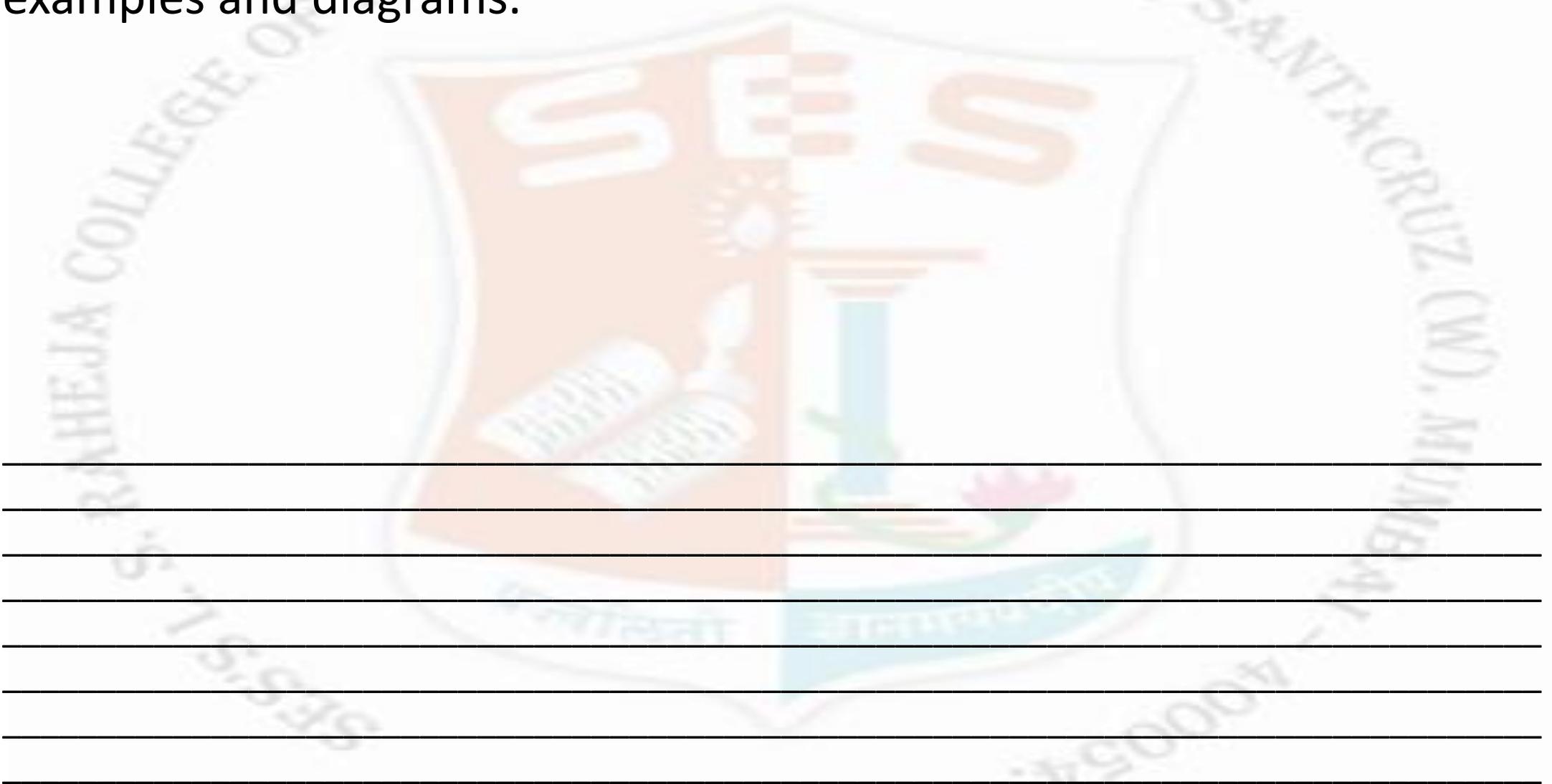
c) Supply curve



d) Market Equilibrium

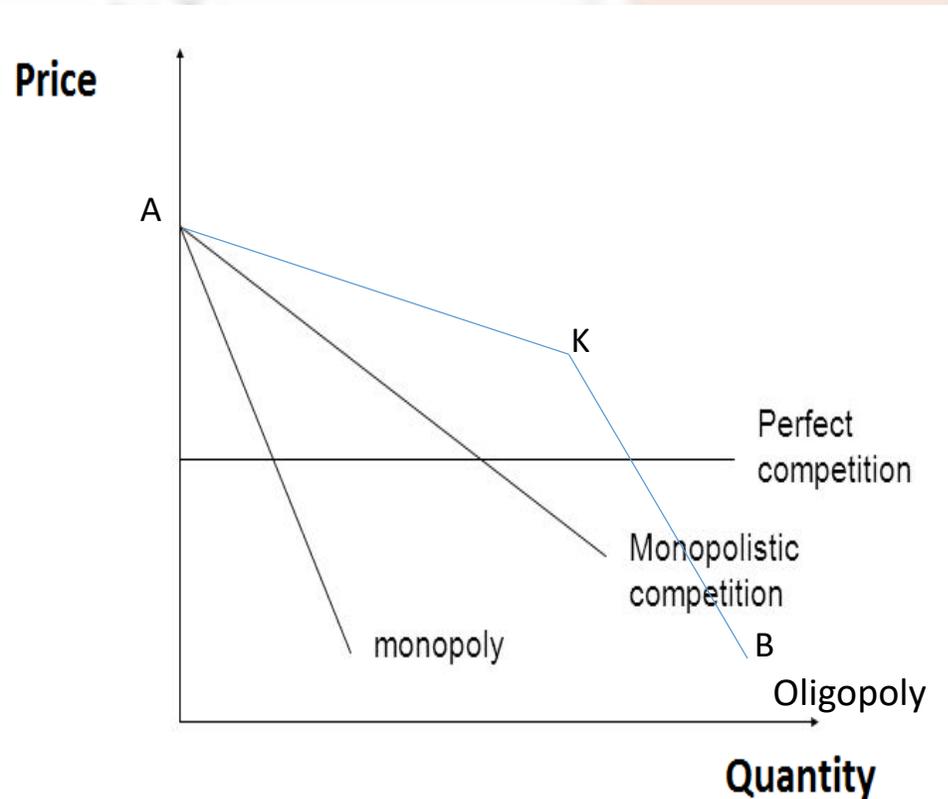


Q 2. Explain the movement and shift in the demand curve with suitable examples and diagrams.



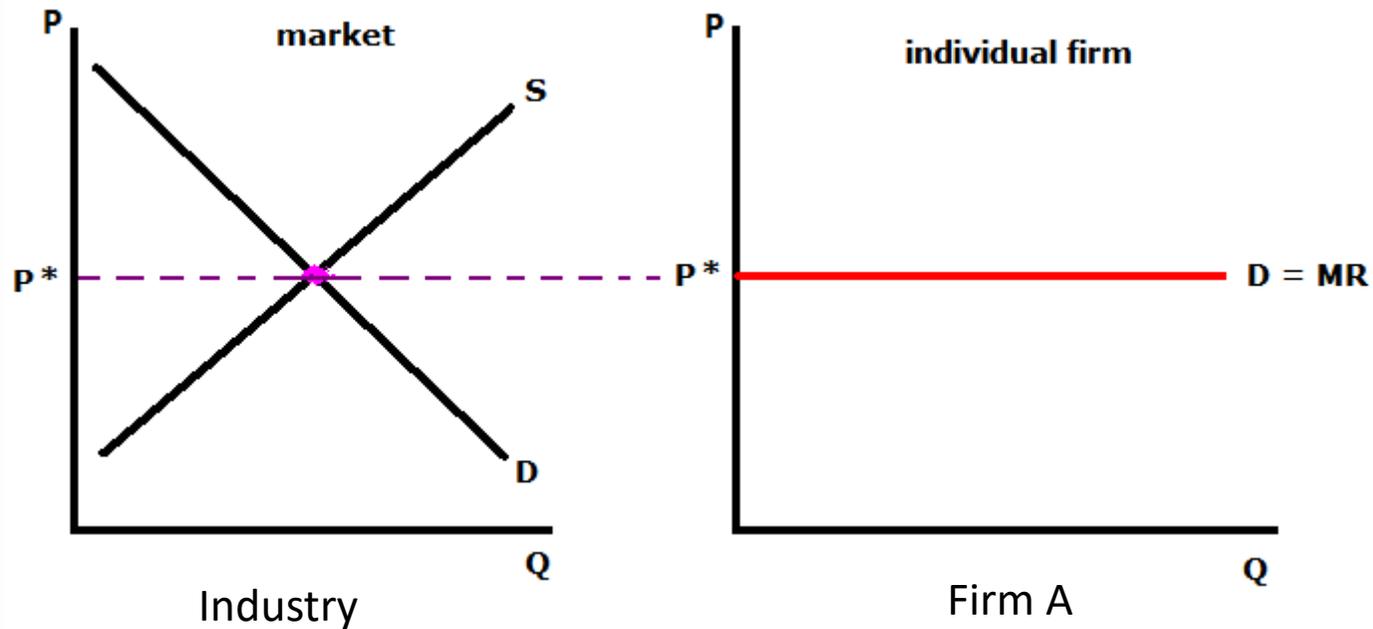
Chapter 3: Demand Function

I. Nature of Demand Curve Under Different Market



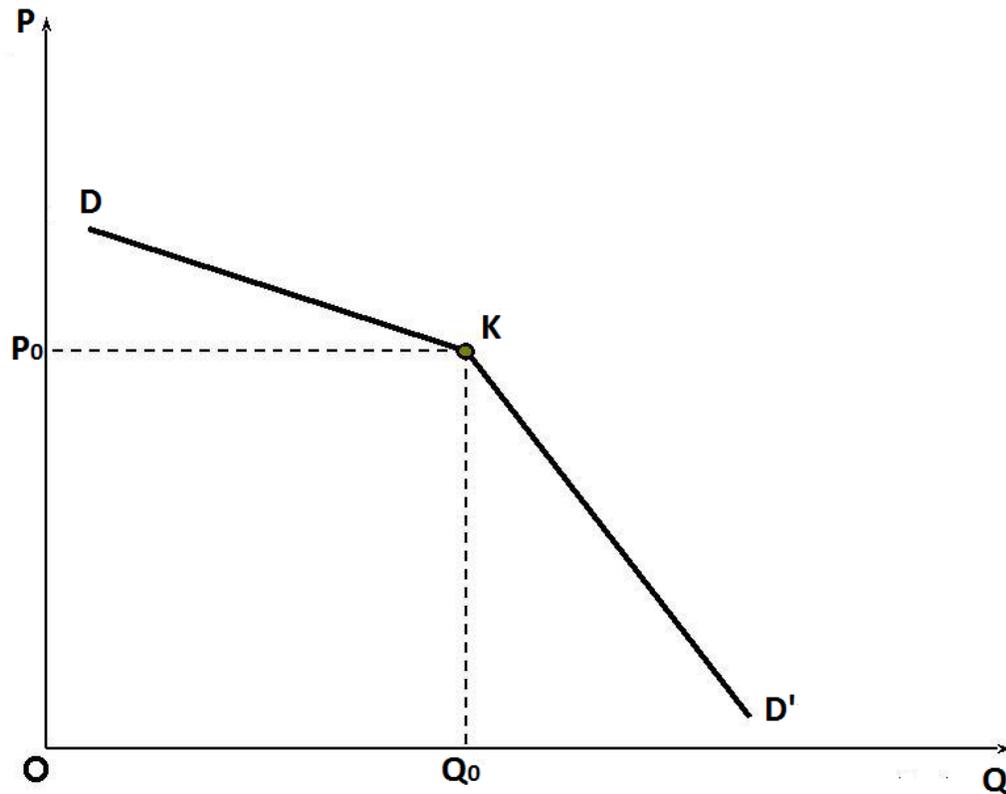
Type	Price Elastic	Shape
1. Perfect Competition	Perfectly elastic, $e_p = \infty$	horizontal demand curve
2. Monopolistic Competition	Highly elastic, $e_p > 1$	Flatter demand curve
3. Monopoly	Less elastic, $e_p < 1$	Steeper demand curve
4. Oligopoly	Segment AK: more elastic $e_p > 1$ Segment KB: Inelastic $e_p < 1$	Kinked demand curve

II. Demand curve in Perfect Competition



- Firms under perfect competition market structure are price taker.
- P^* is the equilibrium price of the industry.
- Firm can sell any quantity of the product at the given market price, P^* . Hence the demand curve is horizontal.

III. Demand Curve in Oligopoly Market Structure



- The interdependent behavior of the firms in Oligopoly market structure leads to a kinked demand curve.
- Kink arises because of uncertainty about the reaction of his rivals to decision.

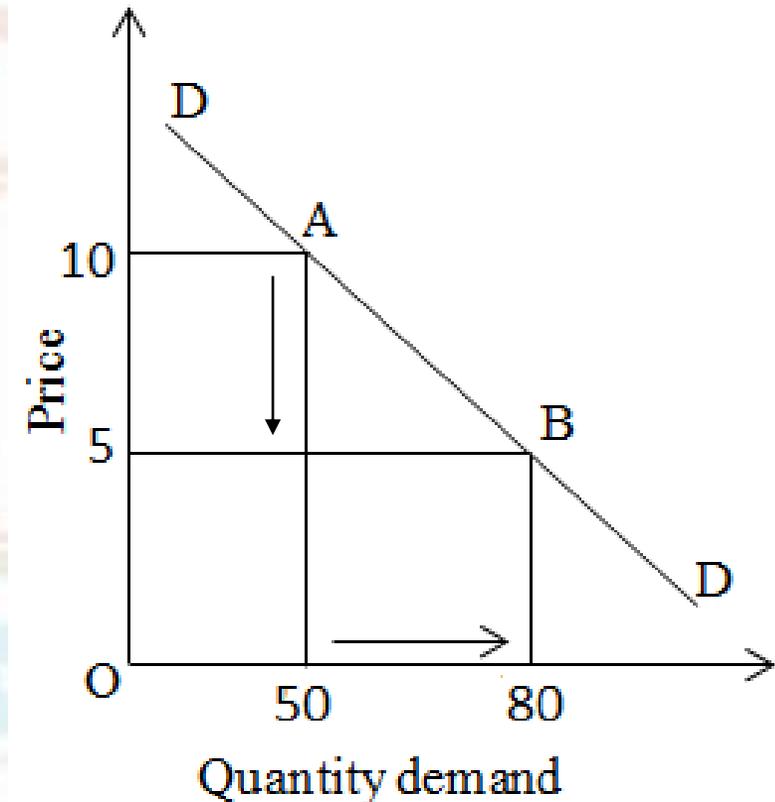
Chapter 4: Elasticity of Demand

I. Measurement of Point Elasticity

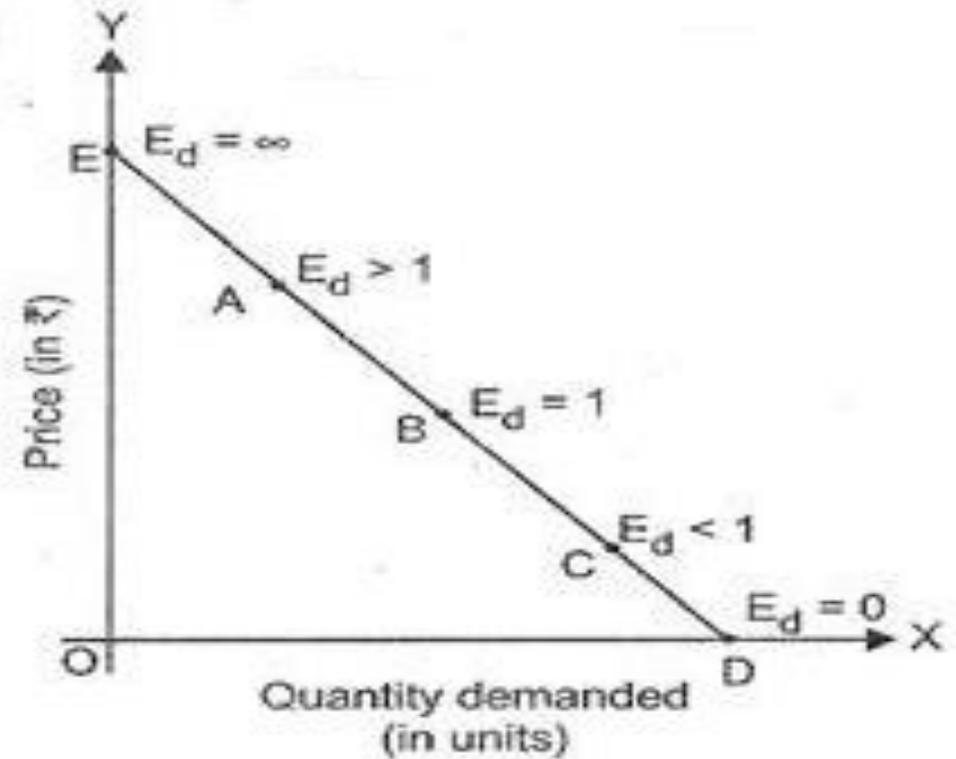
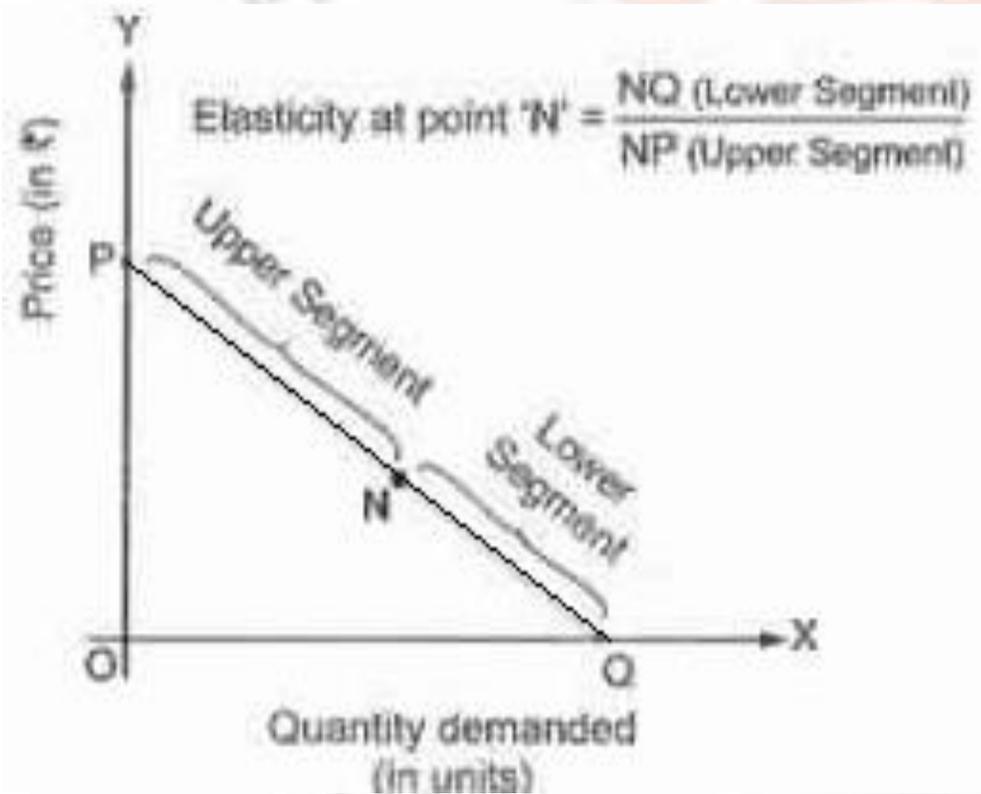
Point	Price (P)	Quantity Demanded (Q)
A	10	50
B	5	80

At point B, A-original point & B-new point

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{(80-50)}{(10-5)} \times \frac{10}{50} = 1.2$$



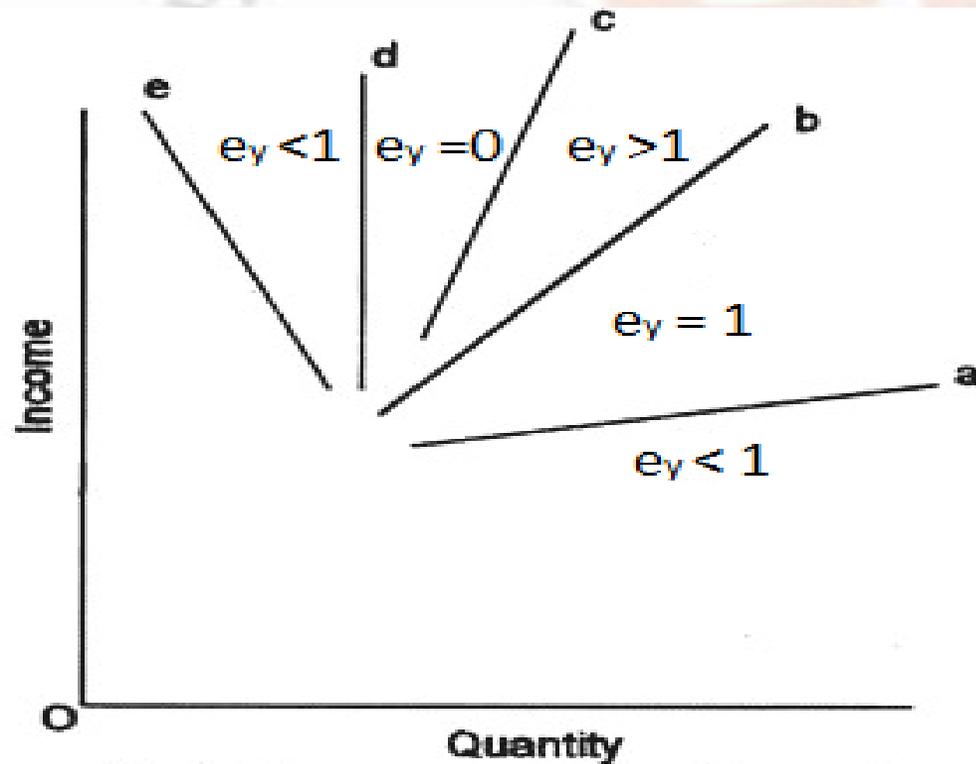
II. Geometrical measurement of point elasticity



III. Different Degrees of Price elasticity of Demand

Categories of Elasticity	Coefficient of Elasticity	Graphs
1. Perfectly Elastic	$e_p = \infty$	
2. Relatively Elastic	$e_p > 1$	
3. Unitary Elastic	$e_p = 1$	
4. Relatively Inelastic	$e_p < 1$	
5. Perfectly Inelastic	$e_p = 0$	

IV. Income Elasticity of Demand

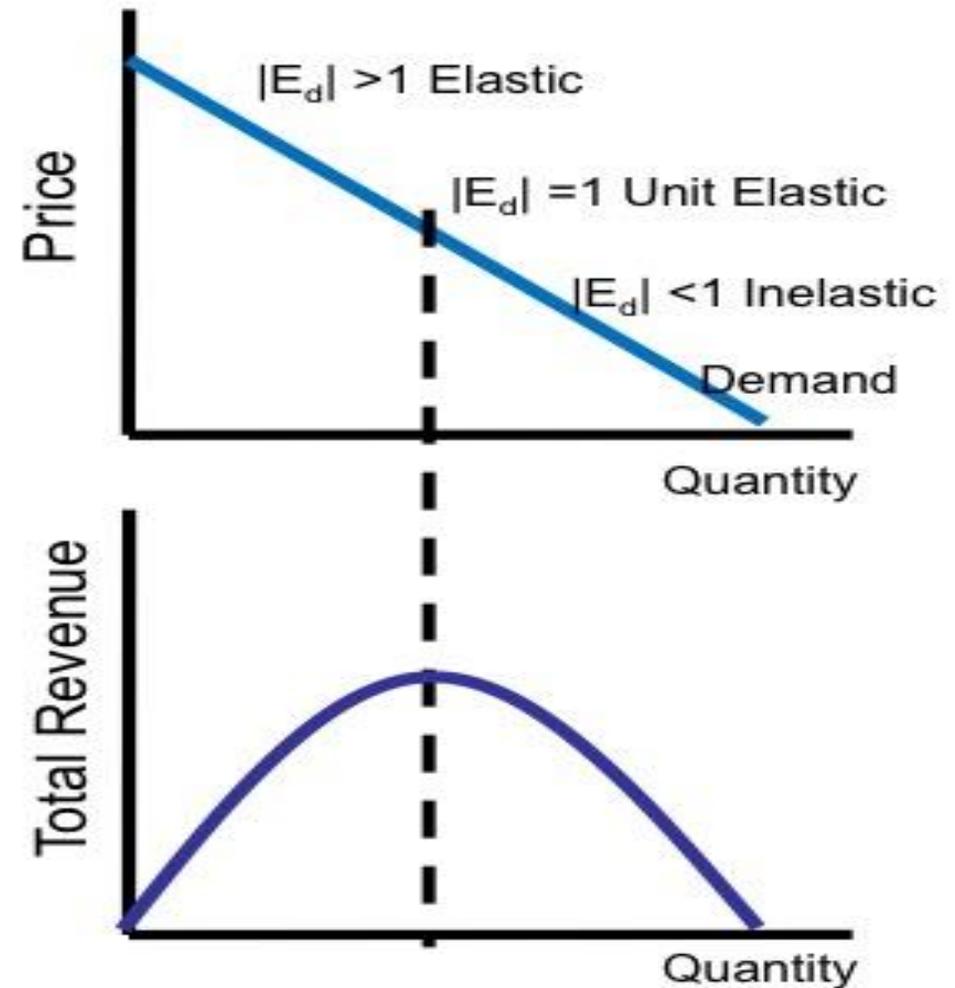


$$e_y = \frac{\Delta Q/Q}{\Delta Y/Y}$$

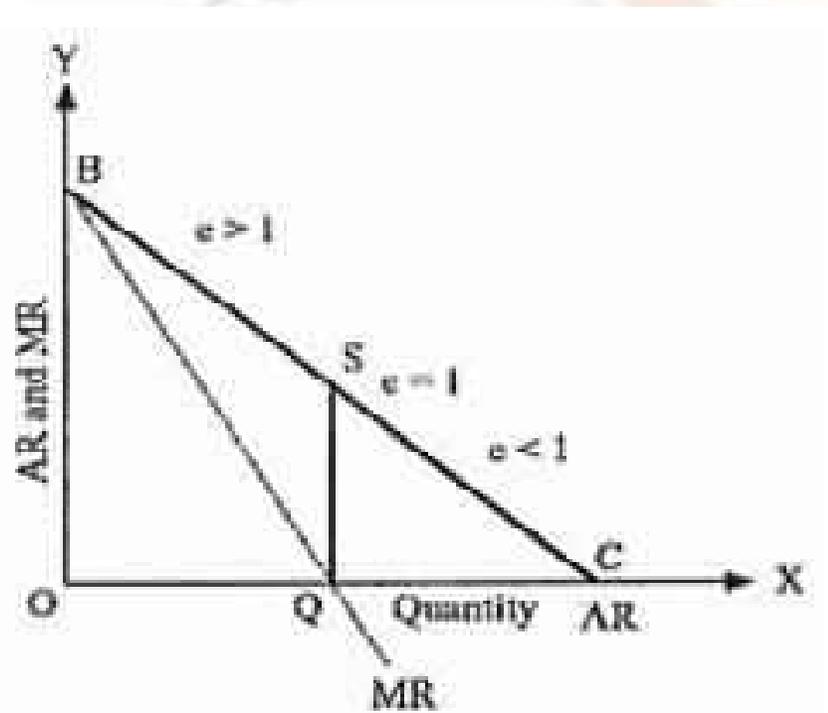
Types	Classification of Goods
$e_y < 0$	Inferior Goods
$e_y > 0$	Normal Goods
<ul style="list-style-type: none"> • $e_y < 1$ • $e_y = 1$ • $e_y > 1$ 	Necessities Comforts Luxuries

V. Relationship Between Price Elasticity and Total Revenue

- Elastic
 - P increase decreases TR
 - P decrease increases TR
- Unit elastic
 - Price increase or decrease doesn't change total revenue.
- Inelastic
 - P increase increases TR
 - P decrease decreases TR



VI. Relationship between Price Elasticity of Demand and Average Revenue and Marginal Revenue



- Under imperfect competition as the seller increases his sales by lower the price of his product, the firm's AR and MR will fall.
- MR curve lies half way between AR curve.

Elastic on AR	MR	TR
Elastic $1 < e_p < 0$	Positive	Increases
Unit $e_p = 1$	Zero	Constant
Inelastic $1 > e_p > 0$	Negative	Decreases

Q2. Explain the geometrical measurement of price elasticity of demand with the help of a diagram.



Q5. Explain the relationship between price elasticity of demand and AR and MR using suitable diagram.

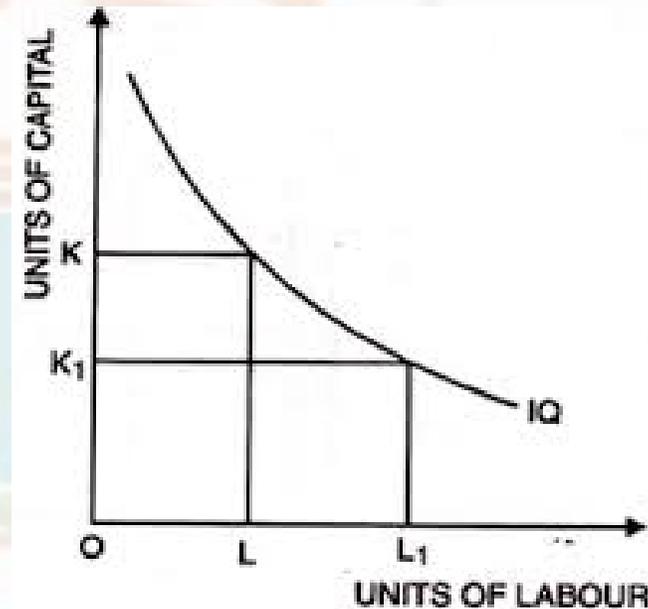
Explain the relationship between AR and MR curves under monopoly. (Nov. 2017)



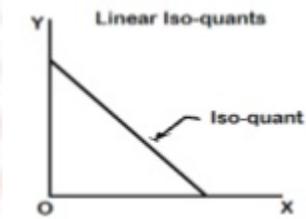
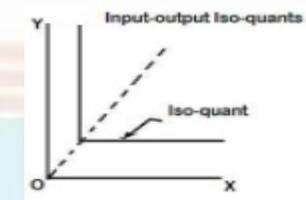
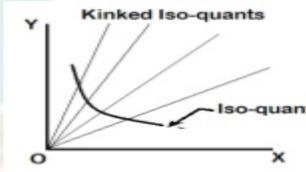
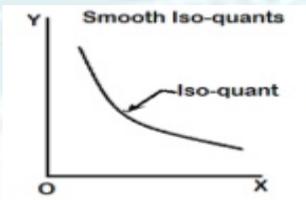
Chapter 6: Theory of Production

I. Isoquant (Equal product Curve / Iso-product Curve)

- Isoquant is the locus of all those combinations of factors of production which produces the same level of output.
- Combinations A and B can produce same level of output IQ. Joining these points we get an Isoquant.

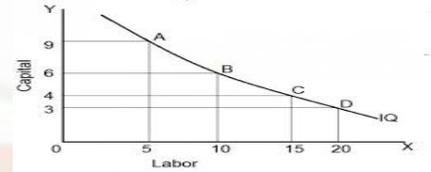


II. Types of Isoquants (Production Function with two variables)

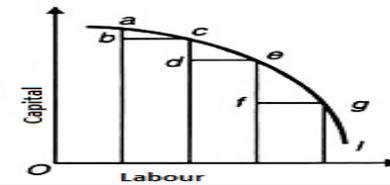
<p>Linear Isoquant—perfect substitutability of factors of production</p>	 <p>The graph shows a coordinate system with a vertical y-axis and a horizontal x-axis. A straight line, labeled 'Iso-quant', slopes downwards from the y-axis to the x-axis. The origin is marked with 'O'. The title 'Linear Iso-quants' is positioned above the graph.</p>
<p>Input-Output /Right Angled Isoquant—zero substitutability</p>	 <p>The graph shows a coordinate system with a vertical y-axis and a horizontal x-axis. A dashed line representing a ray from the origin is shown. A right-angled isoquant, labeled 'Iso-quant', is drawn as a step function starting from the origin. The origin is marked with 'O'. The title 'Input-output Iso-quants' is positioned above the graph.</p>
<p>Kinked Isoquant—limited substitutability of factors of production</p>	 <p>The graph shows a coordinate system with a vertical y-axis and a horizontal x-axis. A smooth curve, labeled 'Iso-quant', is shown. Several straight lines (rays) originate from the origin and are tangent to the curve at various points. The origin is marked with 'O'. The title 'Kinked Iso-quants' is positioned above the graph.</p>
<p>Smooth Convex Isoquant—continuous substitutability of factors of production</p>	 <p>The graph shows a coordinate system with a vertical y-axis and a horizontal x-axis. A smooth, convex curve, labeled 'Iso-quant', is shown. The origin is marked with 'O'. The title 'Smooth Iso-quants' is positioned above the graph.</p>

II. Properties/ Features of Isoquants

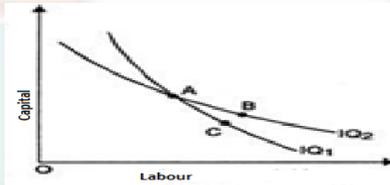
An isoquant has a negative slope.



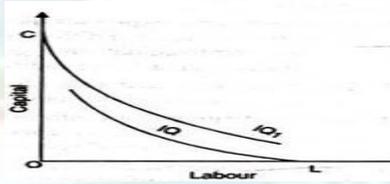
Isoquants is convex to the origin.



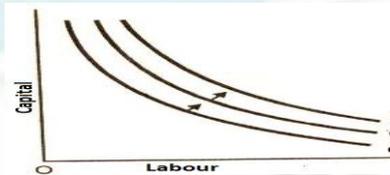
Isoquants do not intersect.



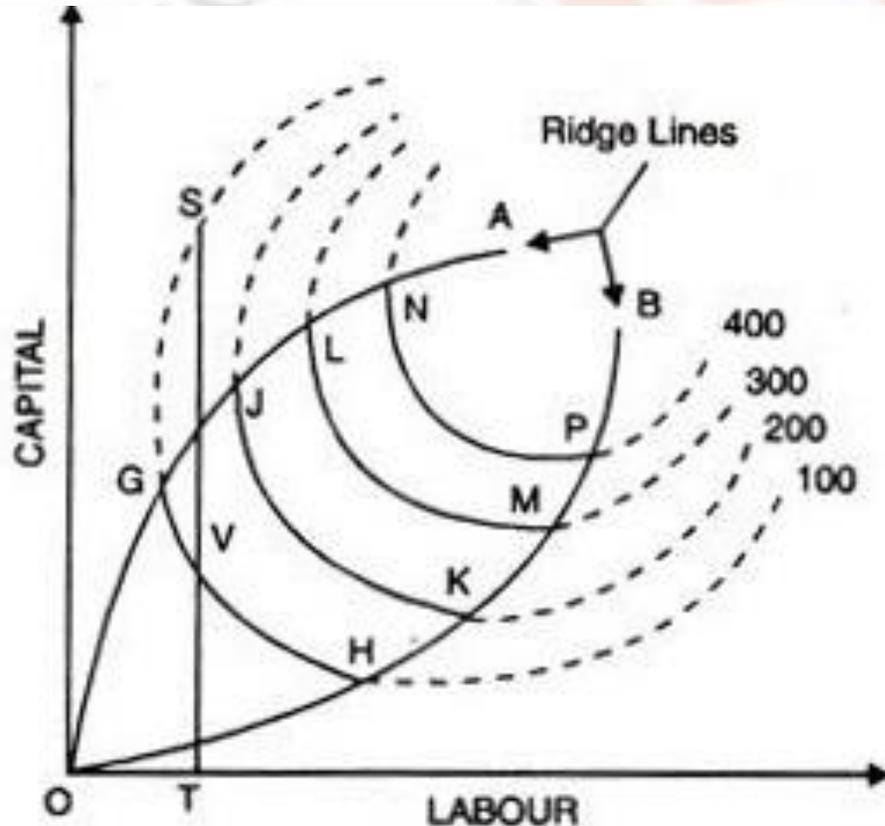
Isoquants can not touch either axis.



Higher isoquants represents higher level of output.

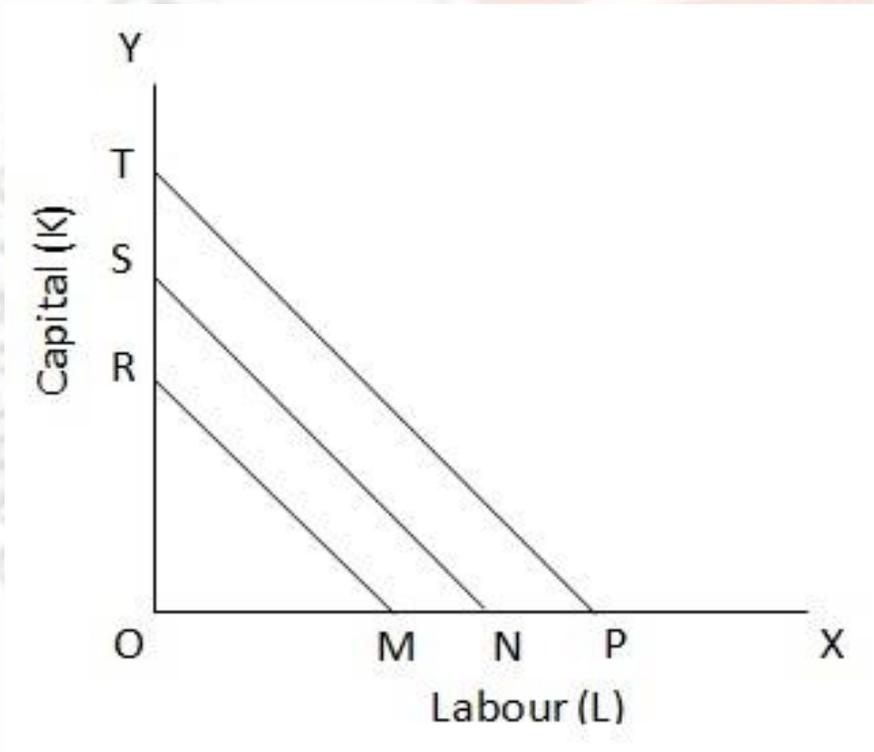


III. Ridge Lines



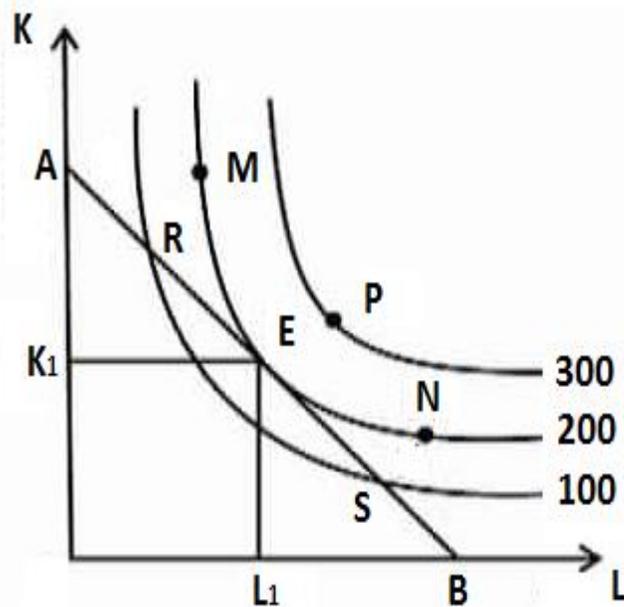
- Ridge lines are the locus of points of isoquants where the marginal product (MP) of factors are zero.
- OA—MP of capital (MP_K)=0
- OB—MP of labour (MP_L)=0
- Area between OA and OB is the economic region of production
- Point outside OA and OB, say point S—uneconomic region (as $MP_K < 0$ in case of point S)

IV. Iso-cost Line (Budget Line)



- Iso-cost line is locus of all those combination of labour and capital that the firm could buy for a given amount of money at given factor prices.
- The iso-cost lines closer to the origin (here, RM) shows a lower total cost outlay.

V. Producer's Equilibrium

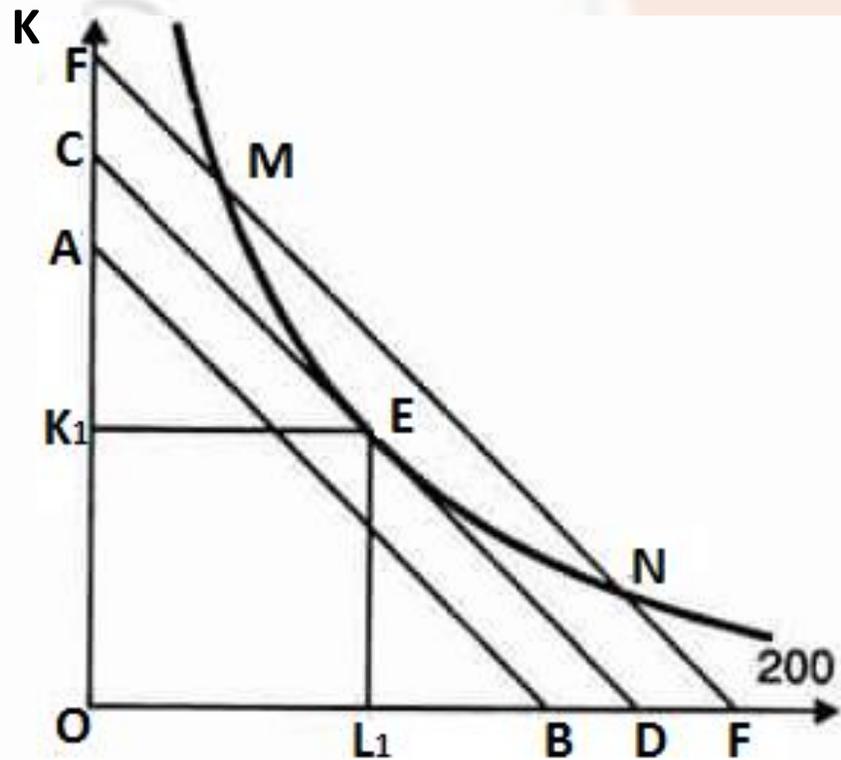


- E- equilibrium point
 - The point of tangency between the isoquant Q2 and iso-cost line AB
 - Slope of isoquant = Slope of iso-cost
 - $\frac{MP_L}{MP_K} = \frac{P_L}{P_K}$
 - $MRTS_{LK} = \frac{P_L}{P_K}$

VII. Optimal Input Combination for Minimising Cost and Maximising Output

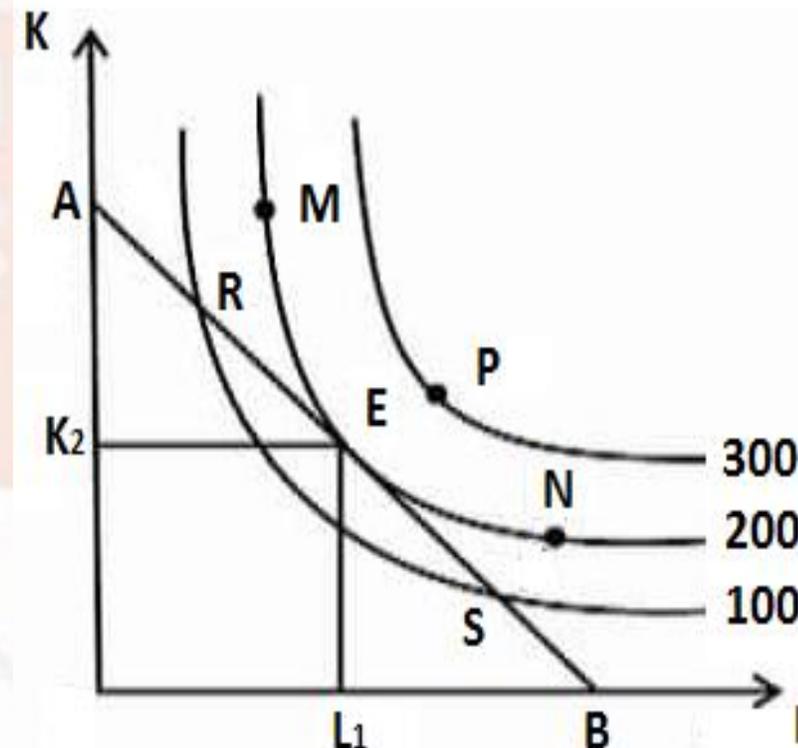
1. Minimising Cost

The firm has to produce the given output with minimum cost.

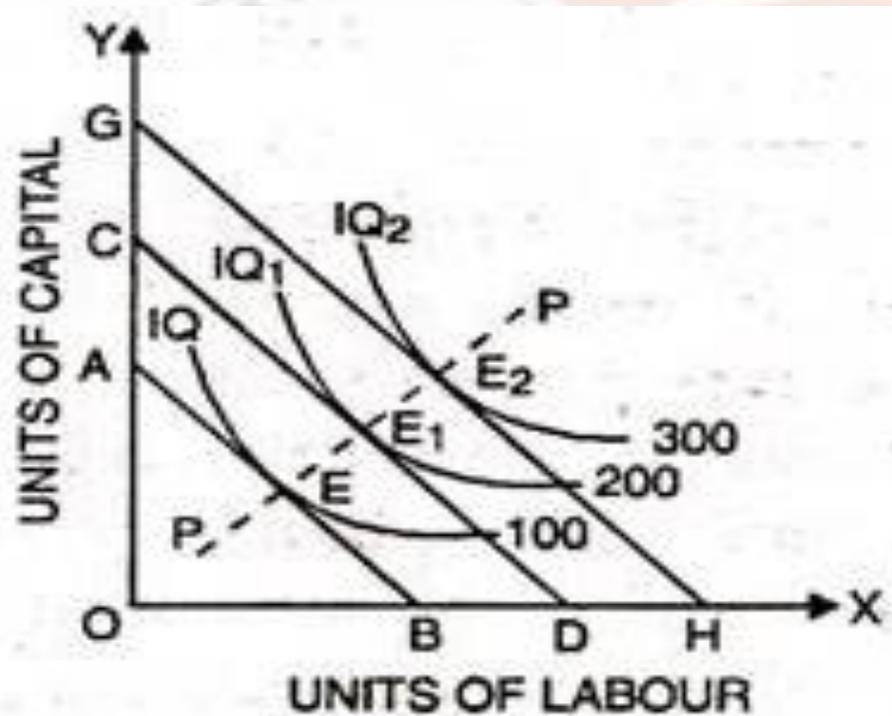


2. Maximising Output

The firm has to produce optimally output with the given cost.



VII. Expansion Path



- Expansion path is defined as the locus of the points of tangency between the isoquant and the iso-cost lines, i.e. the equilibrium points.
- PP—Expansion path derived by joining equilibrium points E, E₁ and E₂.

Q1. What is an isoquant? Explain its properties using diagram. (Oct. 2016)



Q3. Explain the concept of ridge line in details using diagram.



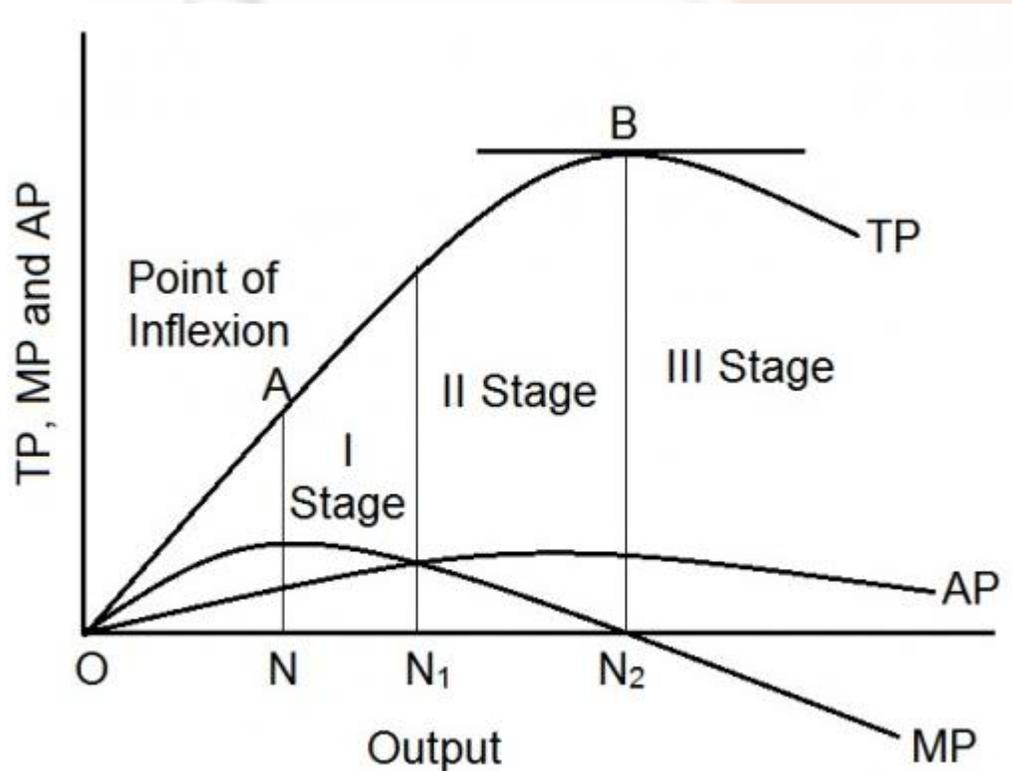
Q5. Explain the concept of ridge line in details using diagram.



Q6. Explain the concept of expansion path in details using diagram.

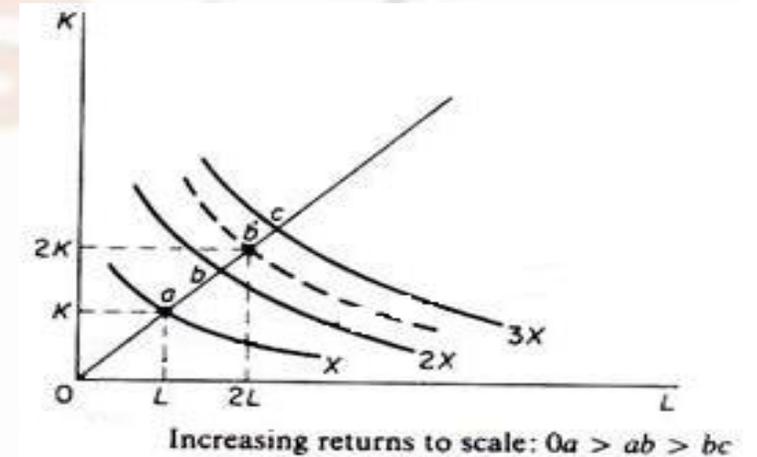
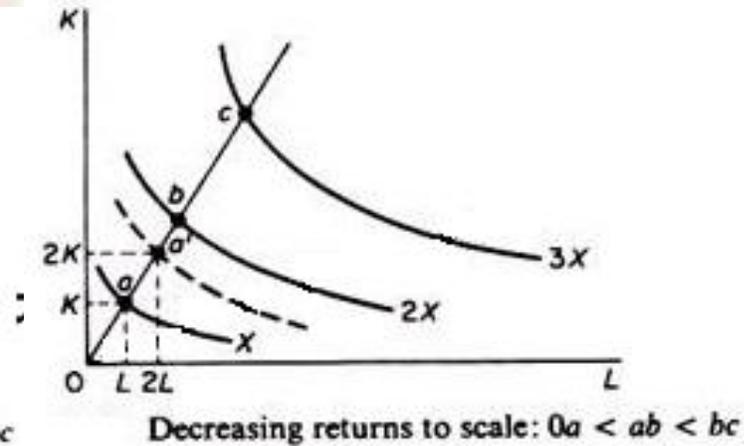
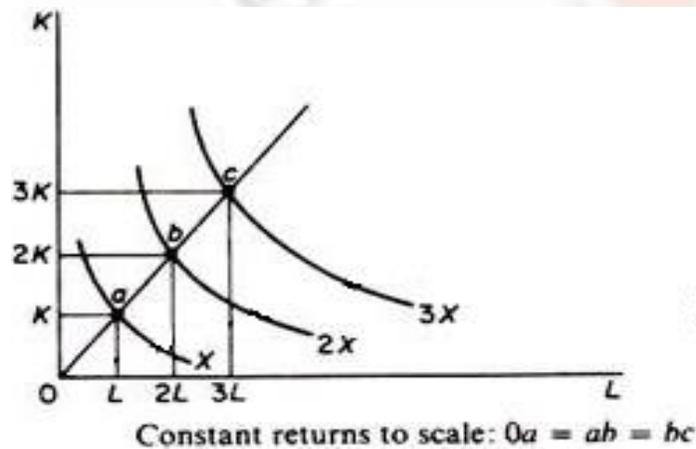
Chapter 7: Short-Run and Long-Run Analysis of Production

I. Short Run Production Function-Law of Variable Proportion/ Law of Marginal Returns



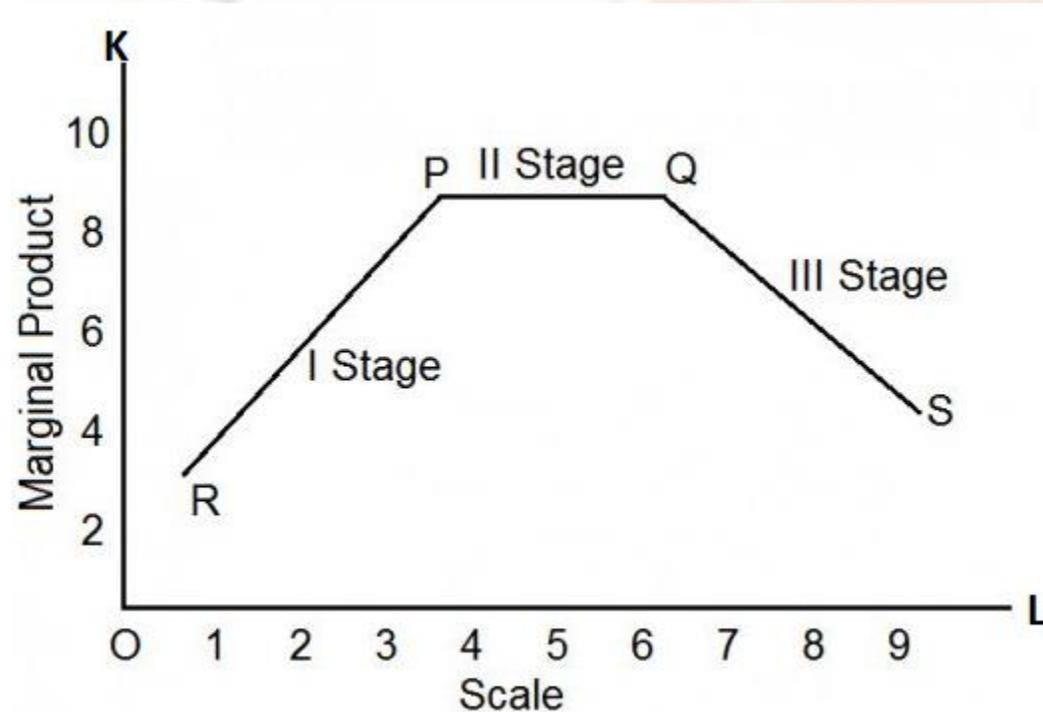
Units of Labour	Total Product (TP)	Average Product (AP)	Marginal Product (MP)	
1	50	50	50	Stage I: Increasing Returns
2	140	70	90	
3	240	80	100	
4	338	84.5	98	
5	400	80	62	Stage II: Decreasing Returns
6	450	75	50	
7	474	67.55	24	Stage III: Negative Returns
8	474	59.25	0	
9	465	51.66	-9	
10	450	45	-15	

II. Long Run Production Function- Law of Returns to Scale



- 1) **Constant Returns to Scale (CRS):** If output increases in the same proportion as increase in inputs, we have constant returns to scale; If $1K \ \& \ 1L \rightarrow 2Q$, then $2K \ \& \ 2L \rightarrow 2Q$
- 2) **Decreasing Returns to Scale (DRS):** If output increases in smaller proportion as increase in inputs, decrease returns to scale; If $1K \ \& \ 1L \rightarrow 2Q$, then $2K \ \& \ 2L \rightarrow < 2Q$
- 3) **Increasing Returns to Scale (IRS):** If output in the greater proportion as increase in inputs, we have increasing returns to scale; If $1K \ \& \ 1L \rightarrow 2Q$, then $2K \ \& \ 2L \rightarrow > 2Q$

III. Measurement of returns to scale



Coefficient of Returns to Scale

$QE = \frac{\text{Percentage change in Output}}{\text{Percentage change in all Inputs}}$

Percentage change in all Inputs

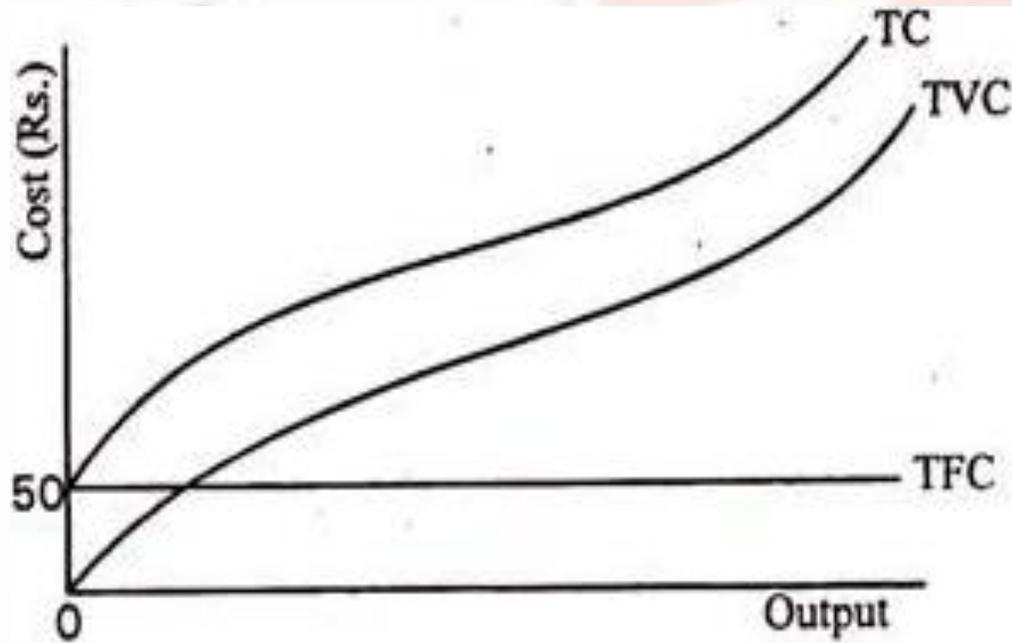
Stage 1: If $QE > 1 \rightarrow$ IRS

Stage 2: If $QE = 1 \rightarrow$ CRS

Stage 3: If $QE < 1 \rightarrow$ DRS

Chapter 8: Cost Concepts and Cost Behaviour

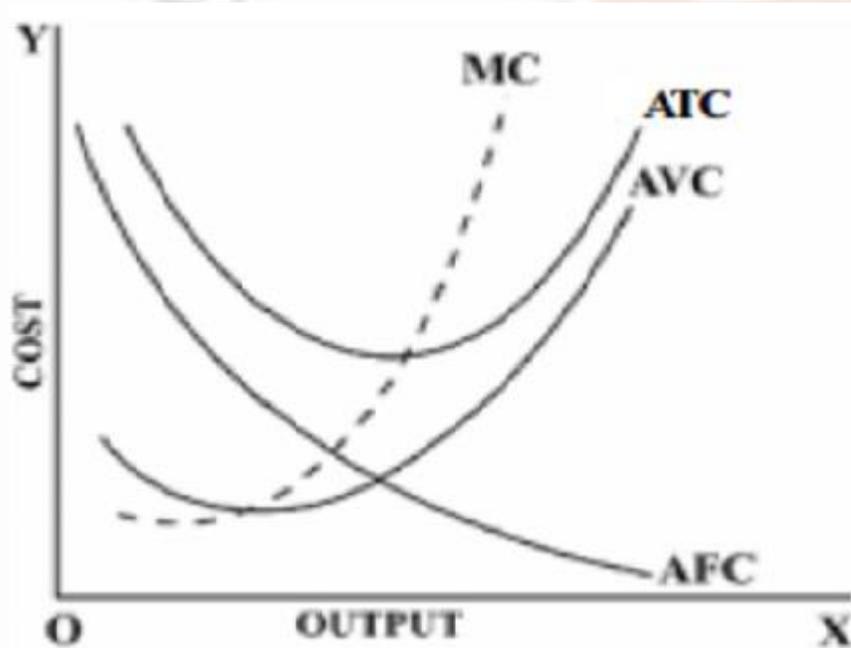
I. Total Cost (TC)



Short-Run Total Cost Curves

- $TC = f(q)$
- $TC = TFC + TVC$
- TFC → horizontal straight line as the cost remains constant despite of the level of output produced.
- TVC → starts from origin, rises initially and then becomes steeper.
- TC → the distance between TC and TVC represents TFC.

II. Relationship between AC, AFC, AVC and MC



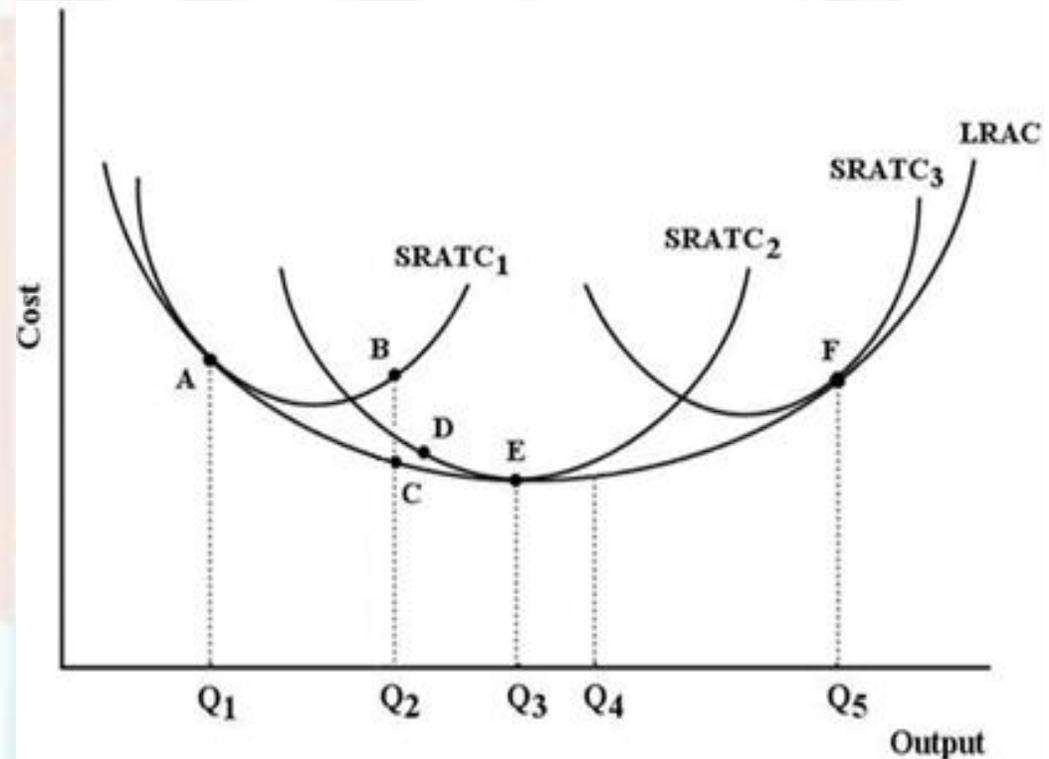
- AFC → rectangular hyperbola; it keeps on falling.
- AVC → U-shaped
- $ATC = AFC + AVC$; U-shaped and lies below AVC.
- Difference between AVC and AC → AFC
- MC → U-shaped; derived from TVC.

AVC/ATC → MC
→ MC
→ MC

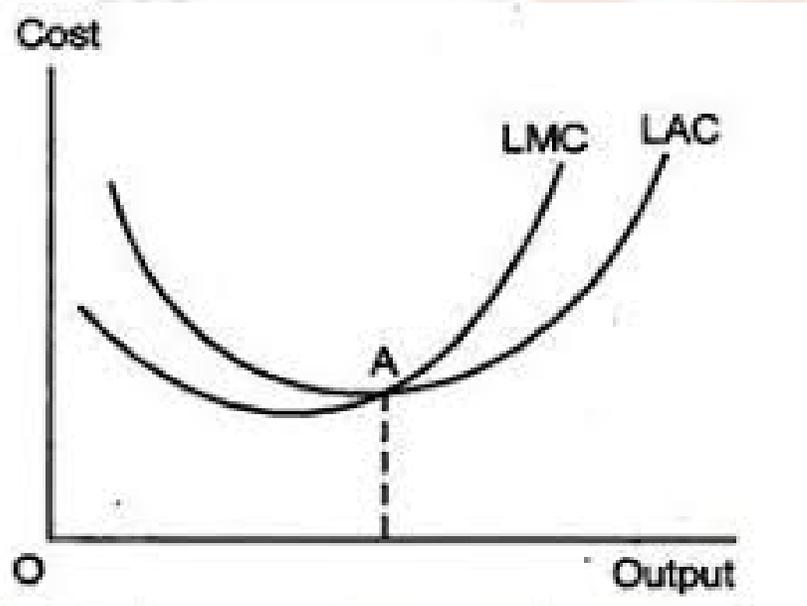
III. Long-Run Average Cost Curve (LAC)

Long-Run Average Cost Curve (LAC)

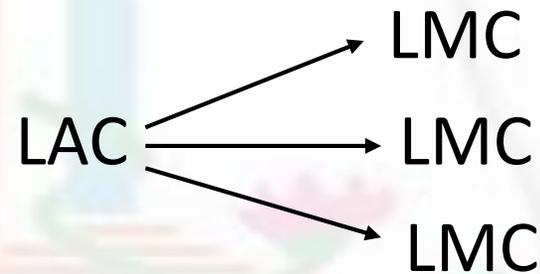
- 3 plant size:
 - $SRATC_1$ → Average cost of small size plant
 - $SRATC_2$ → Average cost of medium size plant
 - $SRATC_3$ → Average cost of large size plant
- LAC envelops a group of short run cost curves, relevant to different levels of output.



IV. Relation between LAC and Long-Run Marginal Cost Curve (LMC)

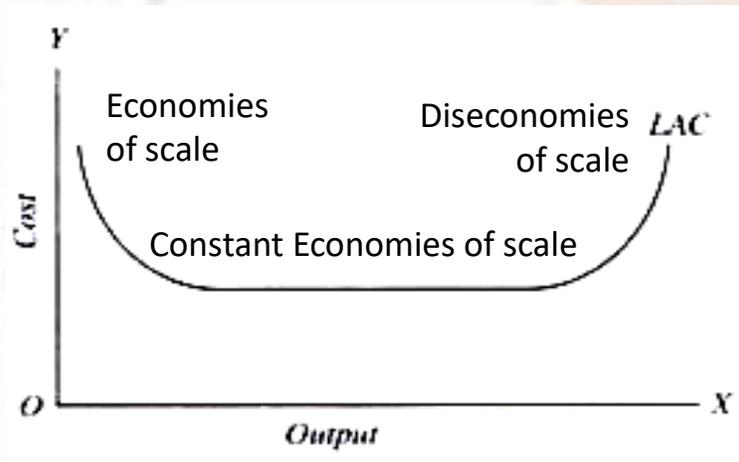


- LMC is U-shaped curve.
- At point A, LMC intersects the LAC at the minimum point.

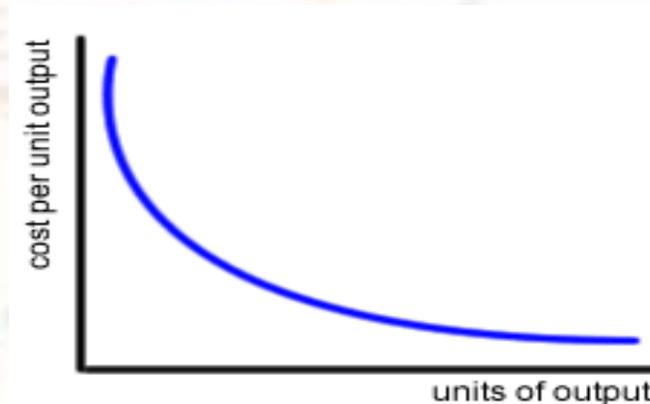


V. Other Concepts of LAC

Saucer shaped LAC



Learning Curve



- Theoretically, LAC curve is U-shaped.
- In reality, LAC is saucer shaped.
- This happens when the firm exhausts economies of scale at modest scale of operation and diseconomies of scale do not occur for a relatively large expansion of the output.
- It was developed by the economist Arrow.
- A firm learns through experience, uses the resources in the best possible manner and lowers the cost of production and also ensures minimum wastage.
- Learning curve slopes downwards indicating the decline in cost as the output increases

Q2. Also explain the relationship between AC and MC.

(Oct. 2017)



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Q3. Write a short note on Learning curve.



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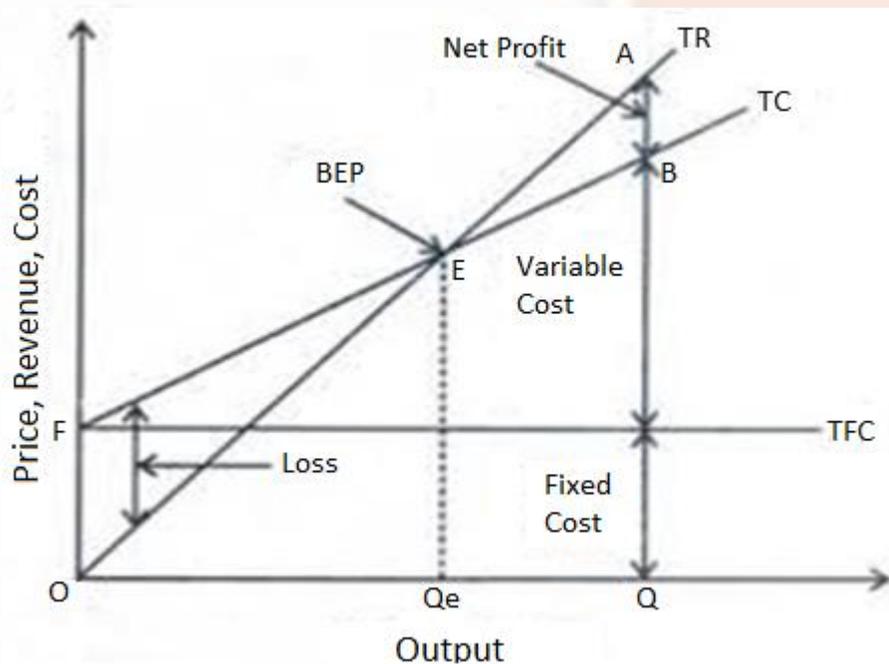
Q4. Write a short note on LMC curve.



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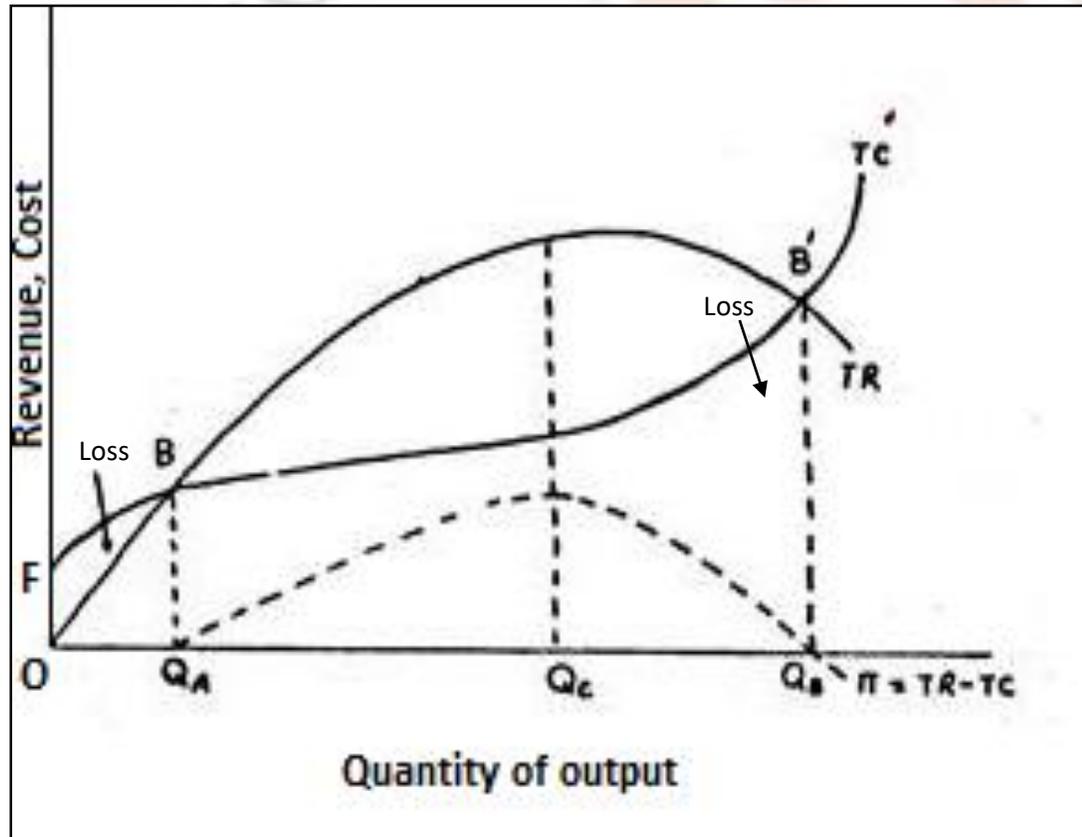
Chapter 9: Break-even Analysis

I. Linear Function and Break-even Analysis (Perfect Competition)



- Total Revenue (TR) → starts from the origin and it is linear curve.
- Total Fixed Cost (TFC) → horizontal straight line indicating constant proportion.
- Total Variable Cost (TVC) → vertical distance between TC and TFC.
- Total Cost (TC) = TVC + TFC
- E → intersection point between TR and TC – Break-even point (BEP)
- OFE → Loss
- AEB → Net Profit

II. Non-Linear Function and Break-even Function (Imperfect Competitive Market Structure)



- TR and TC curves are non-linear.
- B & B' \rightarrow BEPs
 - B \rightarrow Lower BEP
 - B' \rightarrow Upper BEP
- Q_A and Q_B \rightarrow Break-even Output
- OFB \rightarrow Loss
- Area between TR and TC from point B to point B' \rightarrow Profit
- Q_c \rightarrow Profit is maximum
- Q_A is relevant to business firm as Q_B lies beyond the profit maximizing level of output.

Q1. Diagrammatically explain the concept of break even point analysis. (Oct. 2016)



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Q1. Diagrammatically explain the concept of break even point analysis. (Oct. 2016)

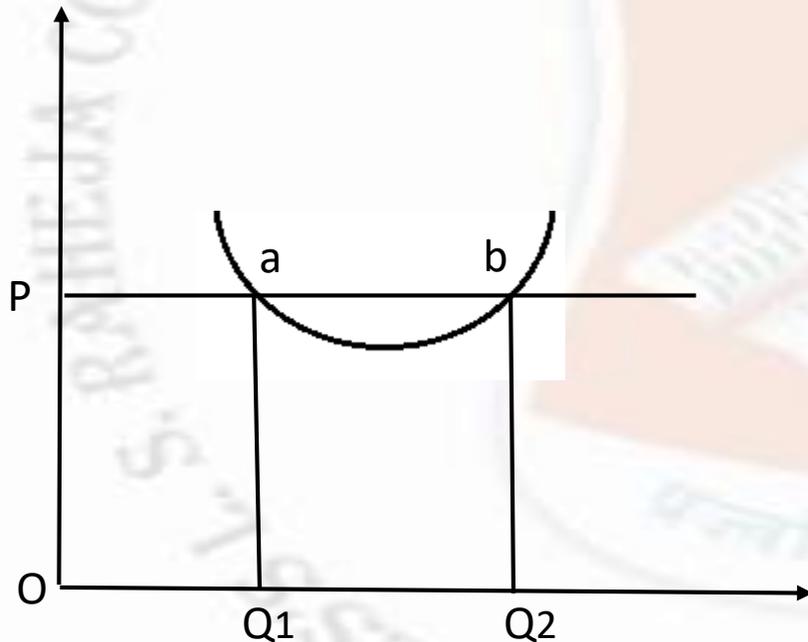


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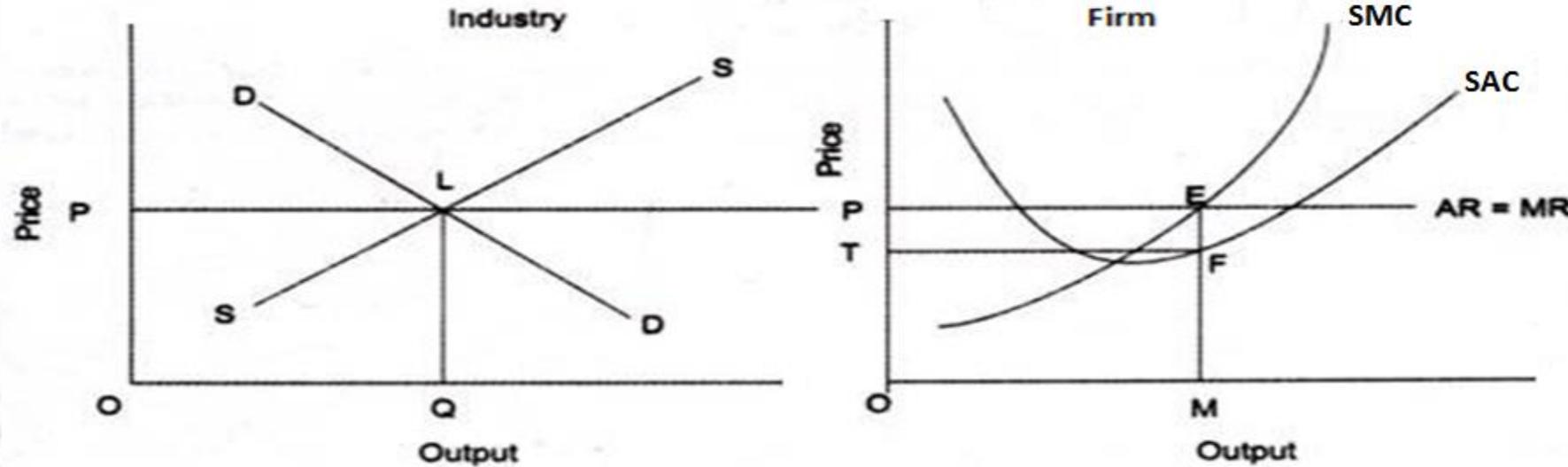
Chapter 10: Perfect Competition

I. Equilibrium: MR-MC Approach

- Condition for Equilibrium
 - i. $MR = MC$
 - ii. MC curve cuts the MR curve from below
- $b \rightarrow$ equilibrium point where both the conditions are satisfied.

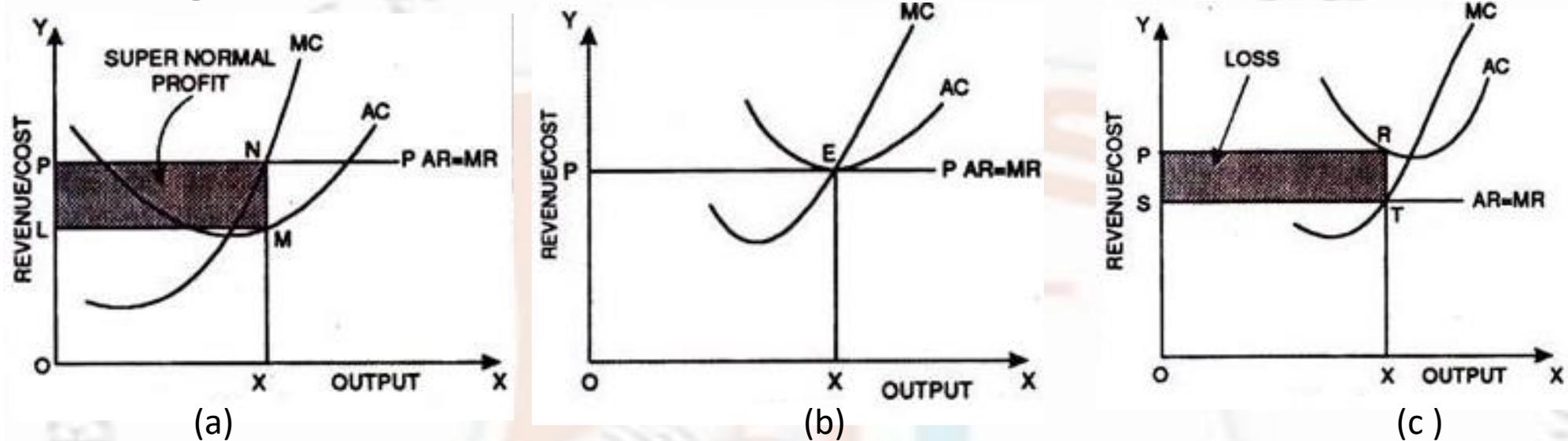


III. Short-run equilibrium of the Firm and Industry



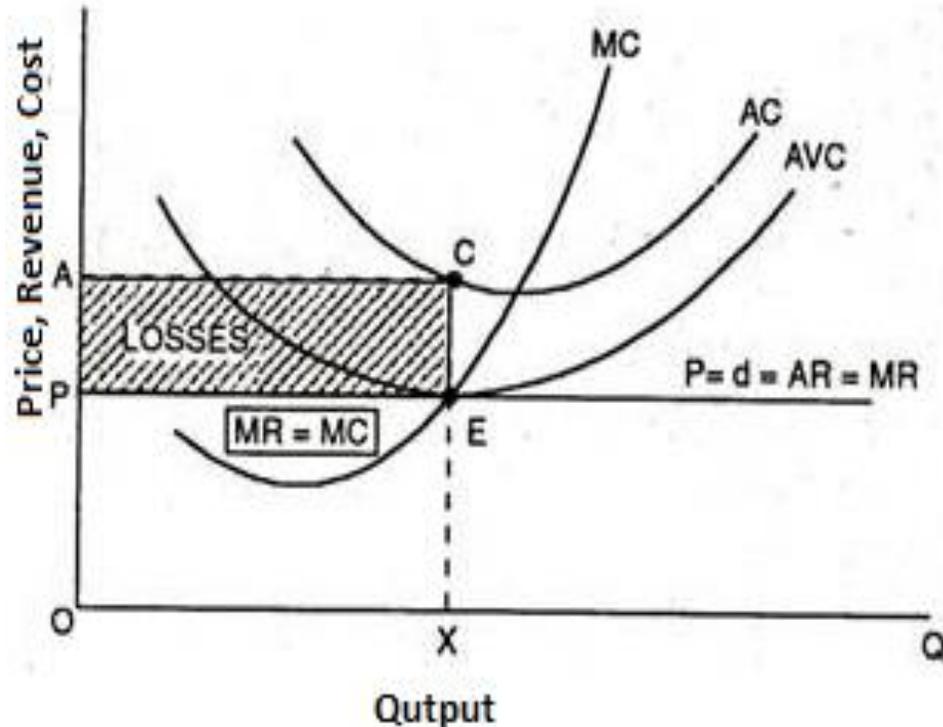
- P—equilibrium price determined by market forces of demand and supply of the industry.
—price accepted by individual firms in the industry.
- At equilibrium, point E—
 - $SMC=SAC$
 - SMC cuts SAC from below
 - OMEP is the firm's total revenue
 - OMFT is the firm's total cost
 - PEFT is the supernormal profit earned by the firm.

IV. Supernormal Profit, Normal Profit and Loss



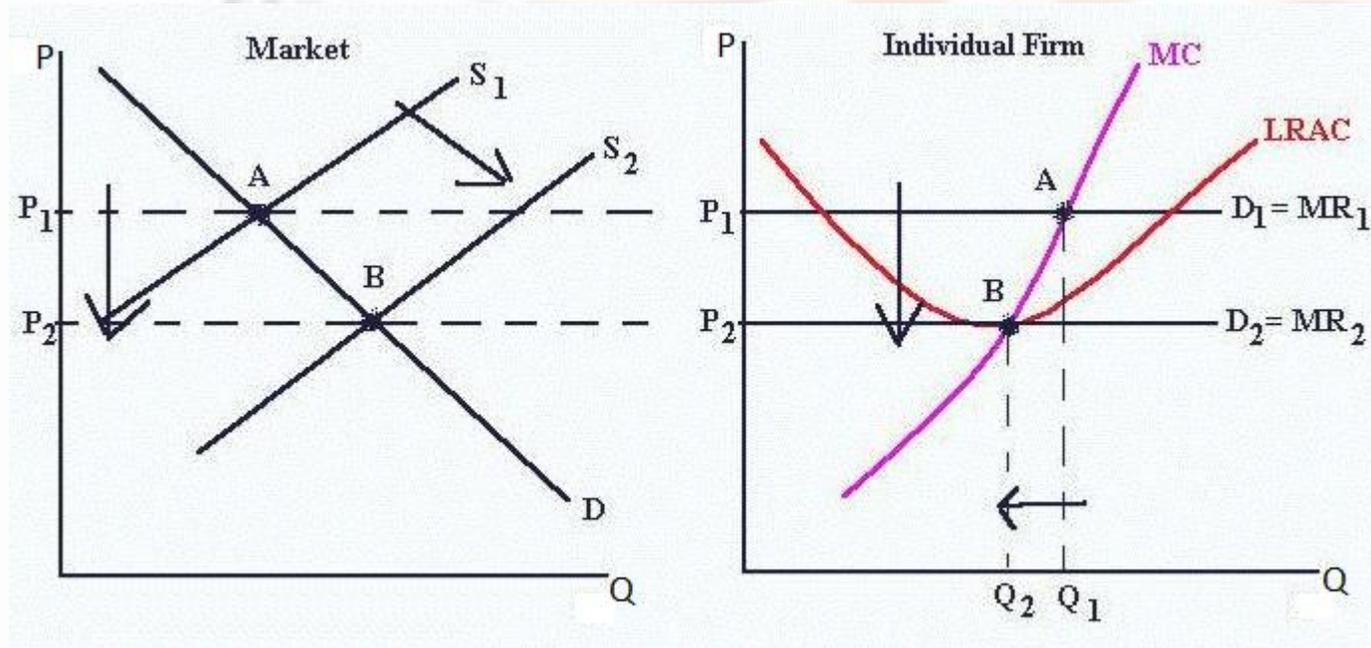
- Depending upon the price fixed by the industry and the cost incurred by them , the firm may get super normal profits, normal profits, loss or it may face shut down condition.
- OP—price taken by the firms in perfectly competitive market.
- In case of diagram (a), $P > AC \rightarrow$ firm earns supernormal profit represented by the shaded area PLMN
- In case of diagram (a), $P = AC \rightarrow$ firm earns normal profit.
- In case of diagram (a), $P < AC \rightarrow$ firm makes loss represented by the shaded area PSTR.

V. Shut down point of a firm



- At price OP the firm produces OX .
- As $P < \text{Average Total Cost (AC)}$, firm makes a loss of area $(APEC)$
- $E \rightarrow$ shut down point where $P = \text{Average Variable Cost (AVC)}$
- The firm will continue to produce till it can cover the variable cost.

VI. Long Run Equilibrium in Perfect Competition



- In long run the industry is in equilibrium when all the firms make profits.
- At point B, D_2 (AR) = AC, $MR_2=MC$ and MC curve cuts the MR_2 from below.
→ Price = AR = MR = AC = MC

Q1. Explain short run equilibrium of the firm under perfect competition with the help of suitable diagram. (March 2017)

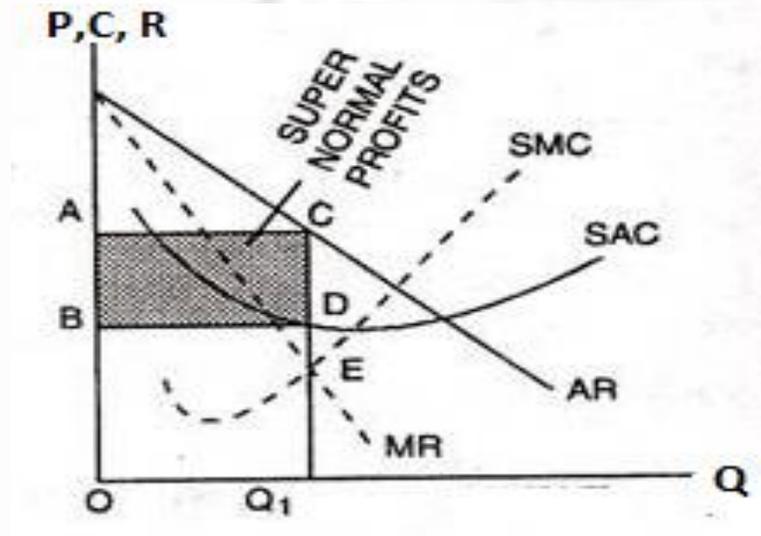
Q3. Write a short note on the shut down point of the firm in perfect competition.



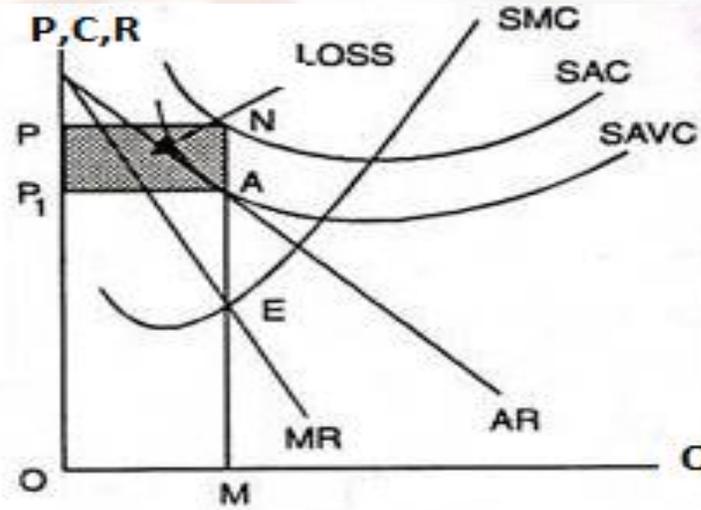
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Chapter 11: Monopoly

I. Firms Equilibrium in Short Run



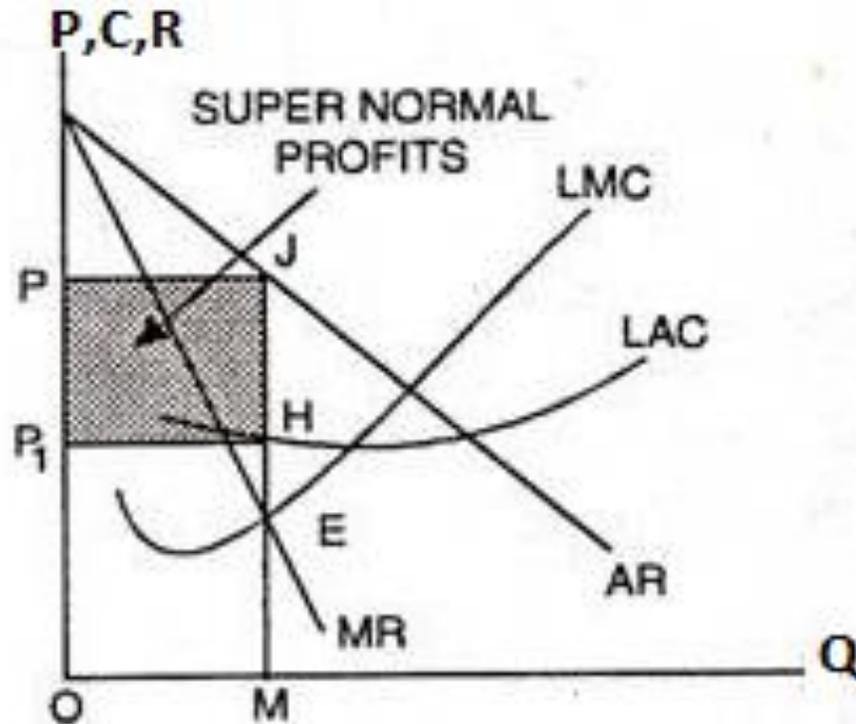
(a)



(b)

- In equilibrium, $MR=MC$ and MC cuts the MR from below.
- In short-run, a monopolist due to monopoly power can earn excess profit.
- In diagram (a), $P > AC \rightarrow$ monopolist earns profit shown by the shaded area ABDC.
- As the demand for the product produced by the monopolist depends on the market, the monopolist may even incur loss.
- In diagram (b), $P < AC \rightarrow$ monopolist earns loss shown by the shaded area P₁ANP.

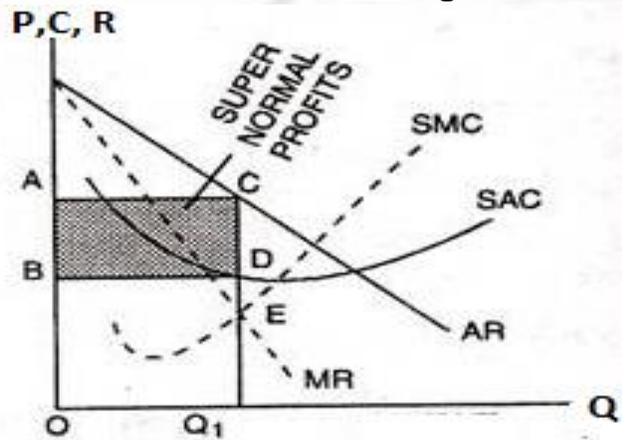
II. Firms Equilibrium in Long Run



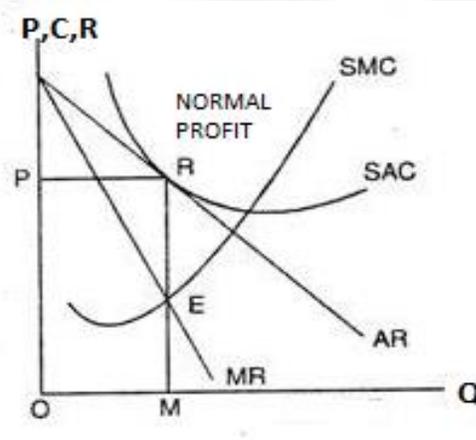
- In long run, the monopoly makes all the necessary adjustments to earn supernormal profit.
- However, insufficient demand for the product may compel the monopolist to settle down with normal profit.
- In equilibrium, $MC=MR$ and MC cuts the MR from below.
- OP —equilibrium price
- OM —equilibrium quantity
- As $OP > AC$ —supernormal profit (shaded area, P_1HJP).

Chapter 12: Monopolistic Competition

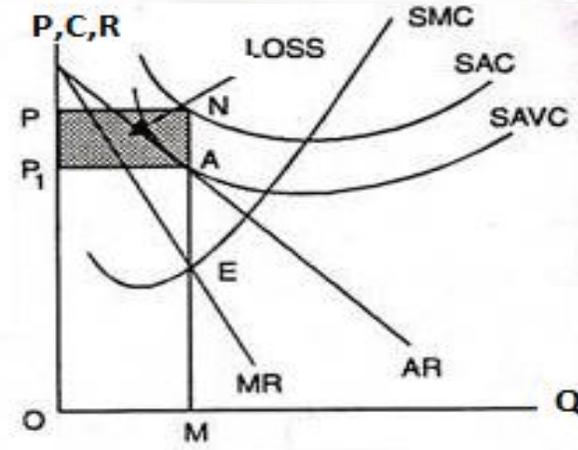
I. Firms Equilibrium in Short Run



(a)



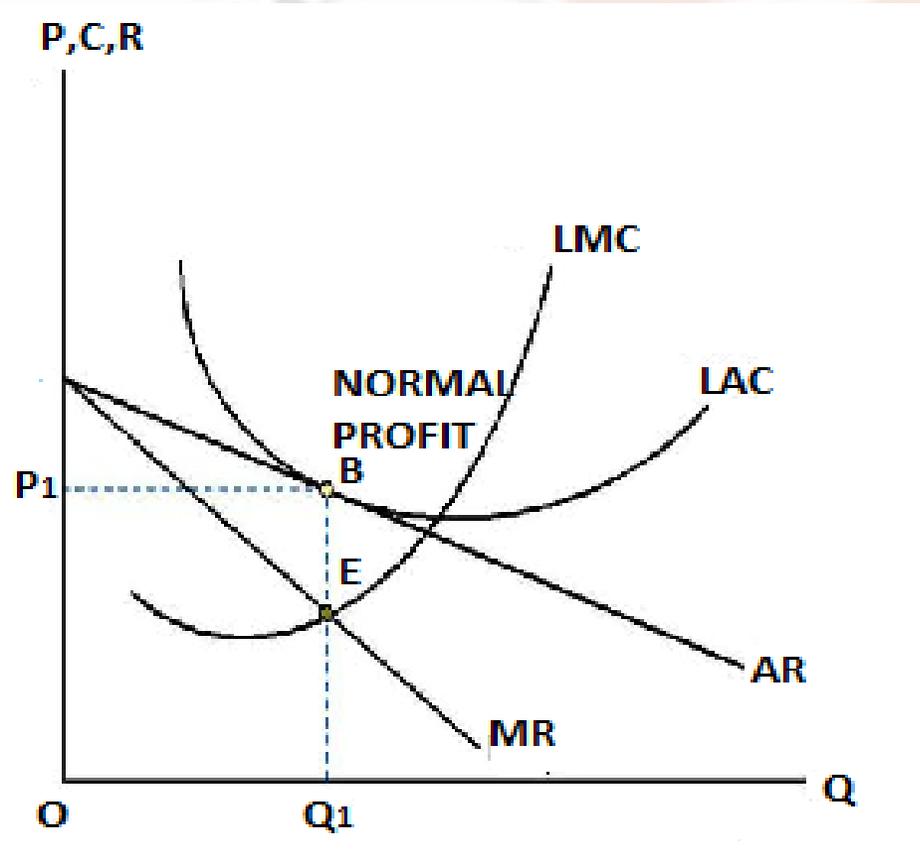
(b)



(c)

- In equilibrium, $MR=MC$ and MC cuts the MR from below.
- In short-run, a monopolistic competitive firm may operate with excess profit, normal profit or loss.
- In diagram (a), $P > AC \rightarrow$ monopolist earns profit shown by the shaded area ABDC.
- In diagram (b), $P = AC \rightarrow$ monopolist earns normal profit.
- In diagram (c), $P < AC \rightarrow$ monopolist earns loss shown by the shaded area P₁ANP.

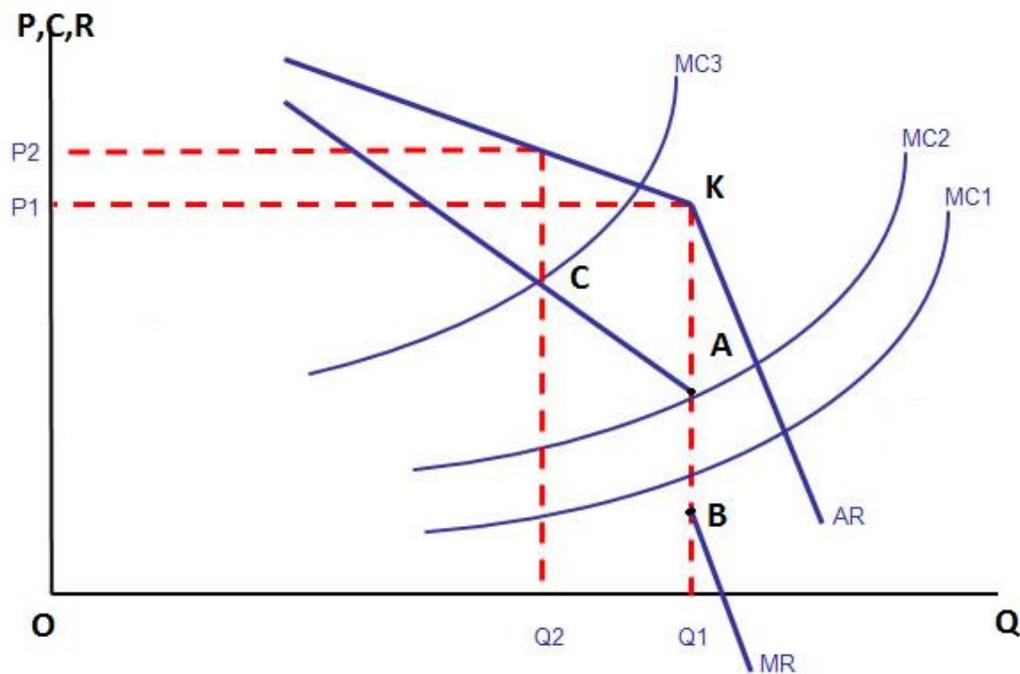
II. Firms Equilibrium in Long Run



- In long run, a monopolistic competitive firm makes all the necessary adjustments to earn normal profit.
- The reason is the assumption of free entry and exit and the heroic assumption that both the demand and cost curves of all the products are the same.
- In equilibrium, $MC=MR$ and MC cuts the MR from below.
- OP_1 —equilibrium price
- OQ_1 —equilibrium quantity
- As $OP_1 = AC$ —normal profit

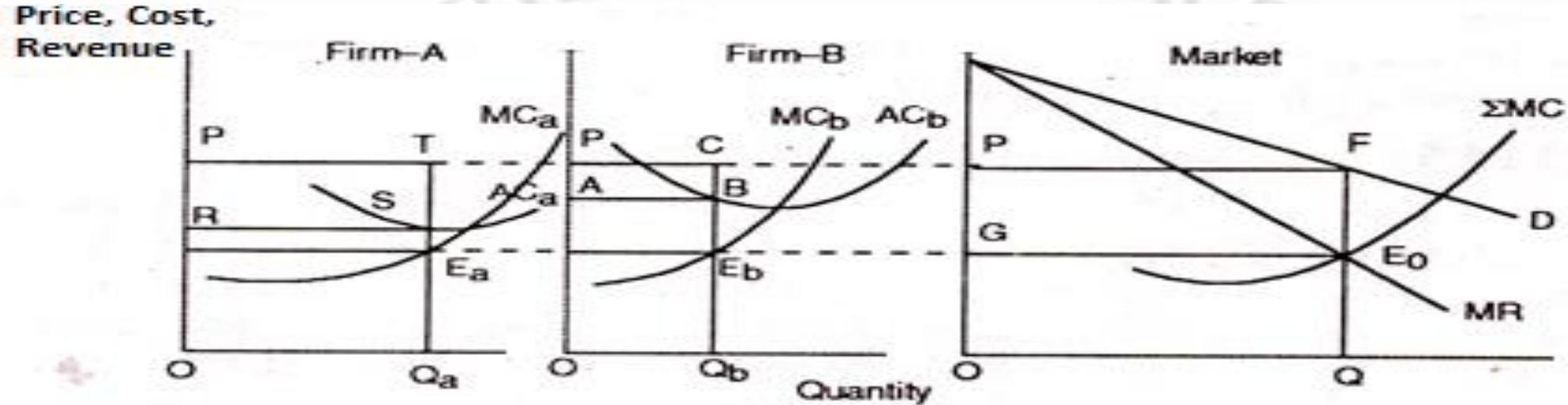
Chapter 13: Oligopoly

I. Firm's Equilibrium



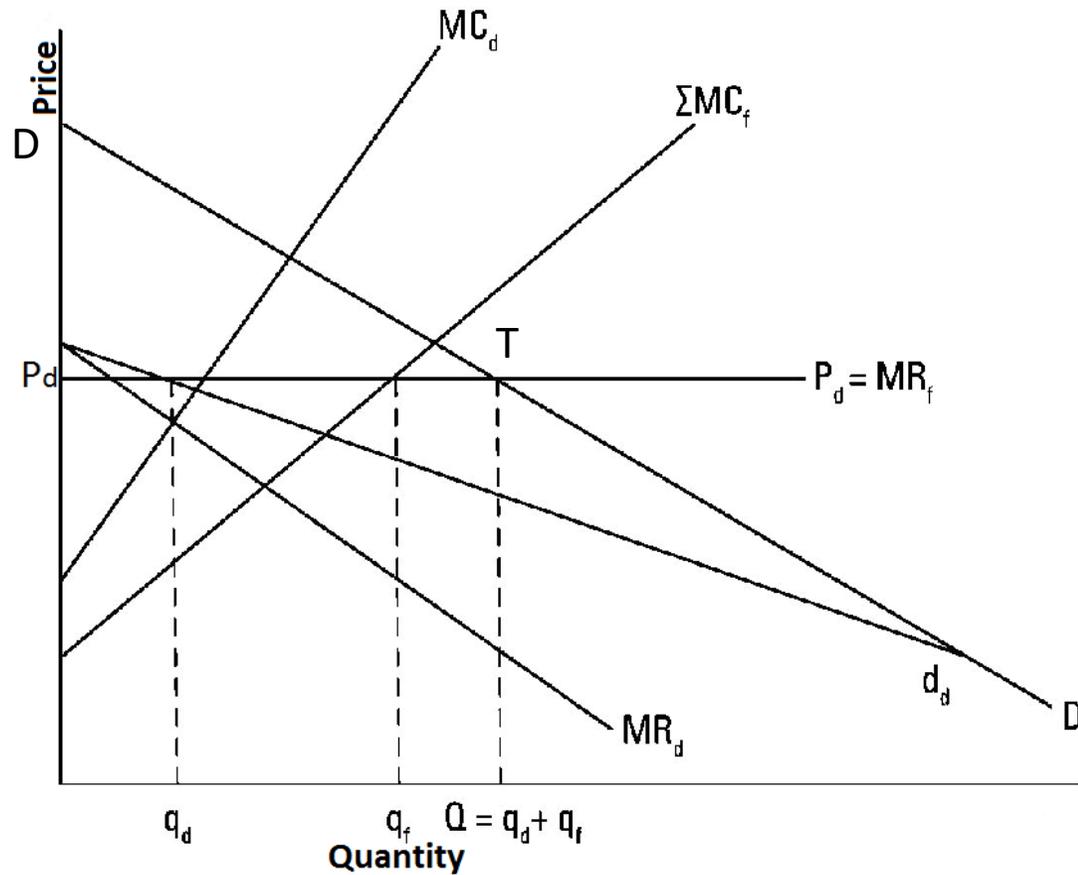
- In oligopoly market structure, the demand curve is kinked at K and thus the price is rigid.
- The MR curve is discontinuous due to the kink
- The discontinuity depend on the difference in the elasticities of the two parts of demand curve.
- MC passes through the discontinuous portion of MR. MC lies between points A and B.
- Equilibrium is attained where $MR=MC$
- In this case the cost can vary but the quantity produced and price does not change.

II. Centralised Cartels– A Form of Collusive Oligopoly



- In centralized cartel, the cartel decides the product price, allocates output among its members and determines the norms of profit sharing.
- This diagram explains the arrangement under centralized marketing.
- The industries marginal cost-- $\sum MC$ = horizontal summation of MC_a and MC_b
- Total output— OQ is produced at point where $MR = \sum MC$
- OP —equilibrium price (market price) taken up by firm A and firm B
- At price OP , Firm A sells OQ_a output and earns a profit of $PRST$
- At price OP , Firm B sells OQ_b output and earns a profit of $PABC$.
- Firm A sells larger quantity and earns more profit.

III. Price Leadership Model



- Under the Price leadership, other firms accept the price decided by the leader.
- DD— the market demand curve
- $\sum MC_f$ —marginal cost curve of all followers
- DD—demand curve of the leader firm
- MC_d —marginal cost of the leader
- MR_d —marginal revenue of the leader
- OP_d —price set at point E, where $MC_d = MR_d$
- The followers will produce till the point where $\sum MC = OP_d$, i.e. point T

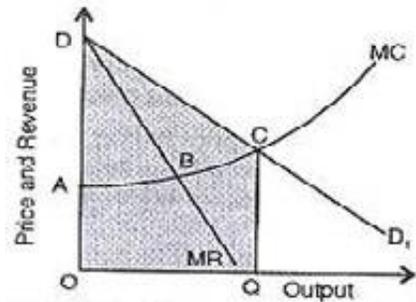
Q2. Explain the equilibrium of an oligopoly firm facing kinked demand curve.

Q3. Explain the joint profit maximization under centralized cartel using diagram.

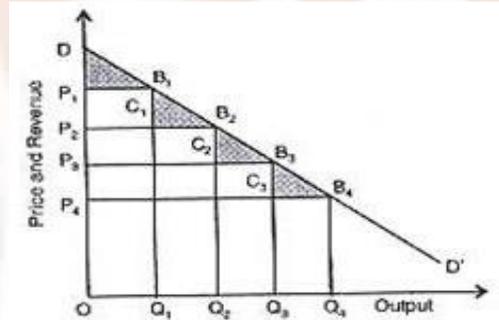
Chapter 14: Pricing Practices

I. Degrees of Price Discrimination—

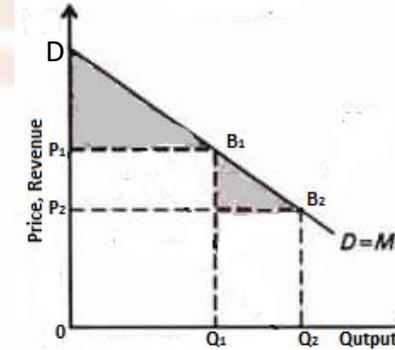
- There are three different degrees of price discrimination



(a)



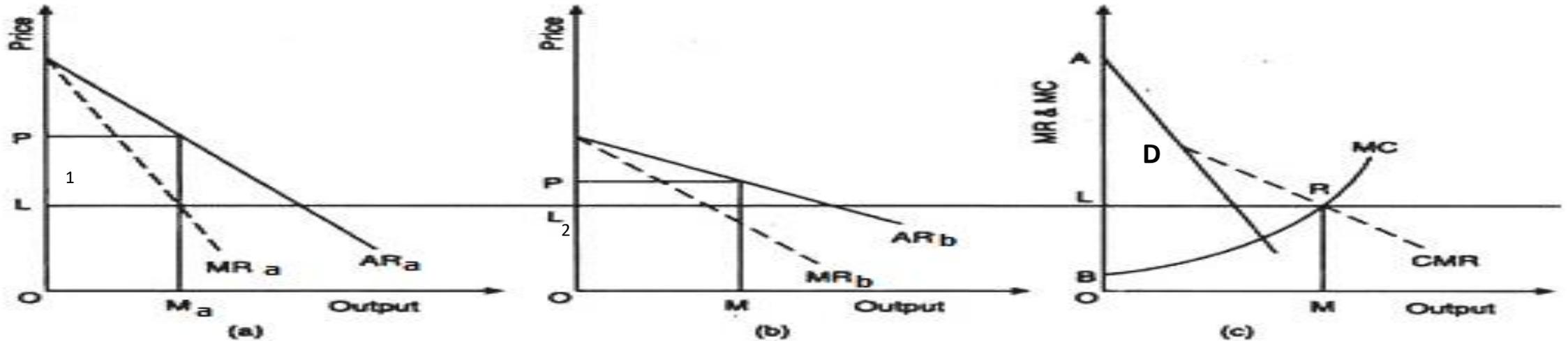
(b)



(c)

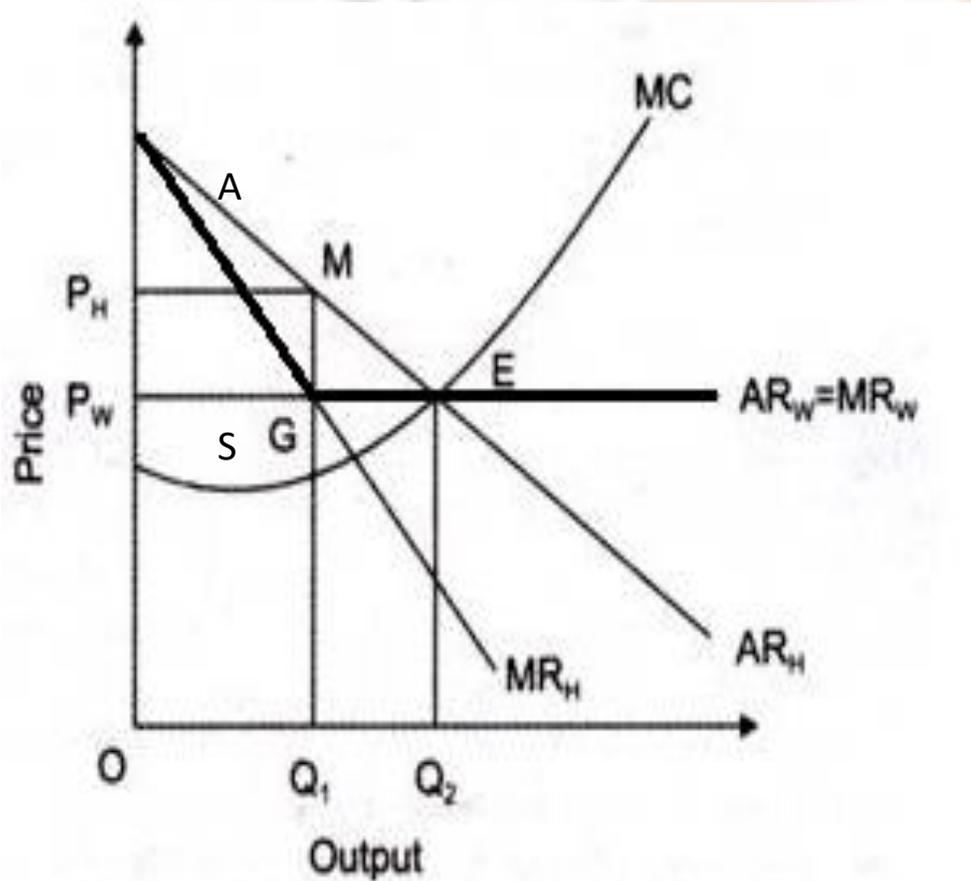
- **First Degree Price Discrimination**—each unit of the commodity is charged a different price. Seller takes away all the consumer surplus.
- **Second Degree Price Discrimination**—different block of the commodity is charged a different price. Seller takes away major part of the consumer surplus.
- **Third Degree Price Discrimination**—Different markets of the commodity is charged a different price. Seller takes away a part of the consumer surplus.

II. Equilibrium of Price Discriminating Monopolist



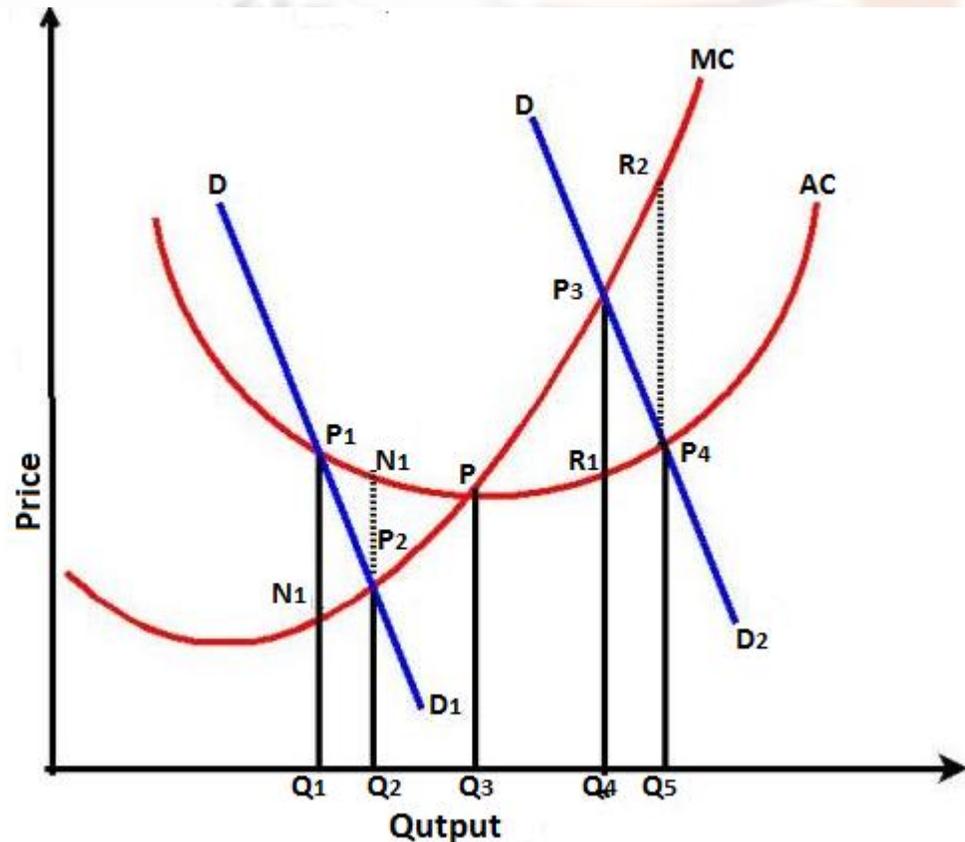
- For monopolist to charge different prices in different markets, price elasticities in different markets should differ.
- R—point where $MC=CMR$
- OM —total output = $OM_a + OM_b$
- OL —shows the equality of marginal revenue in both market A and market B, i.e. $MR_a = MR_b$
(Equi-marginal condition)
- Market A— OP_1 is the price charged and OM_a is the quantity sold.
- Market B— OP_2 is the price charged and OM_b is the quantity sold.
- $BRDA$ —profit earned by the discriminating monopolist at equilibrium.

III. Dumping



- Equilibrium of a firm resorting to dumping—point E where $MR=MC$ and MC is rising.
- $OP_H \rightarrow$ price in the home market
- $OP_W \rightarrow$ price in the world market
- $OQ_2 \rightarrow$ Total output
- $OQ_1 \rightarrow$ Output sold in the home market
- $Q_1Q_2 \rightarrow$ Output sold in the world market
- $OP_H \rightarrow$ price in the home market
- $OQ_2 EGA \rightarrow$ Total Revenue
- $OSEQ_2 \rightarrow$ Total Cost
- $SAGE \rightarrow$ Profit (Excess)

IV. Marginal Cost Pricing



- Public undertakings for various reasons may follow a price policy based on marginal cost.
- Public undertaking producing essential public goods charges Price=MC
- $QP_2 \rightarrow$ price charged $<$ AC \rightarrow loss
- Public undertaking producing goods purchased by higher income group charges Price = MC
- $QP_4 \rightarrow$ price charged $>$ AC \rightarrow profit

Q1. What is price discrimination? Explain the different degrees of price discrimination. (Mar., Nov. 2017)

Write short note on price discrimination.

(Oct. 2016)

Q2. Explain the conditions when price discrimination is possible with the help of diagram.



Q3. Write short note on Dumping. (October 2016, March 2017)



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