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Unit-1.

- Economics is the study of wealth.
Adam Smith father of economics.
Economics is the study of man's action in the ordinary business of life.

The essence of economics is optimum or best utilization of the resources of a nation/country.
The ultimate goal/aim of all engineering pursuades is nothing but maximization of benefits for the maximum members of the society.

His main job is therefore to produce something with minimum or lowest unit cost.

The elements of production are 5M's.

5M's → Men
→ Machine
→ method
→ Money
→ material

Input (5M's) ← management process. → Output {end product (Desired result)

Planning
↓
organising
↓
Directing
↓
controlling
↓
Staffing.

The elements of products are 5M's, i.e.,

All engineering graduate when they enter their profession either in industry, in construction, in maintenance or similar executive job, come across problems which require in addition to requisite technical knowledge, reasonably good knowledge of economics and accounts.

The term industrial economics includes all that applied economics which is related with industry eg - production, distribution, exchange & public finance.

Definition of Economics :-

"Economics is the science of wealth".

Salient Features :- Economics is the study of wealth only. It deals with production, consumption distribution and exchange.

* The economics studies the causes of wealth changes. i.e., economic development.

Criticism of this definition :-

1. Too much importance of wealth than man.
2. Restricted meaning of wealth i.e., wealth means material goods. (Tangeable goods) & no consideration to non-material goods.
3. No mentions of men's welfare.
4. Narrow view of subject matter.
5. Effective logic

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Material welfare definitions:-
Economics is the study of mankind in the ordinary business of life.

Salient features:-
1. Study of mankind.
2. Ordinary business of life.
3. Study of material welfare.
4. Study of individual and social action.

Modern Definitions:-
was given by prof. Robbin.

Economics is concerned with the best possible utilisation of limited resources.

Major Problems of an Economics:-

1. What to produce and in what quantity?
2. How to produce?
3. for whom to produce?
4. How efficiently are the resources being utilized?
5. Problem of full employment.
6. Problem of growth.

Meaning of science engg and technology -

Science:- It is a systematic body of knowledge concerning the relationship b/w cause & effect of a particular phenomenon which enable prediction and planning.

Technology :- It stands for refinement of tool. It is a systemised knowledge put into action.
So, science and technology are ideas and means with which man seeks to change environs.

Relationship b/w sci.engg. technology & Economic.

Economics plays an important role in decision making of an engineering project so economic helps engineer in following manner -

1. In the provision of basic tool.
2. In decision making.
3. In factor substitution.
4. In choose making.
5. In understanding the problems of agriculture.
6. In understanding the market condition, accounting of costing etc.
7. Law of marginal utility.

Demand :- Literally meaning of demand is zeal, desire, want etc.

Demand states that, it is the quantity that customer are willing to and able to buy & fluctuating to price other things to be equal.

Types of Demand :-

1. Individual Demand.
(Demand by single customer).

2. Market Demand
(Demand by whole market or groups).

Demand functions :-
Demand functions states that how the demand for commodity is related to its various determinants.

1. Price of goods
2. Income of consumer.

Types of Demand Function :-

1. Individual Demand function :-
In demand function shows the relationship b/w the demand for a commodity by a individual customer and various determinants.

$$D_c = F(P_c, P_r, X, T, E).$$

where, P_c = Price of a commodity.
P_r = complementary goods.
X = Income of consumers.
T = Taste and Difference.
E = Expectations.

2. Market Demand Functions :- Market demand function represents how overall demand for a commodity in the market is related to its various determinant.
also represent as →

$$D_c = (P_c, P_r, X, T, E, P_o, ap, s).$$

P_c = Price of a commodity.
P_r = complementary goods
X = Income of consumer
T = Taste & Differences
E = Expectations
P_o = populations
G_p = Government policy.
S = Season.

Law of Demand :- Law of demand state that demand for a commodity increases with decreasing and decreases with increasing price and vice-versa.

$$\text{Demand} \propto \frac{1}{\text{price}}$$

other things means tools, income, influence of consumer and price of other goods.

Assumption of Law of Demand :-

1. There is no change in income of consumer.
2. Price of other goods should not vary.
3. When no. of consumer increases.
4. Due to change in fashion, taste of consumer may go in the favour of commodity, thus increasing the demand.

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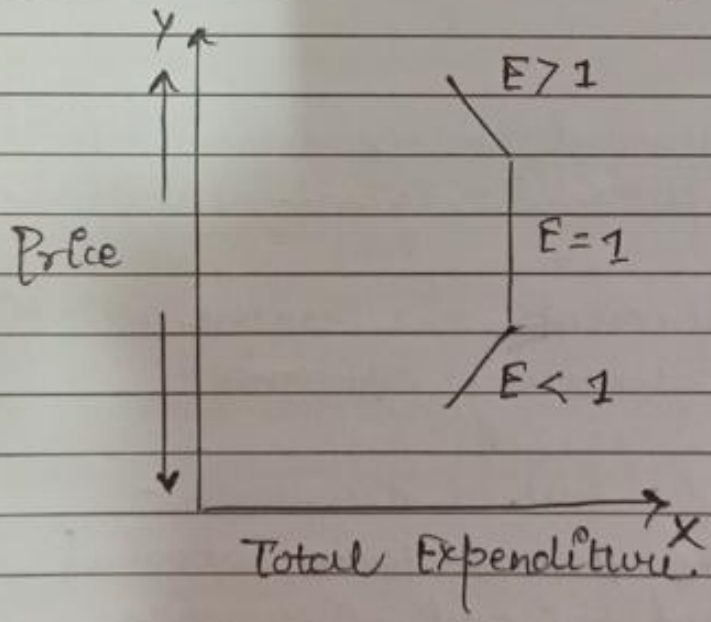
Elasticity of Demand :-

Price elasticity of Demand :- It is a percentage change in demand of a commodity is divided by percentage variation in its price.
So, elasticity of demand explains the extend to which demand of commodity varies according to change in any of its quantitative determinants.

Method of measuring of price elasticity -

NOTE :- Demand of a commodity can be less, more or equal to unitary elastic.

First Method :- Total Expenditure Method



→ This method is also known as total outlet....

According to this method, it is measure that how much and in what direction total expenditure varies in response to variation in the price of a commodity.

NOTE:- If change in price a commodity ha no impact on its total expenditure, elasticit of demand is unitary.

2nd Method :-

Proportionate or percentage method :-

PM := Proportionate variation in Demand / Qu
Proportionate variation in Price

The measurement of ratio of the proportionate change in quantity demanded to the proportion variation in price. So, here p% value of chang in price and quantity demanded is taking rather than value of total change in price & quantity.

PM: Change in demand / change in initial or original d
Change in price / original or initial price.

(-ve) sign represents the inverse relationship b/
price and quantity demand.

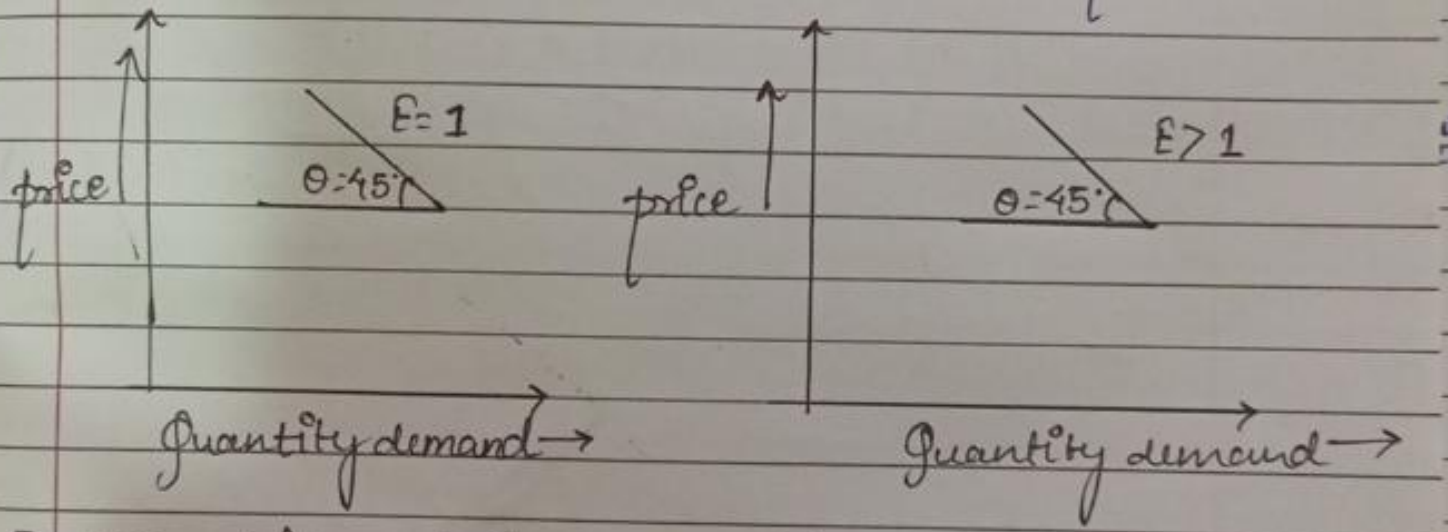
Assumption of law of Demand :-

NOTE:- Other things mean. taste, income, preferenc of consumer & price of other goods.

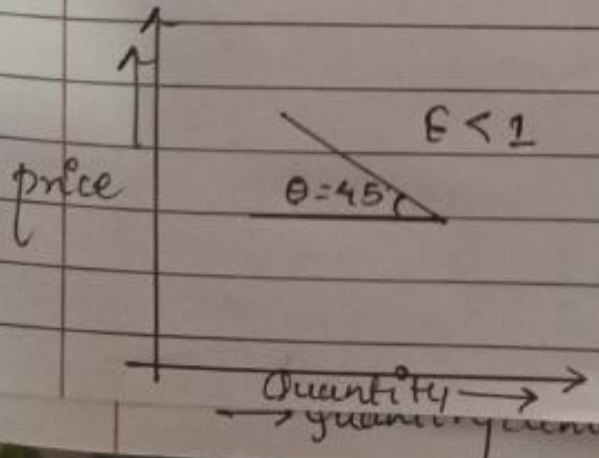
1. There is no change in income of consumer.
2. Price of other goods should not vary.
3. Taste of people for particular a commodity should pr
4. consumer should not have any expectation in the variation of price of commodity.

3. Unitary Elastic Demand :-
This is the change in quantity demanded in response to variation in price is such that total expenditure on the commodity remains unchanged.

4. Greater than Unitary Elastic :-
When change in quantity demanded of commodity in response to change in its prices is such that total expenditure increases in response to decrease in price or total expenditure decreases in response to increase in price.



5. Less than Unitary Elastic.
When change in demand in response to change in price is such that total expenditure decreases with decrease in price and total expenditure increases with increase in price.



Factors affecting Price elasticity of Demand:-

- Availability of substitute
- Functions of commodity
- Income of consumer
- Nature of commodity.
- Habitual necessities
- Joint Demand.
- Postponement of the purchase of commodity

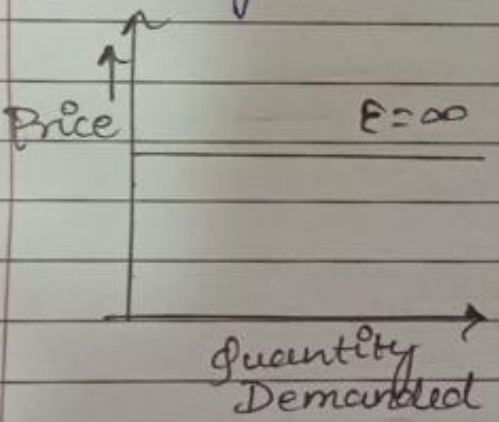
Causes of increaser & decreaser in demand :-

Increasd :—

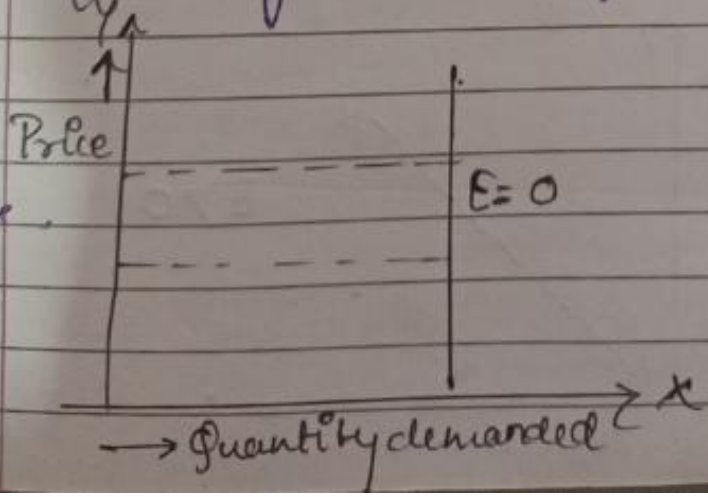
1. When the consumer income increaser.
2. When the price of substitution goods increaser.
3. When number of consumer increaser
4. Due to change in fashion, taste of consumer may go in the favour of commodity thus increasing the demand.

Degree of Price Elasticity of Demand.

1. Perfectly Elastic demand :-
When there is a little rise in price result in quantity demanded of the commodity reduced to zero.



2. Perfectly Inelastic demand :-
When we have no effect of change in price on quantity demanded of a commodity.



Income Elasticity :-

It tells how quantity demanded will vary when income of consumer changes, the price the commodity remaining the same.

Income Elasticity Formula :-

$$\frac{\text{Proportionate change in quantity purchase}}{\text{Proportionate change in income of consumer.}}$$

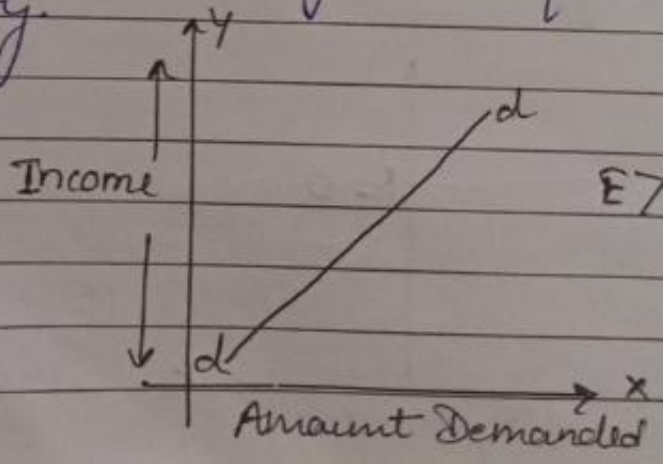
NOTE :- It can be equal, more or less than unity.

Since the income effect is positive income elasticity of demand is also positive.
Income elasticity of demand is zero when change in income has no effect on demand
It can also be negative.

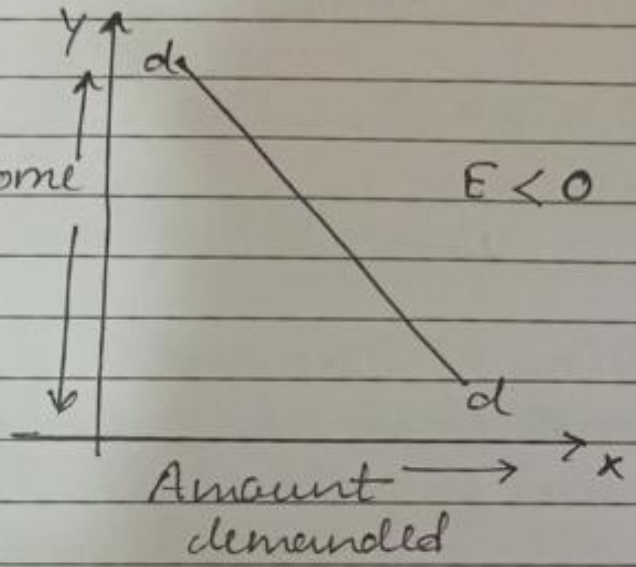
Income Elasticity or Income demand curve:

Positive Income Elasticity :-

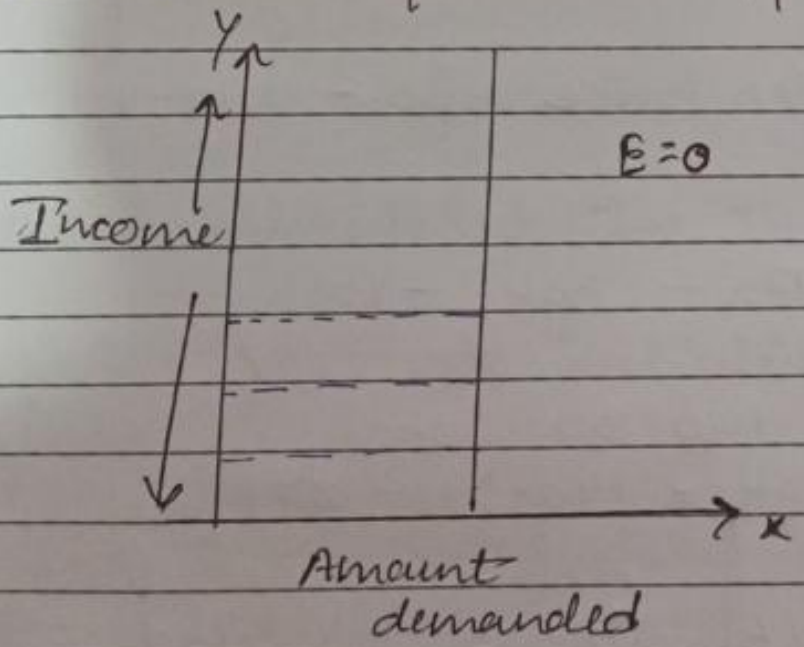
With the increase in income when the amount of demanded increases & vice-versa. then we say it as positive income elasticity.

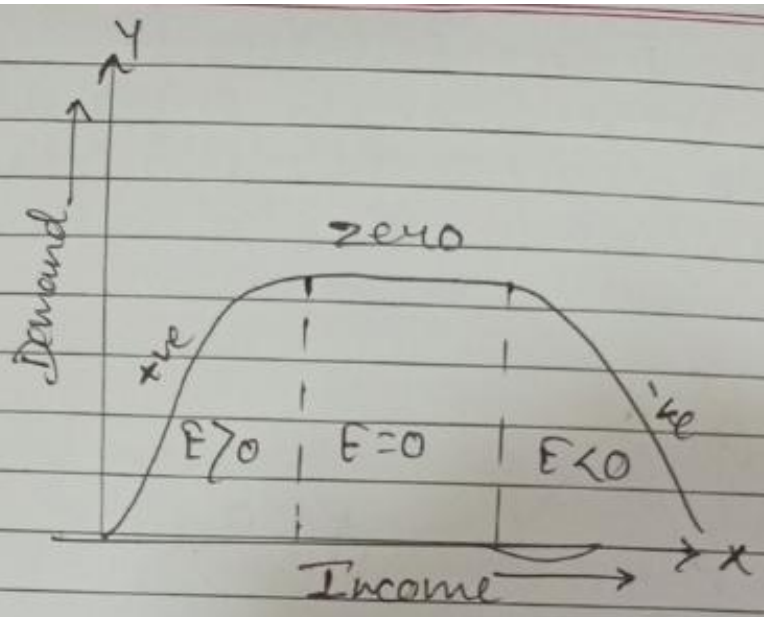


Negative Income Elasticity :-
As the income rises the demand for these inferior goods for their inferiors goods like Jawar, Bajara, skimed milk etc. diminishes.



Zero Income Elasticity :-
When their is no change in the quantity demanded in response to the change in income. Example :- Salt, postcard etc.





Cross Elasticity of Demand:-
when the demand for the commodity varies with variation in price of another related commodity.

Example:- Let taken as example of tea whose related commodity is coffee.

Formula :- Proportionate change in demand of A / proportionate change in price of B

Example :- Coffee price rise - 140 - 148 kg.

So, its impact will be the rise in demand of Tea - 80kg - 100kg.

Cross elasticity will be

$D_{qA} = 100 - 80 = 20kg.$

$D_{P_B} = Rs = 148 - 140 = ₹8/kg$

$$\frac{D_{qA}}{D_{PB}} \times \frac{P_B}{q_A} = \frac{20}{8} \times \frac{140}{80} = 4.7$$

Substitution Elasticity :-
It tells to what dtent are commodity can be substituted for another. Keeping total satisfaction desired by the consumer unchanged

Here arises two cases.

Elasticity of substitution is Infinite :- E=∞
In this case are commodity is perfect substitute for other.

Zero Elasticity :-
Here, there can be no substitution at all.

SUPPLY & ELASTICITY OF SUPPLY

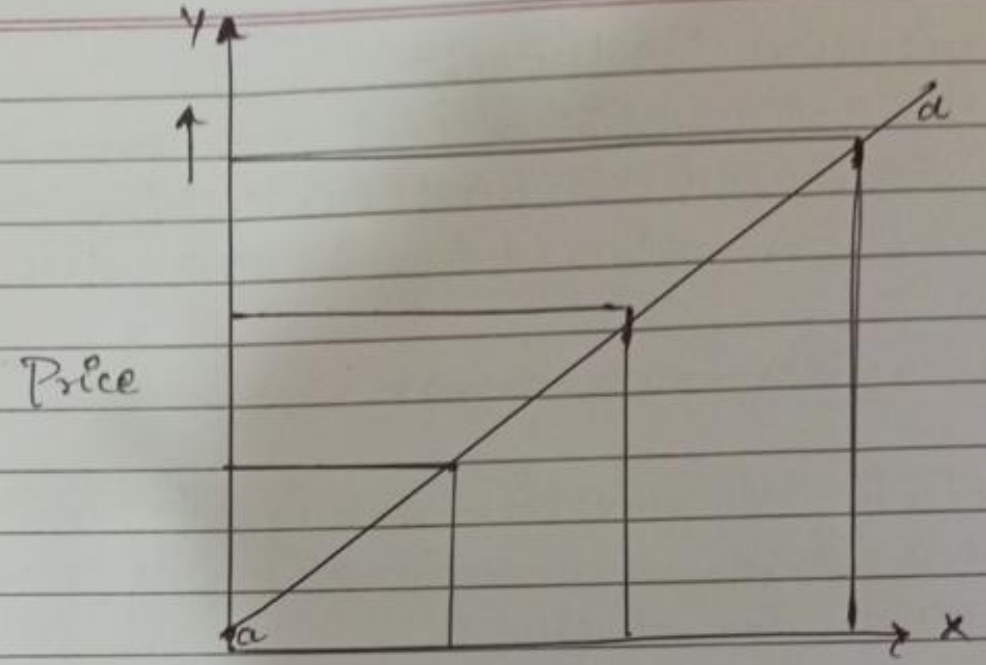
Supply :- Quantity of a commodity which is offered for sale at a given price in a given market at a given time.

Types of Supply :-

① Individual supply
② market supply.

Individual supply :- Supply of commodity offered by individual firm in the market.

Market supply :- Supply of commodity offered by all the firms dealing with or producing / selling that commodity.



Supply curve :- It shows a positive relationship b/w price of a commodity & quantity of commodity supply.