Page No. 1-3
Date 05/09/24

Ch-2 :- Theory of Demand and Supply

Unit-1 :- Law of Demand and Elasticity of Demand

1.0 Demand (माँग)

Desire (इच्छा) (+) means to Purchase (साधन/Money) → Resources (+) Willingness to use these Purchase

Price (₹)	Burger (unit)
5	100
10	50
100	5
400	2

Given Price

Quantity Demanded

is a FLOW & is expressed at a given Price

Demand

1.1 Factors affecting Demand / Determinants of Demand

(i) Price of the Goods (P_x)

$P_x \uparrow D_x \downarrow$ or $P_x \downarrow D_x \uparrow$

Inverse relation or Negative relation

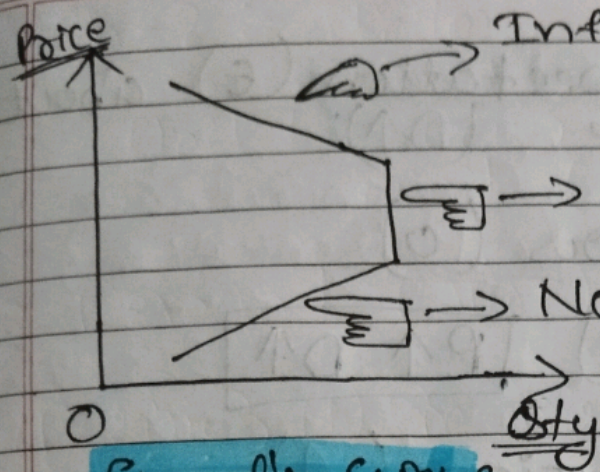
(ii) Price of a related goods (P_R)

- **Substitude goods**
  - e.g. → Tea & Coffee, Coke & Pepsi
  - P_{Tea} (↑) D_{coffee} (↑)
  - Direct relation or Positive relation
- **Complementary goods**
  - e.g. → Tea & Sugar, Car & Petrol, Pen & ink
  - P_{Petrol} (↑) D_{car} (↓)
  - Inverse relation / Negative relation

(iii) Disposable Income of the consumer (Y)

Engel's curve named after **Lord Engel** showing 3 different **demand curve**

- **Normal Good** (Wheat) (Colour TV)
  - Y↑ D↑
  - +ve income effect
- **Inferior Good** (Bajra) (Black & White TV)
  - → Low Income group of people
  - Y↑ D↓
  - −ve income effect
- **Necessity Good** (Salt)
  - → Y(↑)(↓) D Not change



Engel's Curve

(iv) Tastes and Preference (T)

(a) Demonstration effect ⇒ Padosi ka TV dekh kar aapka bhi man kara purchase करने का

(b) Bandwagon effect ⇒ Sab ले रहे हैं Fashion में है।

(c) Snob effect ⇒ (D ↓) when Product is too common then buyer buy different Product

(d) Veblen effect ⇒ Conspicous consumption
Very expensive
(eg ⇒ Diamonds, expensive cars)

(v) Consumer Expectation (E) about future price (D↑)

(vi) Others factors (O)

(a) Population (P) [P↑ D↑]

(b) Age Distribution (A)

(c) National Income and its Distribution (↑N)

- Equal Distribution (Rich = Poor) D↑
- Unequal Distribution (Rich ≠ Poor) D↓

(d) Consumer-credit facility and Interest rates (C)

(e) Government policies and regulation (G)

1.2 Demand function

$$Q_x = f(P_x, P_R, Y, T, E, O)$$

Dependent Variables

Independent Variables

1.3 The Law of Demand

$$Q_x = f(P_x, P_R, Y, T, E, O)$$

Inverse Relationship

No change, constant, Ceteris paribus (Assumption)

* "Alfred Marshal defined this law"
* Ceteris Paribus (being other things constan or equal)
* It is a Qualitative Statement not a Quantitative Statement.

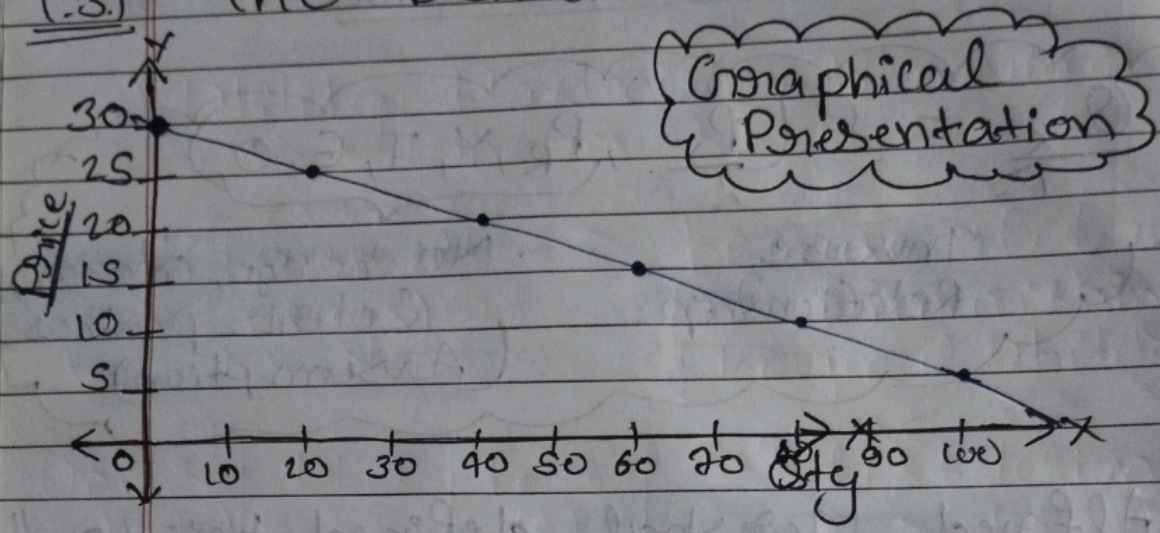
$P_x \uparrow \; Q_x \downarrow$
$P_x \downarrow \; Q_x \uparrow$
→ Inverse relationship.

1.3.0 The Demand Schedule

Tabular presentation

Price	Quantity Demanded
5	100
10	80
15	60
20	40
25	20
30	00

1.3.1 The Demand Curve

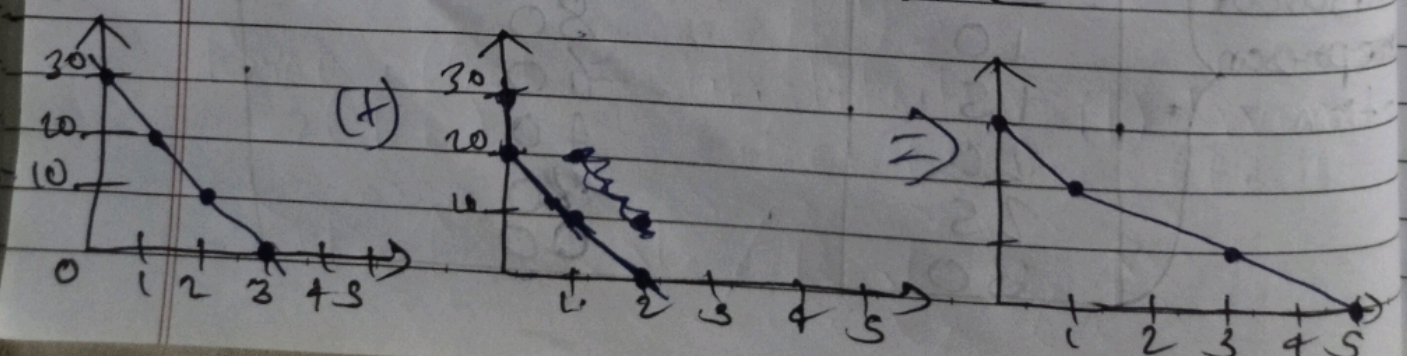


1.3.2 Market Demand Schedule

Price	QD(A)	QD(B)	Market Demand (MD)
0	3	2	5
10	2	1	3
20	1	0	1
30	0	0	0

QD(A) (+) QD(B) = MD

1.3.3 Market Demand Curve



* Market Demand Curve is always flatter as compared individual demand curves.

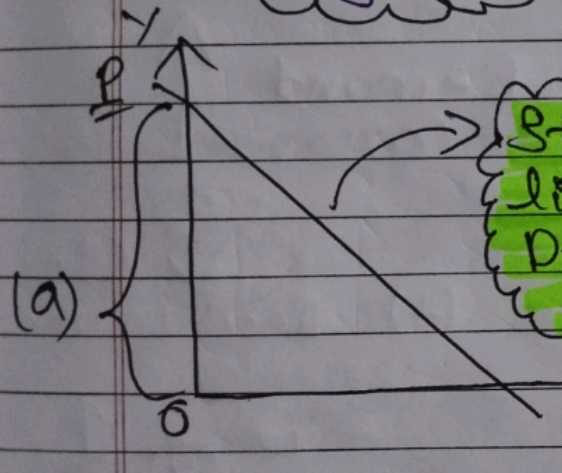
* Straight line Demand curve

Slope of Demand curve $\Rightarrow (-)\frac{\Delta P}{\Delta Q_D}$ (+)/(+) (−)/(+)

Inverse relationship

Always Negative

(+)	(−)
(−)	(+)



Straight line Demand Curve → $Q = a - bP$

Slope $= \frac{\Delta P}{\Delta Q}$

Q = Dependent Variable

P = Independent Variable

Imp

1.3.4 Why does Law of Demand operate? (Rational of Law of Demand)

$P_x \uparrow \; Q_x \downarrow$

$P_x \downarrow \; Q_x \uparrow$

→ Why ?

→ These are the reasion behind Rational of the Law of Demand:

(i) Utility Maximising behaviour of Consumers.

Marshal (says) → because of Law of Diminishing (घटती) Marginal Utility (MU)

Satisfaction

Units (Apple)	MU	Price (₹)
1	10	100
2	8	80
3	6	50
4	4	20
5	2	1

$Q_x \uparrow$ $P_x \downarrow$

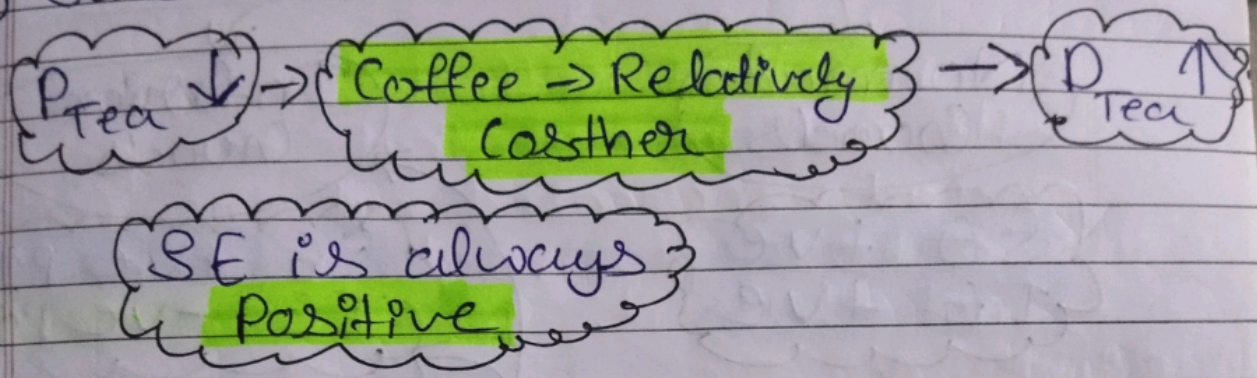
Inverse

(ii) JR Hicks & Allen (Says)

Price effect = Substitution effect (SE) + Income effect (IE)
(PE)

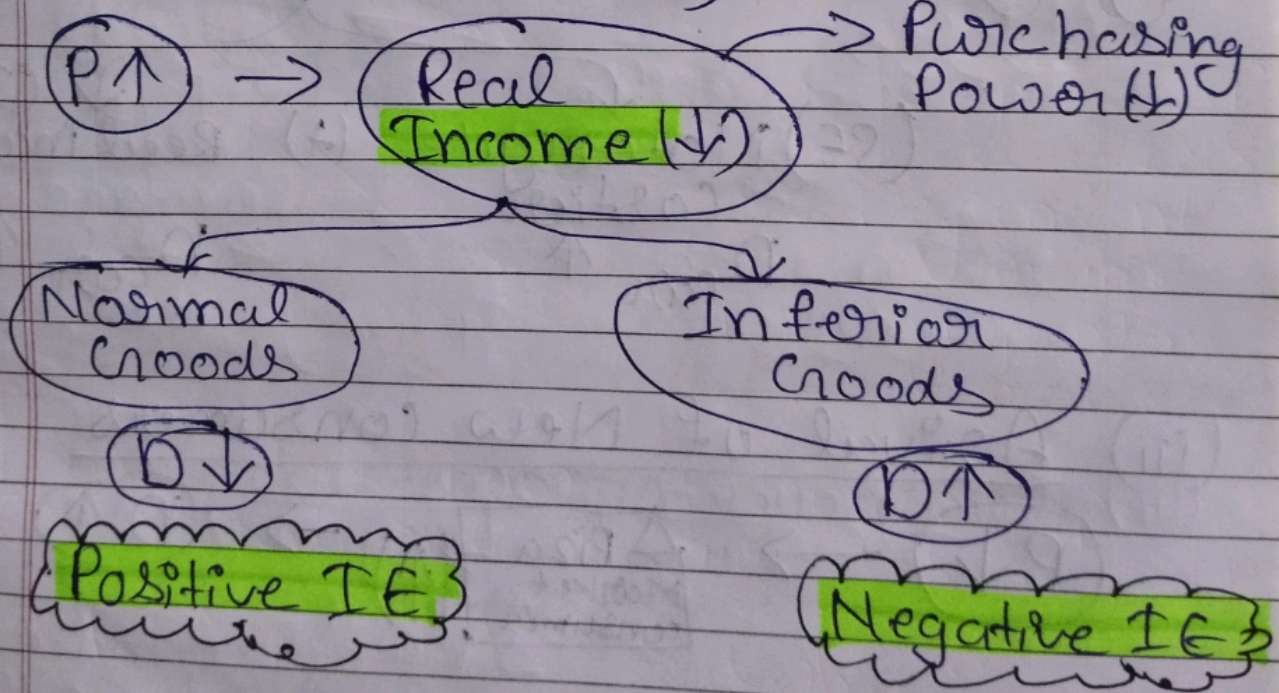
$P_x \uparrow$ $Q_x \downarrow$ / $P_x \downarrow$ $Q_x \uparrow$

(a) Substitution Effect (SE)



* Stronger Substitution effect when:-
  → Goods are close substitutes
  → Low cost of switching.
  → Lower inconvenience while switching.

(b) Income effect (IE)



* Price Effect (PE)

Normal Goods
SE +ve
IE +ve

Inferior Goods
SE +ve P↑ D↓
IE -ve P↑ D↑

SE > If ⇒ +ve
SE < If ⇒ -ve

Car — Price of Car ↓ — Demand Car ↑

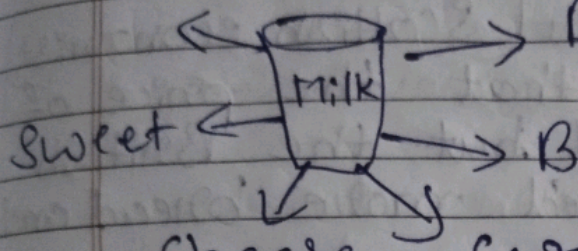
(SE) Motorcycle Cartier
Dcar ↑

(IE) Real income ↑
Dcar ↑

(iii) Arival of New consumers

P↓ → Pizza Market consumer (↑) → D↑

(iv) Different Uses (eg. Milk, Electricity



P↓ → Uses ↑ → D↑

P↑ → Uses ↓ → D↓

13.5 Exception of Law of Demand

P↑ D↑ P↓ D↓

Not a P↑ D↓ P↓ D↑ → Why?

↓ three reasion

(i) Conspicuous Goods (Snob Goods or Veblen Goods)

→ Very expensive goods / Prestigious goods

→ Diamonds

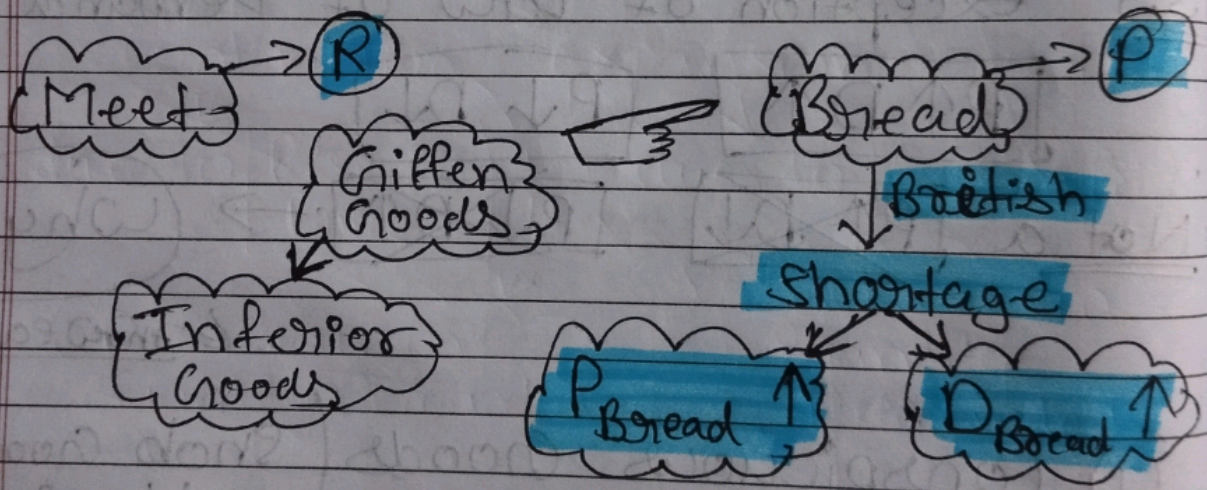
→ P↑ D↑

(ii) Giffen goods

→ Sir Robert Giffen (Scottish economist)
→ He ~~obj~~ observe that the price of bread increased but the British workers purchased more bread and not less it.

→ P ↑ D ↑

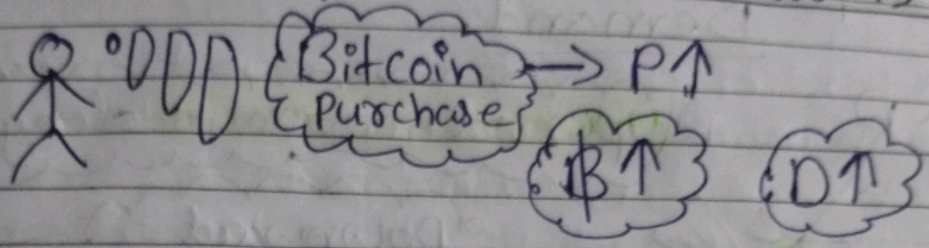
* All Giffen goods are Inferior goods but all inferior goods are not giffen goods.



(iii) Conspicuous necessities
↳ eg. TV, AC
↳ P ↑ " Demand not change "

(iv)
Imp
*
1.4

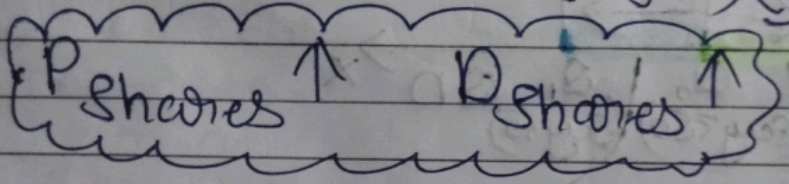
(iv) Future Expectations about Price



(v) Irrational behaviour, Speculative Goods etc

Action or decisions that are not based on reason or sound judgement

eg → Shares

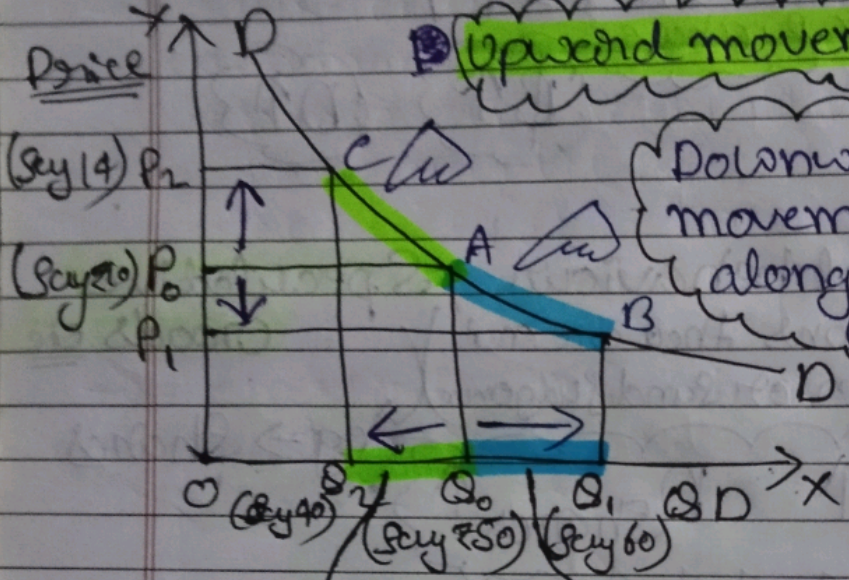


Imp * 1.4

$$D_x = f(P_x, P_R, Y, T, E, O)$$

Change in Quantity demanded	Change in Demand
→ Quantity is affected due to change in price of good. (P_x)	→ Quantity is affected due to change in factors other than Price. (P_R, Y, T, E, O)
→ Types :- (a) Expansion (b) Contraction	→ Types :- (a) Increase (b) Decrease

1.4.0 Expansion and Contraction of Demand.



Upward movement along demand curve (A-C)

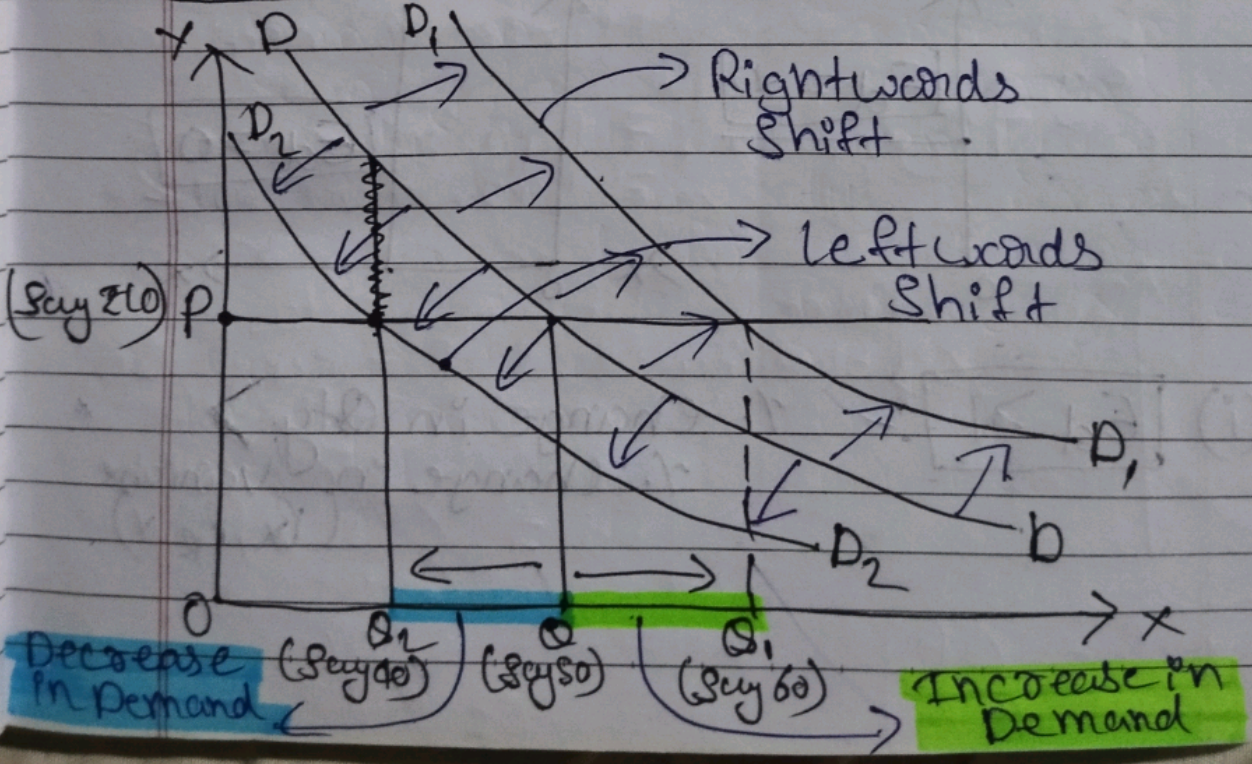
Downward movement along demand curve (A-B)

Contraction
- due to Rise in Price
- Decrease in Quantity Demanded

Expansion
- due to Fall in Price
- Increase in Quantity Demanded

1.4.1

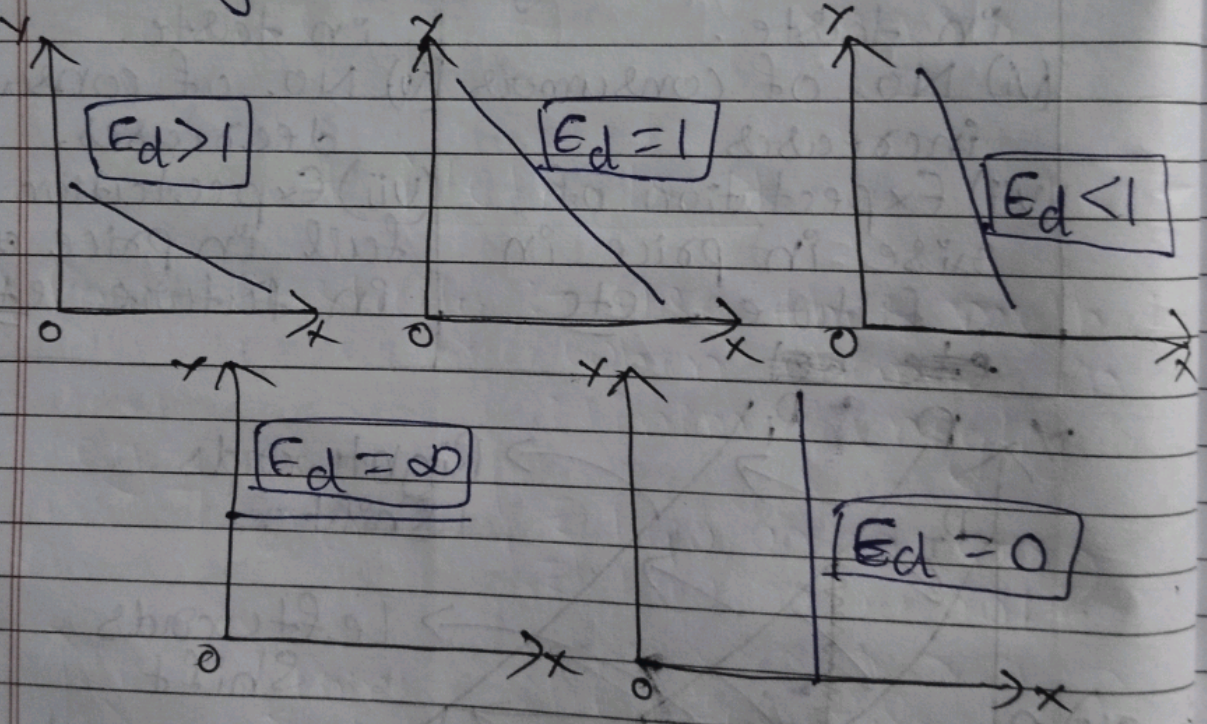
Increase in Demand	Decrease in Demand
Reasons	Reasons.
(i) Rise in price of substitute goods	(i) Fall in price of substitute goods.
(ii) Fall in Price of complementary goods	(ii) Rise in Price of complementary goods
(iii) Rise in Income (in Normal good)	(iii) Fall in Income (in Normal good)
(iv) Fall in Income (in Inferior good)	(iv) Rise in Income (in Inferior good)
(v) Favourable change in taste.	(iv) Unfavourable change in taste.
(vi) No. of consumers increases.	(v) No. of consumer decreases.
(vii) Expectation of rise in price in future. etc	(vii) Expectation of fall in price in future. etc



1.5 Elasticity of Demand

→ Elasticity of Demand means change in demand due to change in variable like price of the good (P_x), Price of Related good (P_R), Income (Y) or Advertisement expenditure.

→ Elasticity of demand has (5) degrees :-



(i) $E_d > 1$:- % Change in Qty > % Change in variable (P_x, P_R, Y)

(ii) $E_d = 1$:- % change in Qty = % change in variable (P_x, P_R, Y)

(iii) $E_d < 1$:- % change in Qty < % change in variable (P_x, P_R, Y)

(iv) $E_d = 0$:- % change in Qty = 0

(v) $E_d = \infty$:- % change in variable = 0 (P_x, P_R, Y, T, G, O)

$$E_d = \frac{\%\ \Delta\ Qty}{\%\ \Delta\ variable\ (P_x, P_R, Y, T)}$$

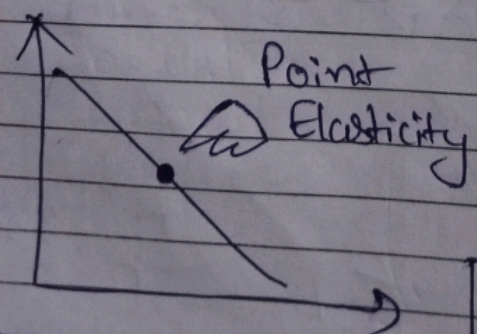
$$\%\ change = \frac{New - old}{old} \times 100$$

* Price elasticity of Demand	$\frac{\%\ \Delta\ Qty}{\%\ \Delta\ Price}$
Cross elasticity of Demand	$\frac{\%\ \Delta\ Qty}{\%\ \Delta\ Price\ of\ Related\ Goods}$
Income elasticity of demand	$\frac{\%\ \Delta\ Qty}{\%\ \Delta\ Income}$
Advertisement elasticity of Demand	$\frac{\%\ \Delta\ Qty}{\%\ \Delta\ Advertisement\ Expenses}$

* Methods *

(i) Point Elasticity :- Use this method when change in Minimal (negligable)

e.g. ₹ 1,00,00,00,000
₹ 1,00,00,00,001



$$Ed = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

or

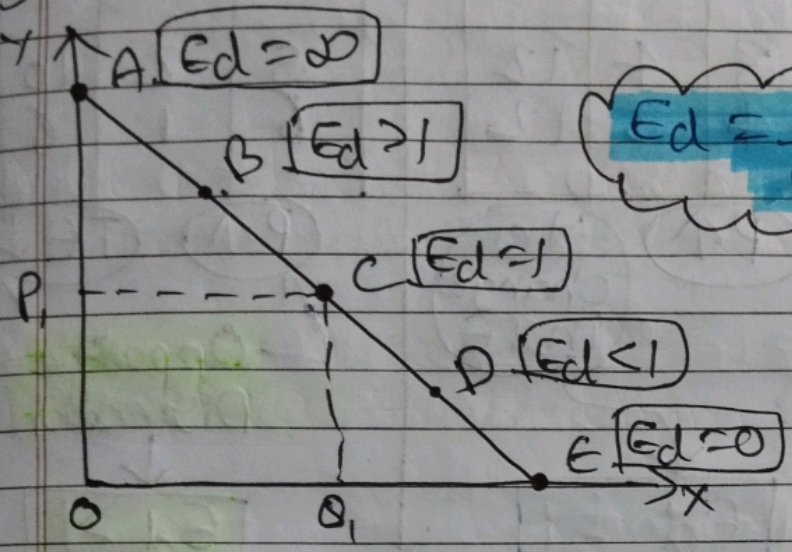
$$Ed = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

$$\text{Slope of DC} = \frac{\Delta P}{\Delta Q}$$

or

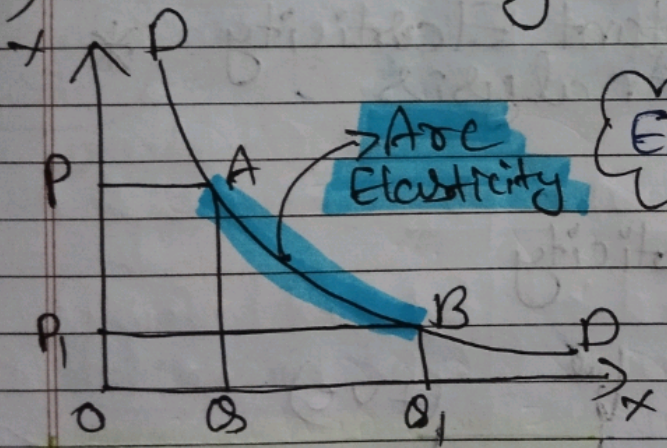
$$\text{Slope of DC} \times \frac{P_0}{Q_0}$$

(ii) Geometric Method (Linear Demand Curve)



Ed = Lower Segment / Upper Segment

(iii) Arc - Elasticity :- (Non-Linear Demand Curve)



$$Ed = \frac{O_0 - O_1}{O_0 + O_1} \times \frac{P_0 + P_1}{P_0 - P_1}$$

(iv) Total Outlay / Total expenditure / Total Revenue Method.

$$T.E = P \times Q$$

TE = Total Expenditure

Case ①

Price	Qty	TE
1	6	6
2	5	10

P ↑ TE ↑ → Same Direction → $E_d < 1$

Case ②

Price	Qty	TE
3	4	12
4	3	12

P ↑ → No change in TE → $E_d = 1$

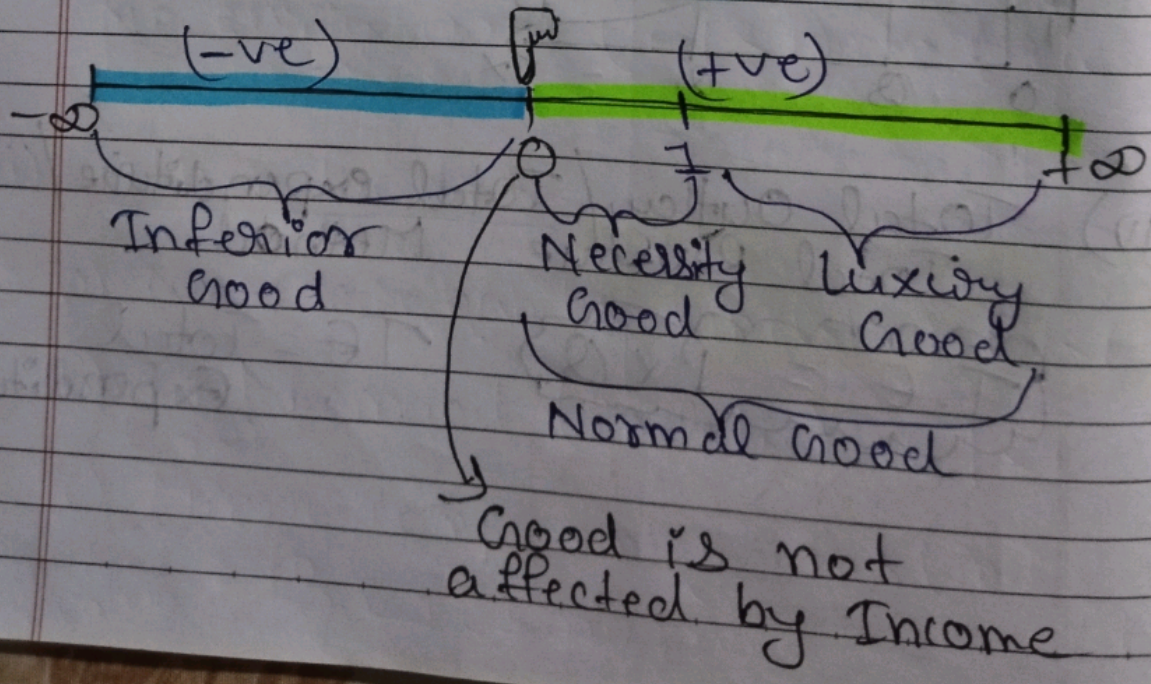
Case ③

Price	Qty	TE
5	2	10
6	1	6

P ↑ TE ↓ → Opposite Direction → $E_d > 1$

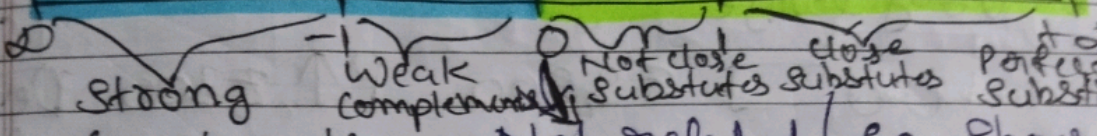
* Important Elasticity Analysis *

① Income Elasticity



② CROSS Elasticity

Complementary goods ⟷ Substitute Goods



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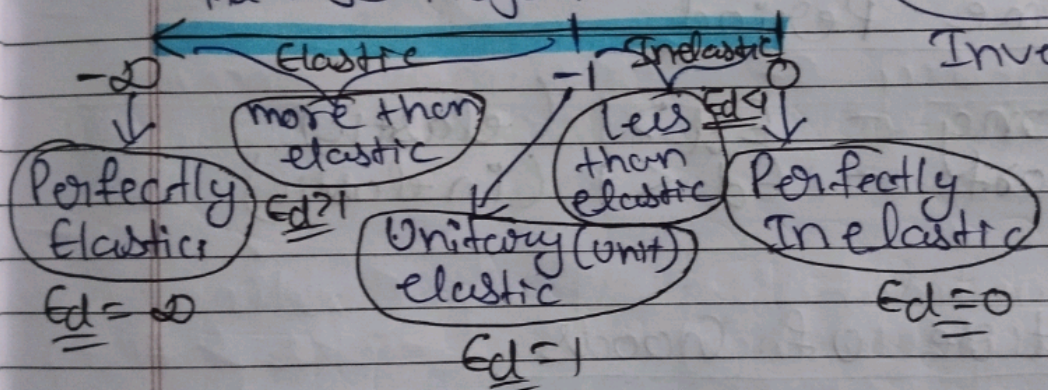
③ PRICE Elasticity

P ↑ D ↓
P ↓ D ↑
Inverse relation

Always Negative



* Factors affecting Price Elasticity of Demand

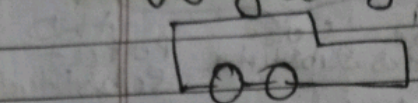
(i) Availibility of Substitutes :- P↑ D↓
Goods having close substitutes ($E_d > 1$)

(ii) No. of uses (eg. Milk) P↑ D↓
More uses ($E_d > 1$)

(iii) Shares in consumers ~~Budget~~ Budget

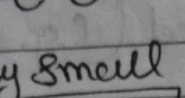
Budget → 10,000

very large



₹9,900 P↑ ₹200 Demand elastic (Ed>1)

very small



₹10 P↑ ₹20 Demand inelastic (Ed<1)

(iv) Time Period

Long - Ed > 1 (elastic)
Short - Ed < 1 (inelastic)

(v) Nature of Goods

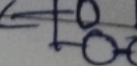
Luxury Good :- (Ed > 1) elastic
Necessity Good (Ed < 1) inelastic

(vi) Other factors

(a) consumer habits (inelstic) Ed < 1

(b) Tied Demand (Joint) (inelstic) Ed < 1

(c) Minor complementary items (inelastic)

Perfume ← 

₹5,000 ₹5,00,00,000 Ed < 1

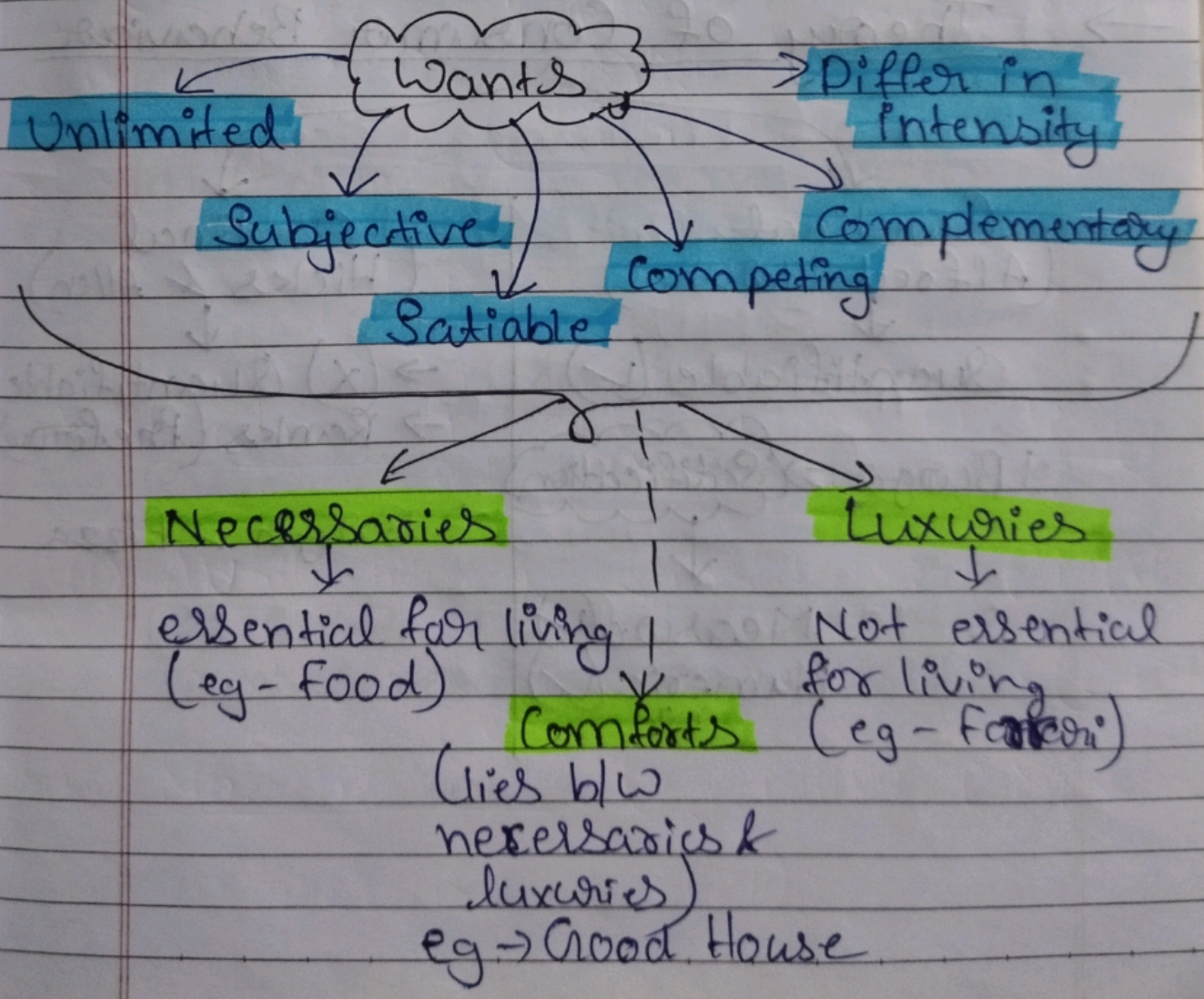
(d) Price Range

→ Extremes

inelastic Ed<1 { Very high - Diamond
Very low - Salt

— X — X — X — X — X —

Unit-2 : Theory of Consumer Behaviour



→ **Utility** → Satisfaction / Satiety

"Utility is Ethically Neutral" → ~~Usefulness~~

→ eg Alcohol, Cigar
- → Utility (✓)
- → Usefulness (✗)

→ **Theory of Consumer Behaviour**

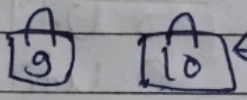
Cardinal (Alfred Marshal)
↓
Quantifiable (✓)
1 Burger ⇒ Gratification
↓
Measure (✓)
Numeric (✓) no.

Ordinal (Hicks & Allen)
↓
→ (✗) Quantifiable
→ Ranks (Preferen
→ Burger > Pizza

* MU Analysis (Alfred Marshall)

① Assumption :-

(a) Consumer is **Rational** → → who seek Maximum Satisfaction



(b) Utility is **Cardinal**

(c) **Money** is measuring rod by **utility**.

(d) Continuity in consumption i.e. **no time gap b/w consumption.**

eg. → Burger 1, 2, 3, 4, 5, ---
8am 8:03 am 8:10 am ~ ~ ~ लगातार

(e) **Homogenous** Product (all the items are identical or same)

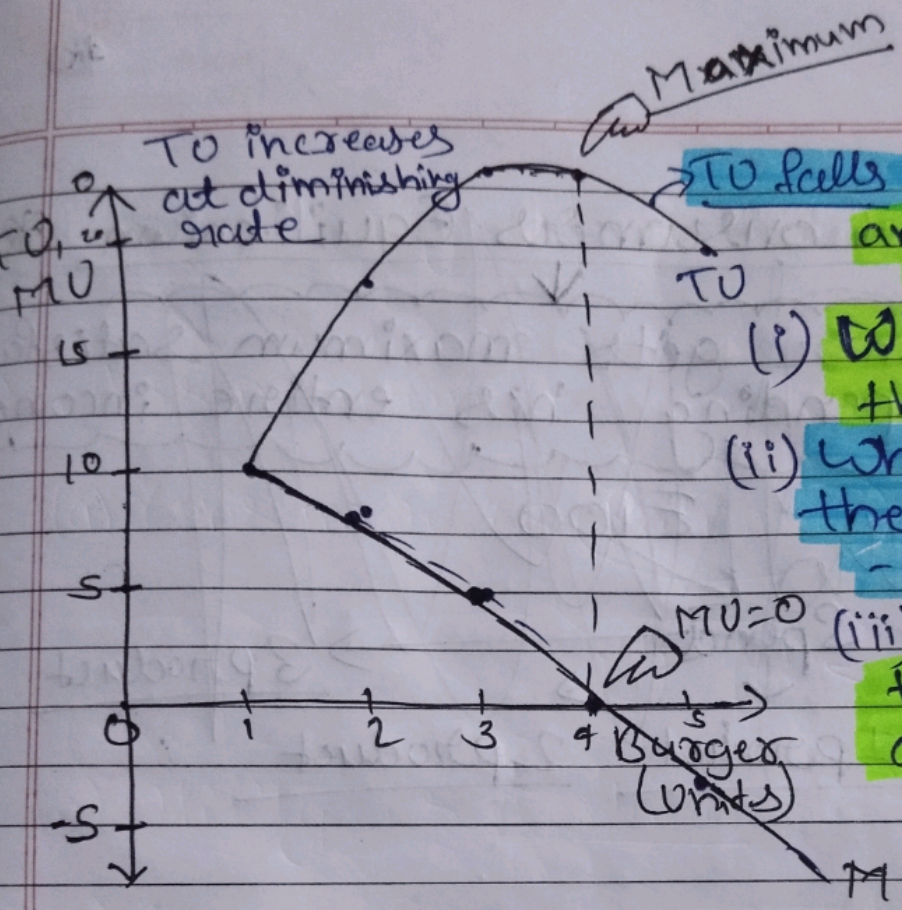
(f) Goods should be divisible in nature **i.e. Quantifiable**

② Total Utility and Marginal utility

	Burger (units)	Marginal utility (MU)	Total Utility (TU)
Satisfaction	1	10 utils	10 utils
	2	8 utils	18 utils
	3	5 utils	23 utils
Satiety (Saturation)	4	0 utils	23 utils
↓ Dissatisfaction	5	(-)3 utils	20 utils

- **Law of Diminishing Marginal Utility**
  - → Units ↑ MU ↓
- $TU = \Sigma MU$
- $MU_n = TU_n - TU_{n-1}$
  - $= \frac{\Delta TU}{\Delta \text{units}}$

∴ MU is **slope** of TU



(i) When MU>0, then MU(+ve) and TU increase at diminishing rate

(ii) When MU=0, then TU is Maximum

(iii) When MU<0 than MU(-ve) and TU falls

- **Limitations / Exception of Law of DMU**

(a) Prestigious goods
(b) Hobbies
(c) Habits etc

} Units ↑ MU ↑

* Consumer's Equilibrium * by Alfred Marshal

Alfred Marshall

Consumer gets maximum satisfaction by spending his entire income.

Single Commodity

(eg Burger)

$MU = P_x$

It can be → MU of goods 'x'
MU_x or
MU_m → MU in terms of money

Two Commodity

(eg Burger & Pizza)

$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_m$

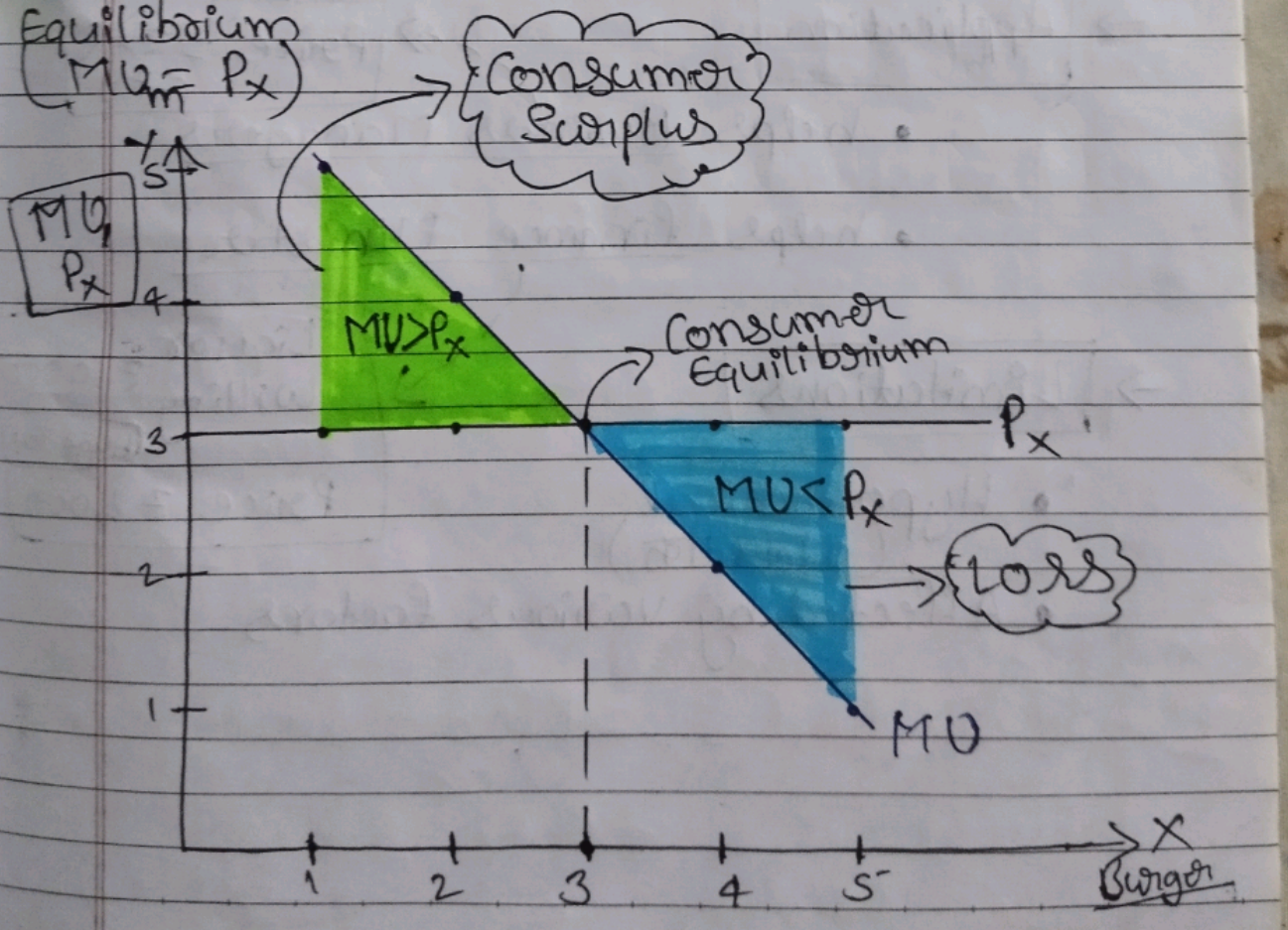
→ Law of Equi Marginal Utility

No Diagram
No Schedule

Single Commodity

Burger (units)	P_x (₹)	MU_m (₹)	Consumer Surplus	
1	3	5	2	$MU > P_x$
2	3	4	1	
3	3	3	0	→ Consumer equilibrium
4	3	2	−1	$MU < P_x$
5	3	1	−2	
	↓	↓		
	Actual Price	Willing to pay		

Consumer Equilibrium ($MU_m = P_x$)



Page No. 42
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* Consumer Surplus

= MU (-) P_x

= Willing to Pay (-) Actual Price

→ This concept is based on law of Diminishing Marginal Utility.

→ At consumer's equilibrium, Consumer Surplus is zero.

→ **Application**

Willing ₹6
Price = ~~₹10~~ ₹5

- helps Business Managers
- helps finance Minister

→ **Limitations**

Liquor Willing ₹19,000 (Huge Tax)
Price ₹4,000

- Hypothetical (काल्पनीक)
- Affected by various factors

Burge

2
3
4
5
6

* Two Commodities *

(Burger & Pizza)

Let us assume

Price of Burger (P_x) = ₹1
Price of Pizza (P_y) = ₹2
Money Income (M) = ₹13

Burger	MU_x	$\frac{MU_x}{P_x}$	Pizza	MU_y	$\frac{MU_x}{P_y}$
1	10	10	1	40	20
2	9	9	2	36	18
3	8	8	3	32	16
4	7	7	4	28	14
5	6	6	5	24	12
6	5	5	6	20	10

$\frac{MU_x}{P_x} = \frac{MU_x}{P_y} = 10$ → 1 Burger, 6 Pizza

Total Expenditure = (1×1) + (6×2)
= 1 + 12 = 13 ← Money Income

Consumers Equilibrium

$\frac{MU_x}{P_x} = \frac{MU_x}{P_y}$ or $\frac{MU_x}{MU_y} = \frac{P_x}{P_x}$

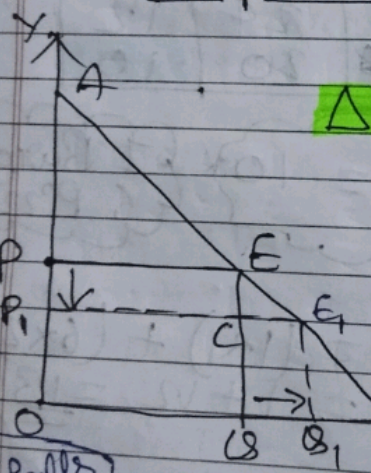
Q1 If $\frac{MU_x}{P_x} > \frac{MU_x}{P_x}$ then consumer will Increase the consumption of Good X?

Sol:- Increase

Q2 If $\frac{MU_x}{MU_y} < \frac{P_x}{P_x}$ then consumer will Decrease the consumption of Good X?

Sol:- Decrease

* Application based on consumer Surplus



ΔAPE = Consumer Surplus (CS)

ΔEQB = Loss ~~Producer Surplus~~

ΔAP1E1 = Consumer Surplus (CS1)

When Price falls

CS1 (+) CS = PP1EE1 (increase in consumer surplus)

or = PP1EC + ΔECE1

PP1EC: Existing buyer's buy more Product

ΔECE1: New Buyer

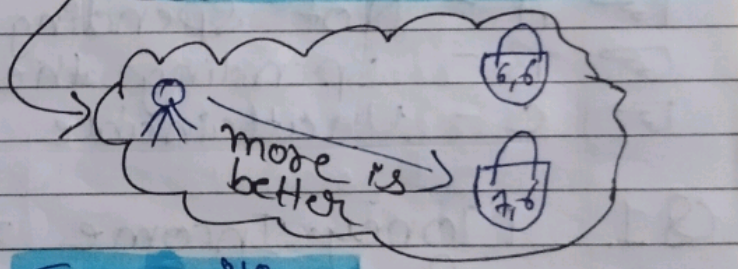
Q1 MU curve is also Demand curve
Sol: Demand

Q2 Area under MU curve is TU
Sol: TU

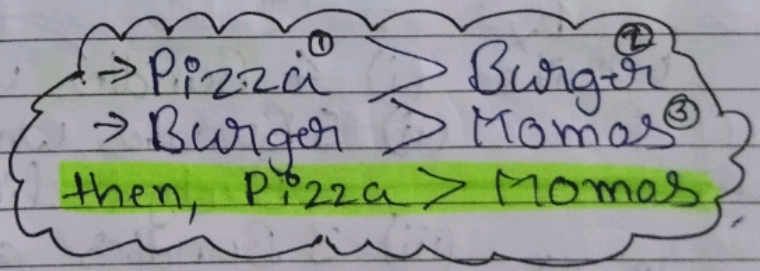
* Hicks and Allen *
(IC analysis).

① Assumption

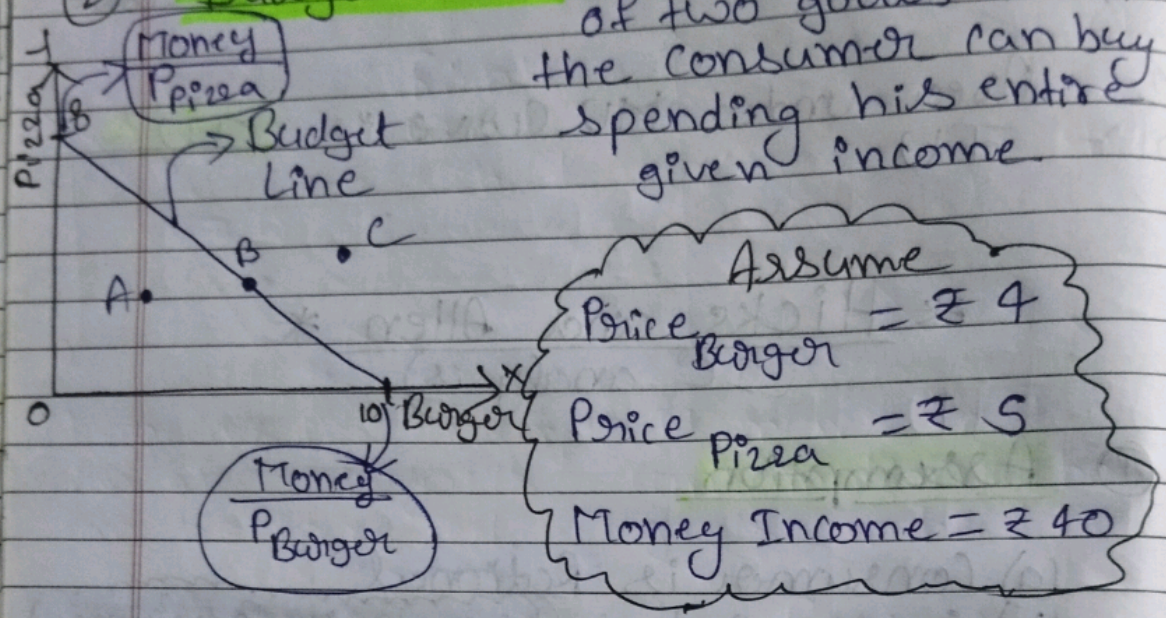
(a) Consumer is Rational
(b) Consumer has Monotonic Preference



(c) Choices are Transitive.



(2) **Budget Line** → or Price Line - Shows all combinations of two goods which the consumer can buy spending his entire given income.



- A - Not spending the entire income
- B - Spending the entire income
- C - Unattainable

Q1 Money Income = ₹ 80
P_x = ₹ 5
P_y = ₹ 4
Write (i) 4 Bundles → Set of two goods which are unattainable
(ii) 5 Bundles which at below Budget line level.
(iii) 3 Bundles exactly on Budget line.

Sol (P_x, P_y)
(i) (16, 1) (25, 5) (30, 10), (35, 40)
(ii) (10, 6), (12, 3) (8, 7) (6, 8) (11, 5)
(iii) (8, 10) (4, 15) (12, 5)

Imp ⇒ Budget ↓ Downwa Slope

⇒ Budget Line Equation

$$P_x \cdot Q_x \; (+) \; P_y \cdot Q_y = M$$

$P_x \cdot Q_x$ → Expenditure on Goods X

$P_y \cdot Q_y$ → expenditure on Goods Y

M → Money Income

Total Expenditure = Money Income

→ Budget Constraint

$$P_x Q_x \; (+) \; P_y Q_y \leq M$$

or $P_x Q_x \; (+) \; P_y Q_y \neq M$

(Total expenditure cannot exced Money Income)

Imp ⇒ Slope of Budget Line = $\frac{P_x}{P_x}$

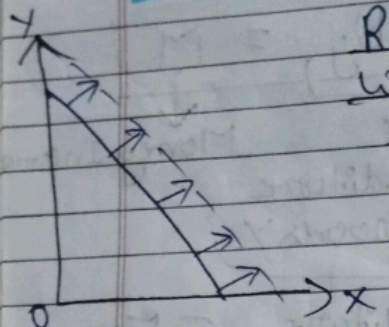
$\frac{P_x}{P_x}$ → Ratio of Prices of Two goods

Budget Line → Downward Sloping → Slope is always negative

Market Rate of Exchange (MRE)

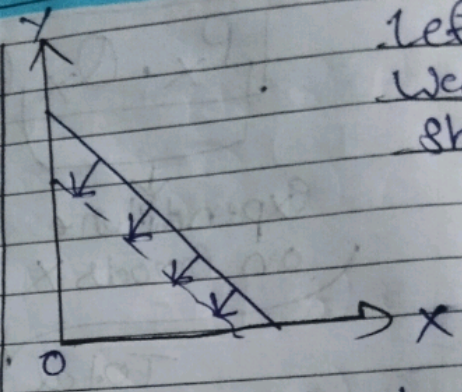
→ Shift in Budget line

Right word shift



It means the consumption of both goods can be increased.

Left word shift



It means that consumption of both goods can be decrease

Reasons	Reasons
① Increase in Income	① Decrease in Income
② Decrease in Price of goods	② Increase in Price of goods

Sol

Q → Show the effect of following on Budget line ?

(i) Price of goods X falls
(ii) " " " X Rise
(iii) " " " Y falls
(iv) " " " Y Rise
(v) " " " X Rise & Goods Y fall
(vi) " " " Y Rise & Goods X falls
(vii) " " Ii (Y & X) falls and Income Increase decrease
(viii) Price of both goods as well as Income

Left
Word
shift

x

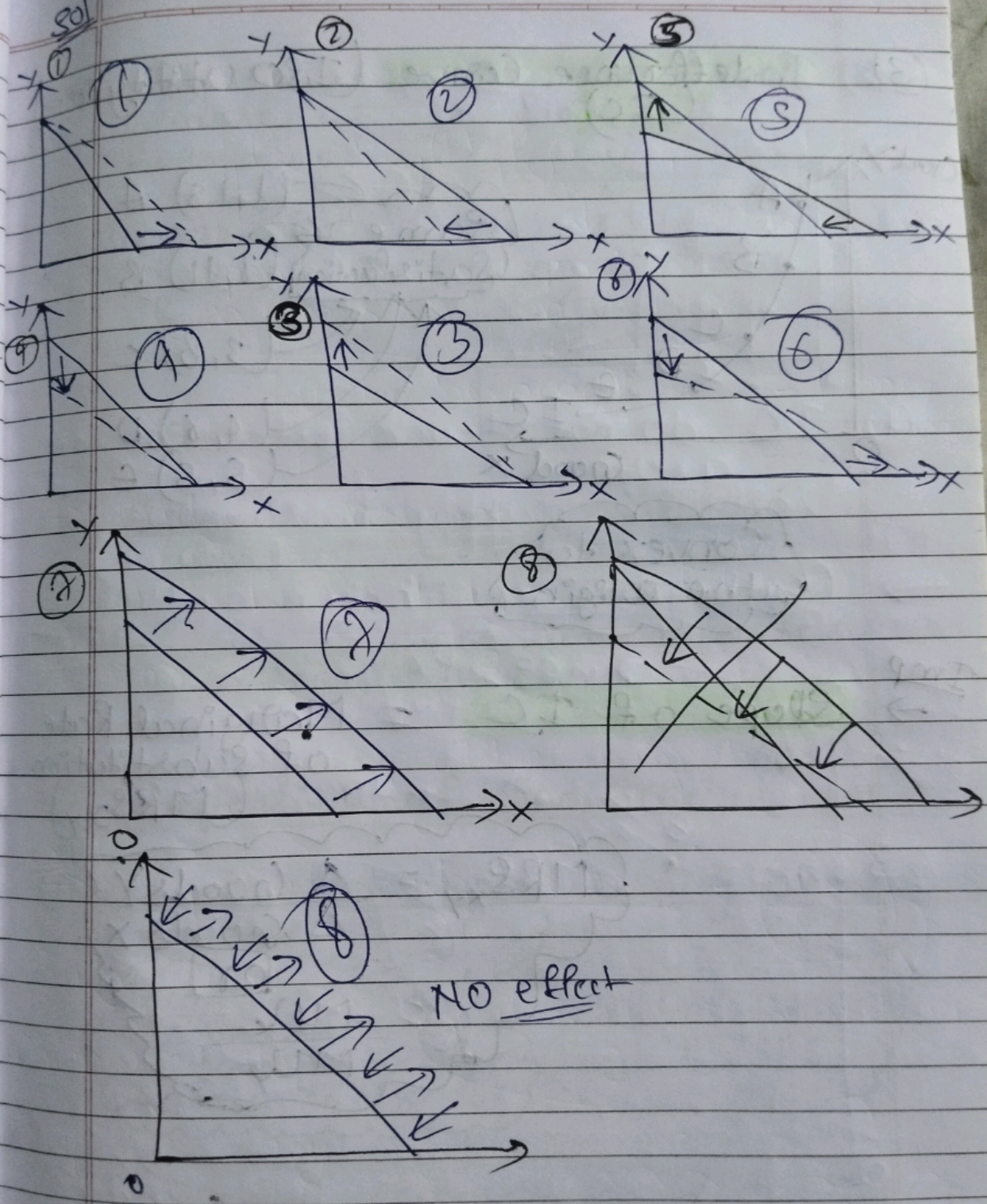
ct
of both
decrease

Income
Price
ls

g on

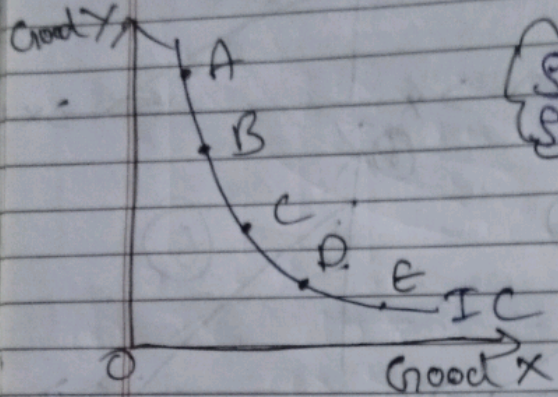
ds x falls
s x falls
ncom x
rease
e

Sol



③ Indefference Curve (ISO Utility Curve) → Sol

(IC)



Same Satisfaction

(1, 15) A
(2, 11) B
(3, 8) C
(4, 6) D
(5, 5) E

Convex to the origin

Imp → Slope of IC = Marginal Rate of Substitution (MRS_{xy}) →

$$MRS_{xy} = \frac{\Delta \text{ Goods } Y}{\Delta \text{ Goods } x}$$

or

$$= \frac{MU_x}{MU_y}$$

① ②

→ Why IC is convex?
Sol Because of its Slope. [or]
Because of "Decrease" Diminishing MRS

Goodx	Goody	MRS
1	15	—
2	11	4
3	8	3
4	6	2
5	5	1

- IC is concave because of Increasing MRS
- IC is straight line because of Constant MRS

→ Properties of Indifference curve

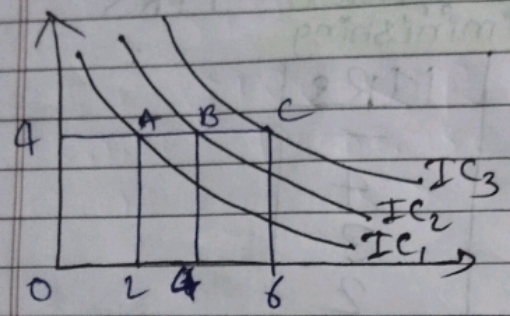
① IC is downward sloping and convex to the origin.

Because to gain one unit of goods x, we have to sacrifice same units of goods x

because of diminishing MRS

② Two IC can never intersect each other.

③ Higher the IC, higher the satisfaction.



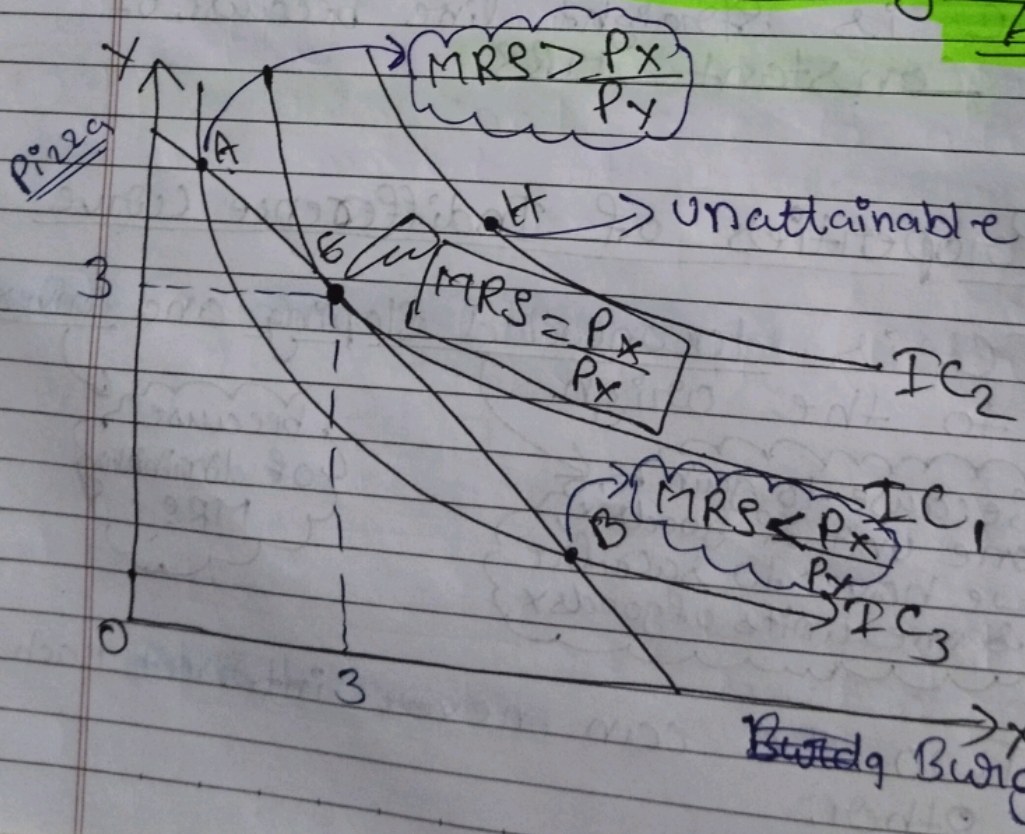
$C > B > A$

or

$IC_3 > IC_2 > IC_1$

④ IC do not touch either of the axis.

→ **Consumer Equilibrium by Hicks & Allen**



*** Condition 1

Slope of IC = Slope of Budged line

$MRS = \frac{P_x}{P_y}$

when $\frac{MU_x}{MU_y} = \frac{P_x}{P_x}$

> When Budget line is Tangent to IC

Condition 2

MRS should be diminishing i.e. IC "should be convex"

* Analysis

① At poin A, $MRS > \frac{P_x}{P_y}$

② At poin E, $MRS = \frac{P_x}{P_y}$

③ At poin B, $MRS < \frac{P_x}{P_y}$

④ At poin H, it is unattainable.

Q1 If two goods are Perfect Substitutes then IC is Straight line

Q2. If two goods are Perfect complementary goods then IC is L-Shaped or Right angle

Q3 If MRS > P_x/P_y then consumers will Increase the consumption of goods x. (ii)

Q4 If MRS < P_x/P_y then consumers will Decrease the consumption of goods x.

—X— X —X— X—

Unit-3 : Supply (assume we are Producer)

① Supply — Amount of goods ~~are~~ or services that a producer is willing and able to offer to the market at various prices during a given period of time

FLOW concept

② Factors affecting Supply (Determinants of Supply)

(i) Price of the Goods (P_x)

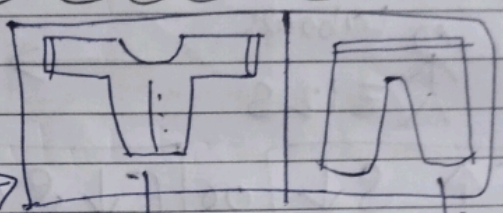
$P_x \uparrow S_x \uparrow$ or $P_x \downarrow S_x \downarrow$

Direct Relation (+ve)

(ii) Price of Related goods (P_R)

~~Substitute good~~ ~~Complimentary good~~ ~~Both~~

e.g → Levis



Land (Resources)

Crood Concerned or Related good (competitive good)

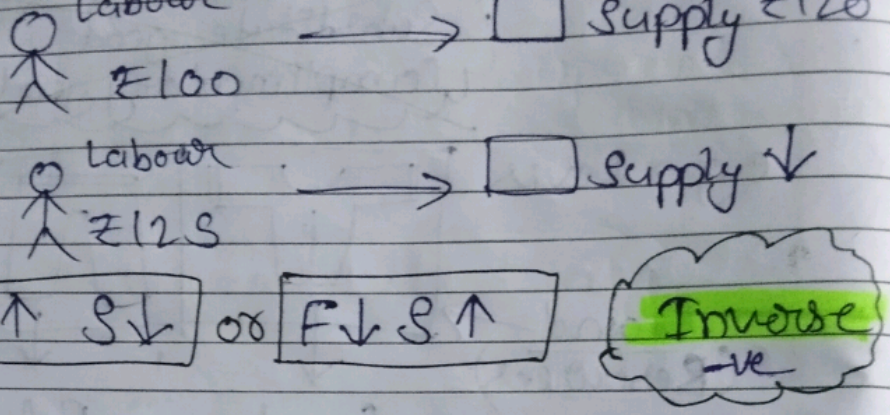
Related good (competitive good) or Crood concerned (Study karna good hai)

P_{Jeans} ↑	S_{Jeans} ↑	$S_{T\,shirt}$ ↓

(Price of Related goods ↑) (Supply of Crood Concerned ↓)

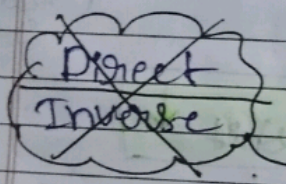
Inverse
-ve

(iii) Cost of Factors of Production (F)
(eg Labour, Raw Material, Input etc)



(iv) Technology (T)

- Advanced Technology :- S ↑
- obsolute Technology :- S ↓

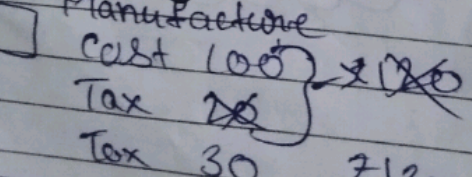


~~Direct Type~~

→ because of it cannot be Quantitative.

(v) Others factors (O)

(a) Excise duty - Tax on Manufacture



Tax ↑ Supply ↓ Inverse

(b)
(c)
(d)
(3)

(b) Subsidy – Subsidy ↑ S_x ↑

Direct

(c) Nature of Competition

S_x ↑ → Perfect (Large No. of Seller)

S_x ↓ → Monopoly (Single Seller)

(d) Number of firms

→ Large – S_x ↑

→ Small – S_x ↓

(3) $S_x = f(P_x, P_R, F, T, O)$ Supply function

↓ Direct relation

" Assumption (ceteris paribus" (constant)

Law of Supply →

P_x ↑ S_x ↑

P_x ↓ S_x ↓

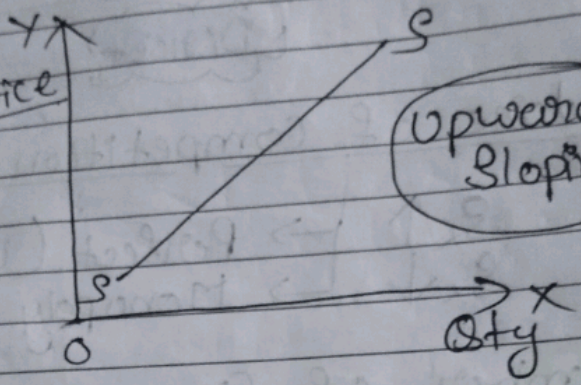
Direct Relation

→ ~~Quantitative~~ Statement

→ Qualitative Statement

④ Supply schedule & Supply curve

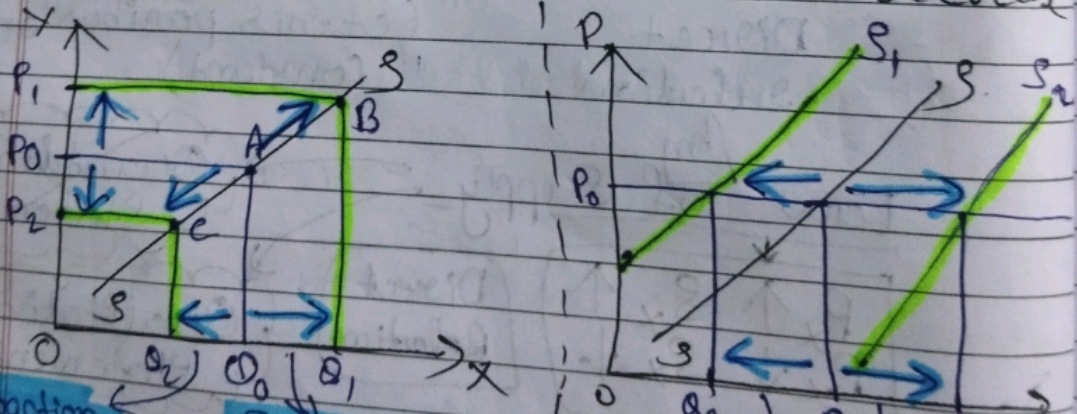
Price	Qty
10	105
15	175
20	260



⑤ Change in Quantity Supply vs Change in Supply

$S_x = f(P_x)$ | P_R, F, T, O

Expansion | Contraction | Increase | Decrease



Contraction → Upward movement along Supply curve (AC)

Expansion → Upward movement along Supply curve (AB)

Decrease → Leftward Shift

Increase → Rightward Shift

⑥

(i)
(ii)
(iii)
(iv)
(v)
(vi)
(vii)

→ D

(i)

(ii)

curve

8. How does the following affect Supply curve ?

(i) $F \downarrow$ – Rightward Shift ($S\uparrow$)
(ii) $P_R \uparrow$ – Leftward Shift ($S\downarrow$)
(iii) Advanced Technology – Rightward Shift
(iv) Tax $\downarrow$ – "
(v) Subsidy $\uparrow$ – "
(vi) No. of Firms – Leftward Shift
(vii) $P_x \uparrow$ – Expansion. ($S\uparrow$)

⑥ Price Elasticity of Supply (E_s)

E_s is always Positive.

All formulas & all degrees are same as E_d.

→ Degrees

(i) $E_s = \infty$ (Perfectly elastic)
parallel to x-axis
(Horizantal)

(ii) $E_s = 0$ (Perfectly Inelastic)
parallel to y-axis
(Vertical)

(iii) Cuts y-axis

$E_s > 1$ (More than elastic) (elastic)

"flatter"

(vi)

$E_s < 1$ (Less than elastic) (Inelastic)

"steeper"

Cuts x-axis

(v) Passes through origin

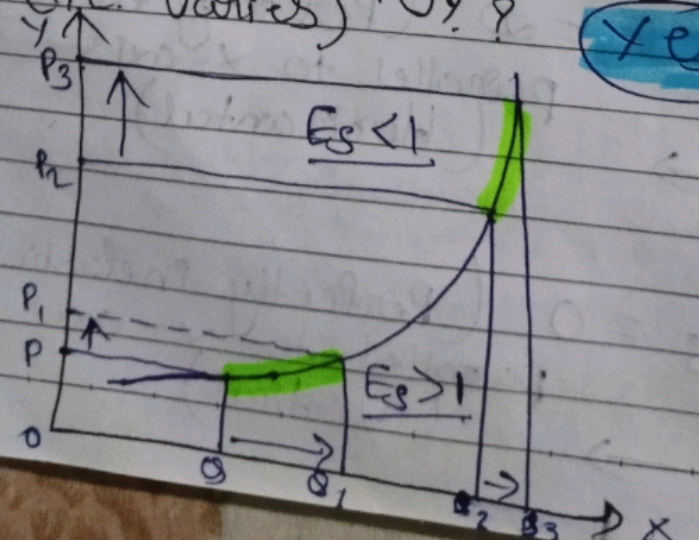
$E_s = 1$ (Unit elastic) (Unitary elastic)

Q1 E_s of supply curve passing through origin & making 45° angle is $= 1$

$E_s = 1$

Q2 Is it possible that elasticity on same supply curve is not constant (i.e. varies)? ? Yes

Sol



→ formulas

(i) Point elasticity – $\frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$ or

$\frac{\% \Delta Q_{ty}}{\% \Delta P}$ or $\frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$

(ii) Arc elasticity – $\frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$

or

Q $Q = -100 + 10P$

Find E_s, $P = ₹15$

Sol $P_0 = ₹15$, $Q = 50$ units

Assume, $P_1 = ₹30$, $Q_1 = 200$ units

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0} \Rightarrow \frac{200 - 50}{30 - 15} \times \frac{15}{50}$$

$$= \frac{150^3}{15} \times \frac{15}{50} = \boxed{3.}$$

* Factors affecting elasticity of Supply

$E_s < 1$ (inelastic) → not easily change / Rigid
$E_s > 1$ (elastic) → easily change / flexible

(i) Cost of production (expected)

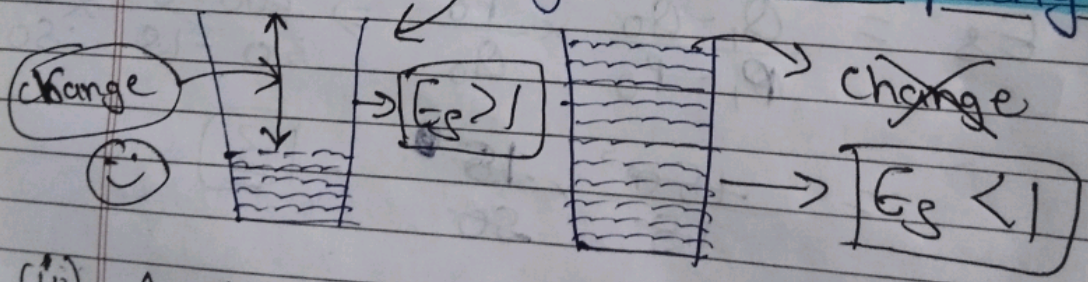
Production ↑ Cost ↑ "Supply inelastic"

(ii) Time period

Long time period → $E_s > 1$

Short time period → $E_s < 1$

(iii) Supply is more elastic if firm are not working to full capacity.



(iv) Availability of Raw Materials

→ Easily available → $E_s > 1$
→ Not easily available → $E_s < 1$

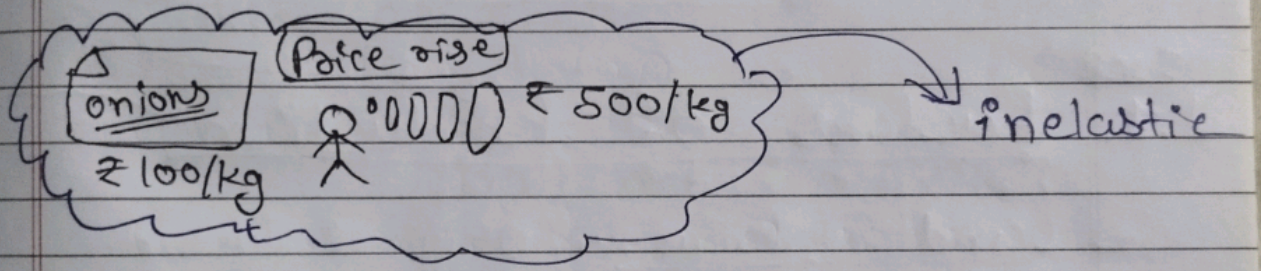
(v) Ease of factor substitution

→ Easy → $E_s > 1$
→ Hard → $E_s < 1$

(vi) Mobility of factors (Mobile = Movement)

→ Easily mobile → $E_s > 1$
→ Not easily mobile → $E_s < 1$

(vii) Future Expectation



(7) EQUILIBRIUM & SOCIAL EFFICIENCY