



INDUSTRIAL ECONOMICS & FOREIGN TRADE

Module 1

Part-3

HUT 300



Demand

- Demand refers to the quantity of a good or service that a consumer is willing and able to purchase at various prices during a given time period.
- It shows the relationship between price and quantity demanded.
- Demand is influenced by factors like price of the good, income of consumers, tastes and preferences, price of related goods, and future expectations.



Determinants of Demand / Factors Affecting Demand

- Price of the good
- Income of the Consumer
- Tastes and Preferences
- Price of Related Goods
- Expectations of Future Price
- Population Size and Composition
- Season and Climate





Price of the Good

General Rule:

As price ↑ → demand ↓ (and vice versa).

This is called the **Law of Demand**.

Why? Because higher price = more expensive = fewer people want it.

Exception – Giffen Goods:

- People buy more of it because they can't afford better alternatives.

Example: A poor person eats more low-quality rice when price rises because they stop buying vegetables or meat.

Exception – Veblen Goods:

Luxury goods that are demanded more at higher prices because they show status.

Example: Gucci bags, Rolex watches, Apple iPhones.





Income of the Consumer

Normal Goods:

Income ↑ → demand ↑

Example: TV, clothes, good food.

Inferior Goods:

Income ↑ → demand ↓

Example: Local tea, public transport.

Exception:

For very poor people, even inferior goods may be demanded more if their income rises **slightly**. But beyond a point, they shift to better goods.





Tastes and Preferences

If people like a product more → demand increases.

Tastes change due to ads, health, culture, media.

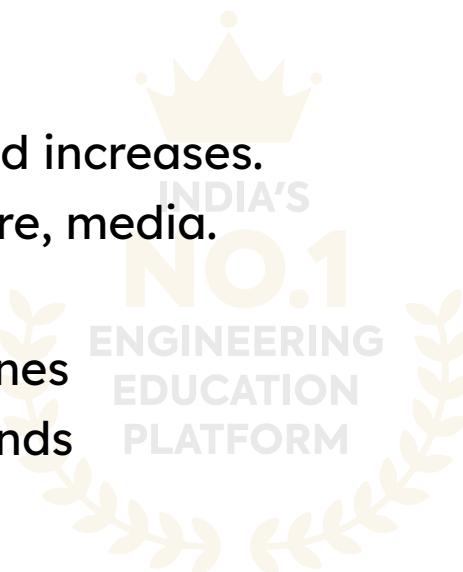
Example:

- Demand for smartphones > basic phones
- Green tea demand due to health trends

Exception:

Trends can reverse fast.

Example: Demand for sugary drinks dropped after fitness awareness increased.





Price of Related Goods

Two Types:

A. Substitutes:

- If price of Pepsi ↑ → demand for Coke ↑
- Consumers switch to the cheaper alternative.

B. Complements:

- If price of Petrol ↑ → demand for cars ↓
- Because they are used **together**

Exception (Brand Loyalty):

Even if Pepsi becomes costly, some people still won't buy Coke because they're loyal to the brand.





Expectations of Future Price

- If people think price will go ↑ later → they buy more now.
- If people think price will fall → they wait, demand ↓

Example:

- Onion price expected to rise → people start hoarding

Exception:

Perishable items (milk, bread) – people can't store even if they expect price hikes.



Population Size & Composition

More people = more demand for almost everything.

Young population → more phones, clothing

Older population → medicines, health services

Exception:

Population may increase but unemployment may keep demand low.





SEASON AND CLIMATE

Rain → umbrella, winter → sweaters

Summer → AC, ice cream

Exception:

- Some goods (like fans) are in demand all year in tropical places.
- Festivals or special events may create off-season demand.





DEMAND FUNCTION

→ mathematical representation

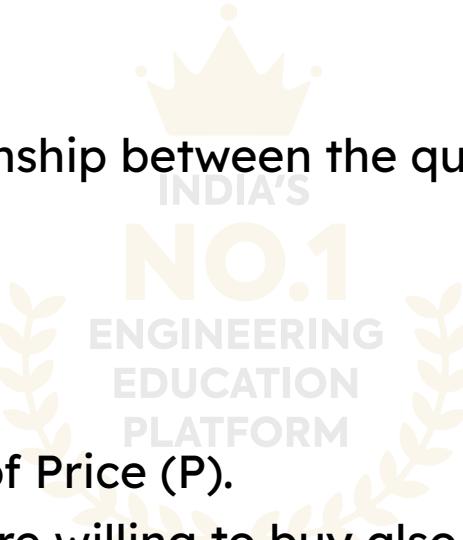
The Demand Function shows the relationship between the quantity demanded of a good and the factors that affect it, especially price.

$$Q_d = f(P)$$

This means:

Quantity Demanded (Q_d) is a function of Price (P).

As price changes, the quantity people are willing to buy also changes.





More Complete Form:

$$Q_d = f(P, Y, T, Pr, E, N)$$

Where:

- P = Price of the good
- Y = Income of the consumer
- T = Tastes and Preferences
- Pr = Prices of related goods (substitutes & complements)
- E = Expectations about future prices
- N = Number of consumers / population



So, this means demand depends not only on price but also on income, taste, related prices, etc.



LAW OF DEMAND

- The Law of Demand states that, other things being equal, as the price of a good falls, the quantity demanded increases, and vice versa.
- There is an **inverse relationship** between price and quantity demanded.

Why it Happens:

- **Substitution Effect:** As the price of a good falls, it becomes cheaper than substitutes.
- **Income Effect:** A fall in price increases consumers' real income, allowing them to buy more



Demand Curve :

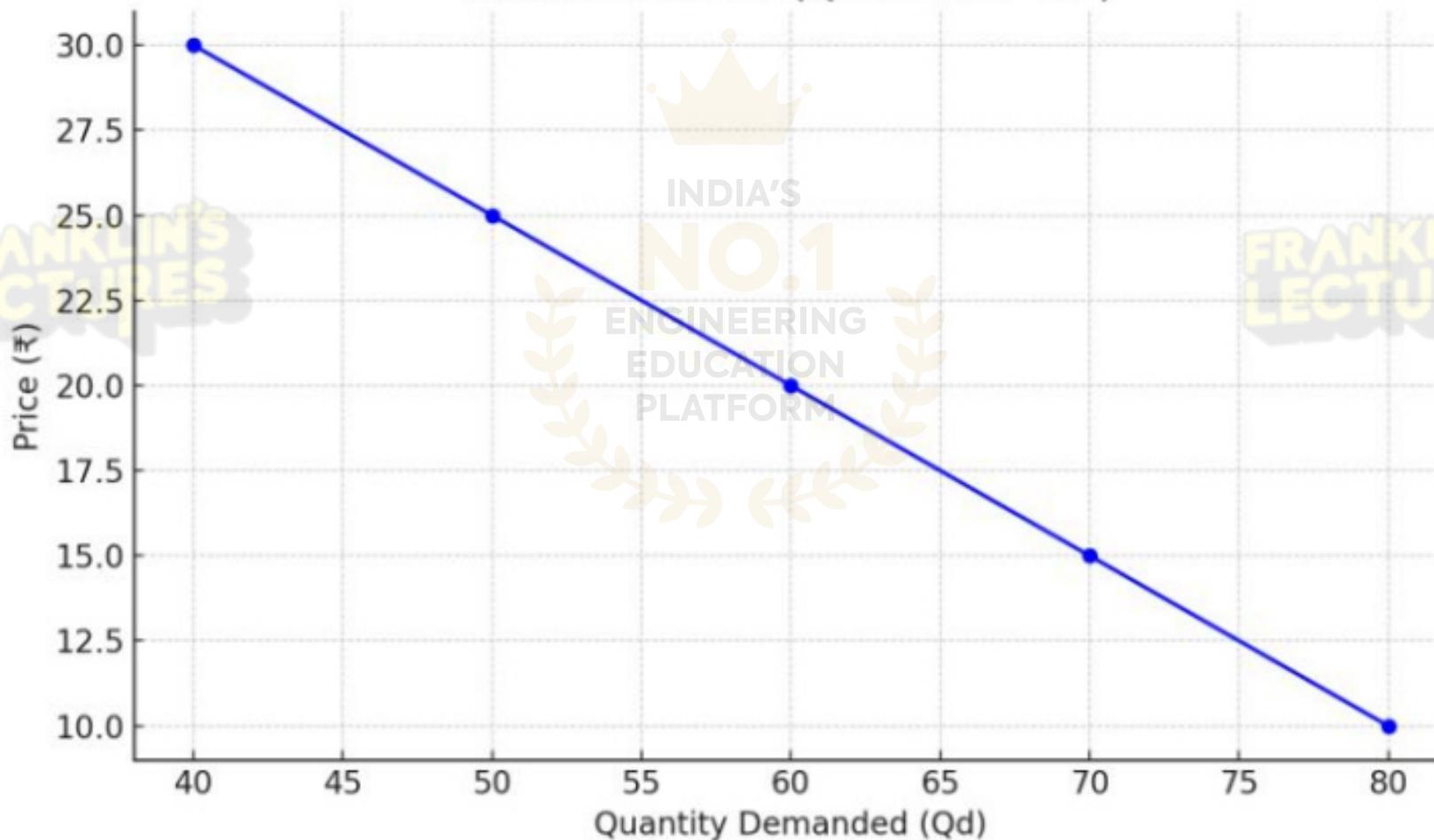
- The demand curve slopes **downward from left to right**, indicating the inverse relationship

Example :

- If the price of mangoes drops from ₹100/kg to ₹60/kg, people may buy more mangoes.



Demand Curve ($Q_d = 100 - 2P$)



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Exceptions to Law of Demand

Inferior Goods

Luxury Goods

Life saving Goods

Basic Necessities





Changes in Demand

Movement Along the Demand Curve
Shift of the Demand Curve





Movement Along the Demand Curve

Change in quantity demanded **only due to the price of the same good**

- Price $\downarrow \rightarrow$ Quantity Demanded $\uparrow \rightarrow$ **Extension of Demand**
- Price $\uparrow \rightarrow$ Quantity Demanded $\downarrow \rightarrow$ **Contraction of Demand**

Graph :

- Movement occurs **along the same demand curve**
- No curve shift – just a point moves up/down

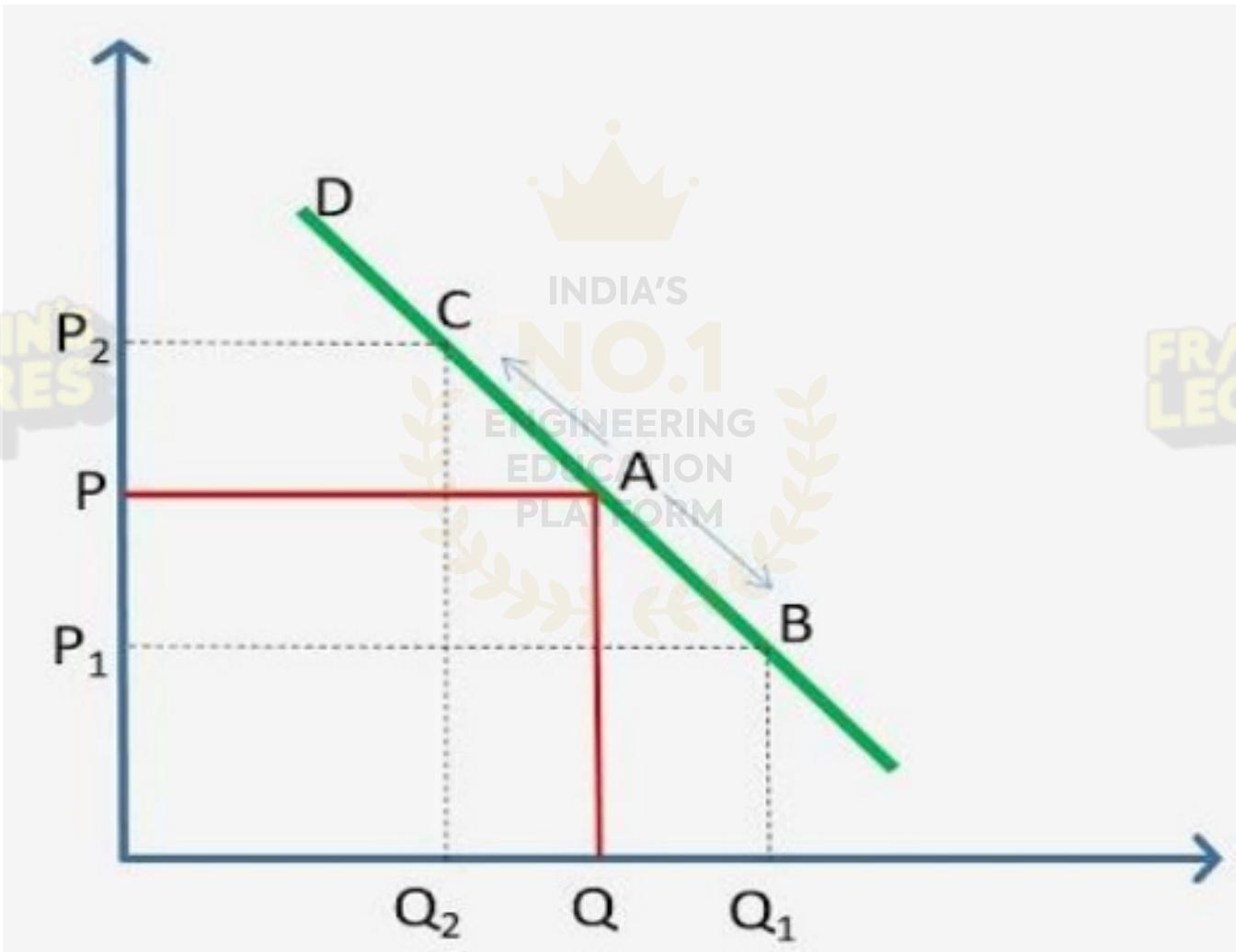


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SHIFT OF THE DEMAND CURVE

Change in demand due to **factors other than price**, like

- Income *of the consumer*
- Tastes & preferences
- Price of related goods
- Population
- Advertisements, etc



Types of Shift:

- Increase in Demand** → Demand curve shifts **right**
- **Decrease in Demand** → Demand curve shifts **left**

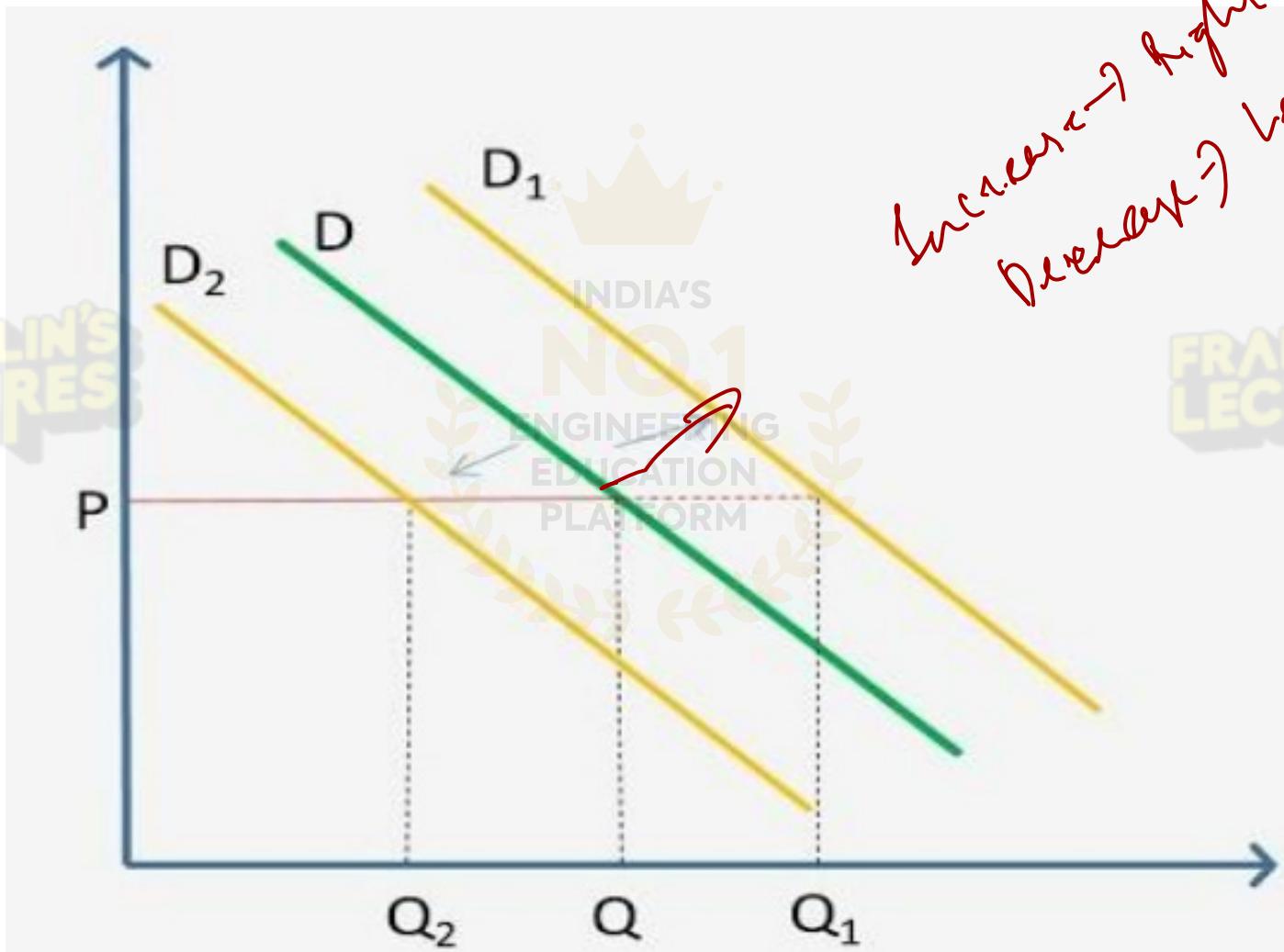
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Increase \rightarrow right shift
Decrease \rightarrow left shift





ELASTICITY OF DEMAND

Elasticity of Demand measures how much the **quantity demanded** of a good changes when there is a change in one of its **determinants, especially price**

3 Types of Elasticity of Demand

Price Elasticity of Demand (PED)

Income Elasticity of Demand (YED)

Cross Elasticity of Demand (XED)





FACTORS AFFECTING ELASTICITY:

Availability of substitutes

Nature of the good (necessity/luxury)

Time period

Portion of income spent

Brand loyalty or habit

Short run → Demand inelastic
Long run → Demand elastic
→ High → Demand elastic
→ Low → Demand inelastic



PRICE ELASTICITY OF DEMAND (PED)

PED measures how much **quantity demanded changes** in response to a **change in price** of the good

Formula:

$$\text{PED} = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$

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



TYPES OF PRICE ELASTICITY:

1. **Perfectly Elastic (∞)**: Small change in price leads to infinite change in quantity demanded.
2. **Perfectly Inelastic (0)**: Quantity demanded does not change at all despite price changes (e.g., insulin).
3. **Unitary Elastic (1)**: Percentage change in quantity equals percentage change in price.
4. **Elastic (>1)**: Quantity changes more than price (e.g., luxury goods).
5. **Inelastic (<1)**: Quantity changes less than price (e.g., petrol, salt).

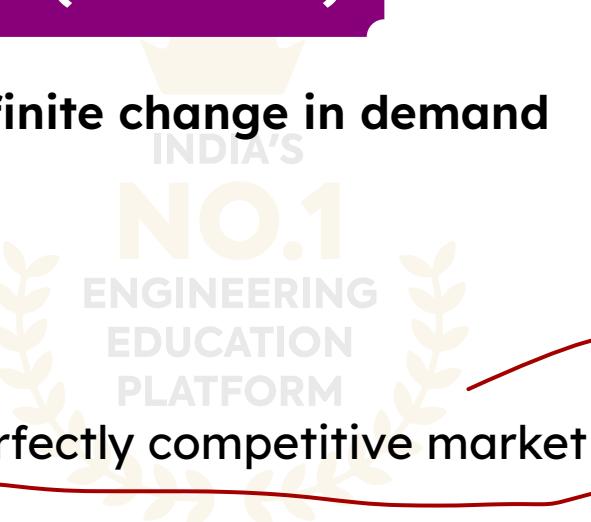


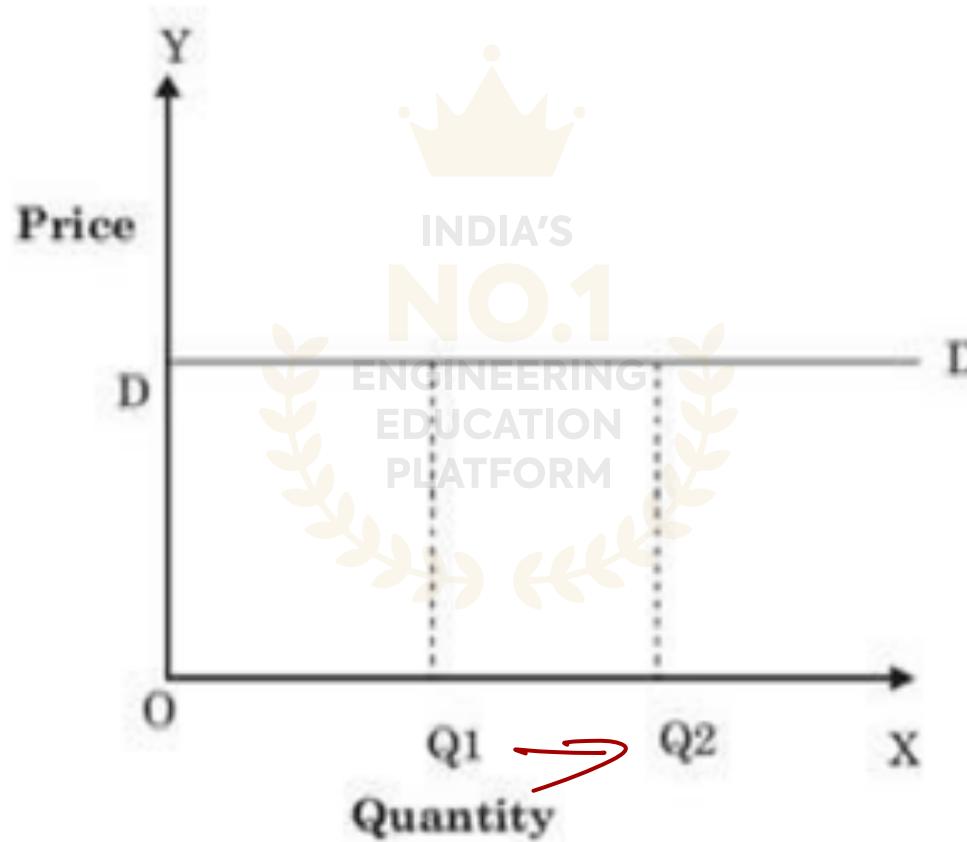
PERFECTLY ELASTIC DEMAND (PED = ∞)

- Even a tiny change in price causes infinite change in demand
- Consumers buy only at one price

Graph: Horizontal demand curve

Example: Agricultural products in a perfectly competitive market







PERFECTLY INELASTIC DEMAND (PED = 0)

- Price change has **NO** effect on demand
- Quantity demanded stays constant

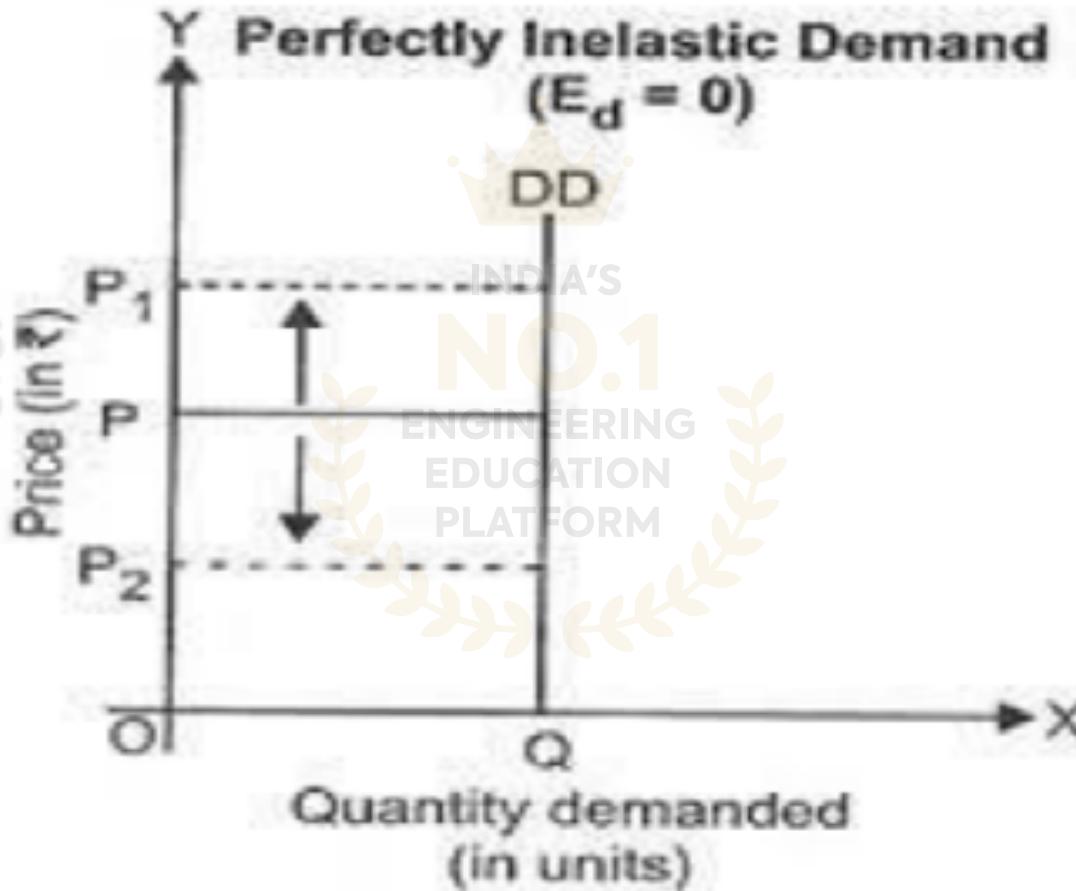


Graph: Vertical demand curve



Example: Life-saving drug for a patient, or salt in daily use

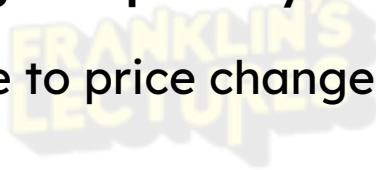






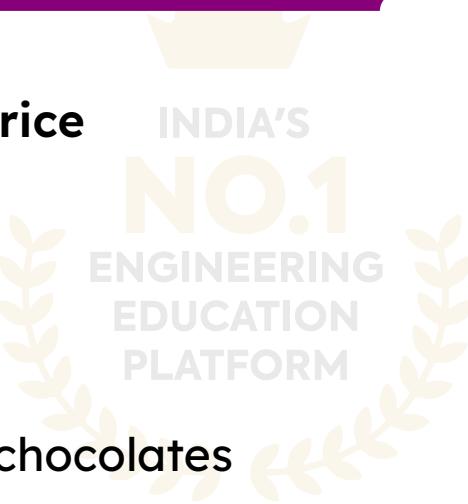
RELATIVELY ELASTIC DEMAND (PED > 1)

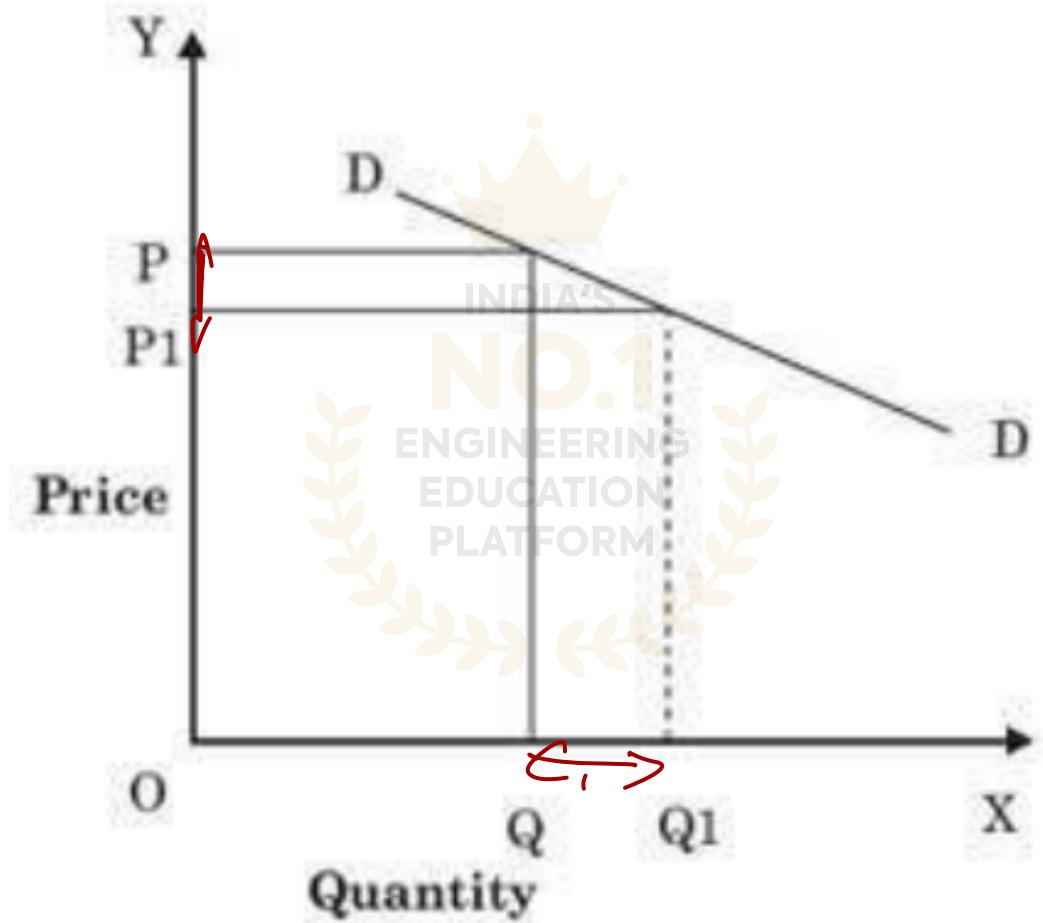
- % change in quantity > % change in price
- Sensitive to price change



Graph: Flat downward sloping curve

Example: Branded clothes, electronics, chocolates

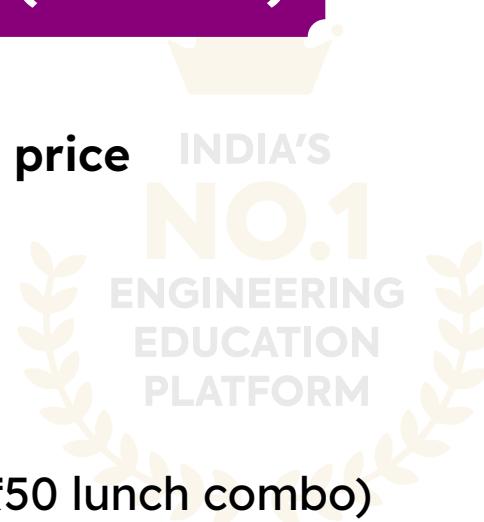






UNITARY ELASTIC DEMAND (PED = 1)

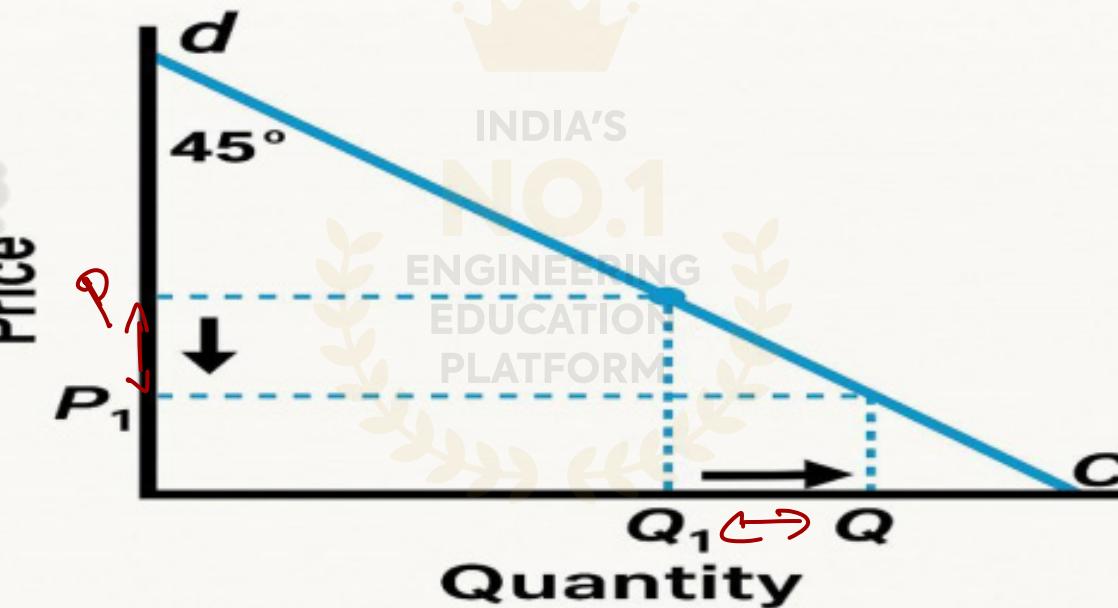
- % change in quantity = % change in price
- Revenue remains the same



Graph: Rectangular hyperbola

Example: Mid-range products (like a ₹50 lunch combo)

Unitary Elastic Demand



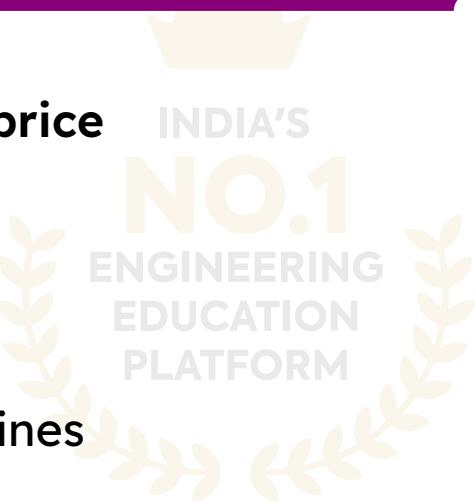


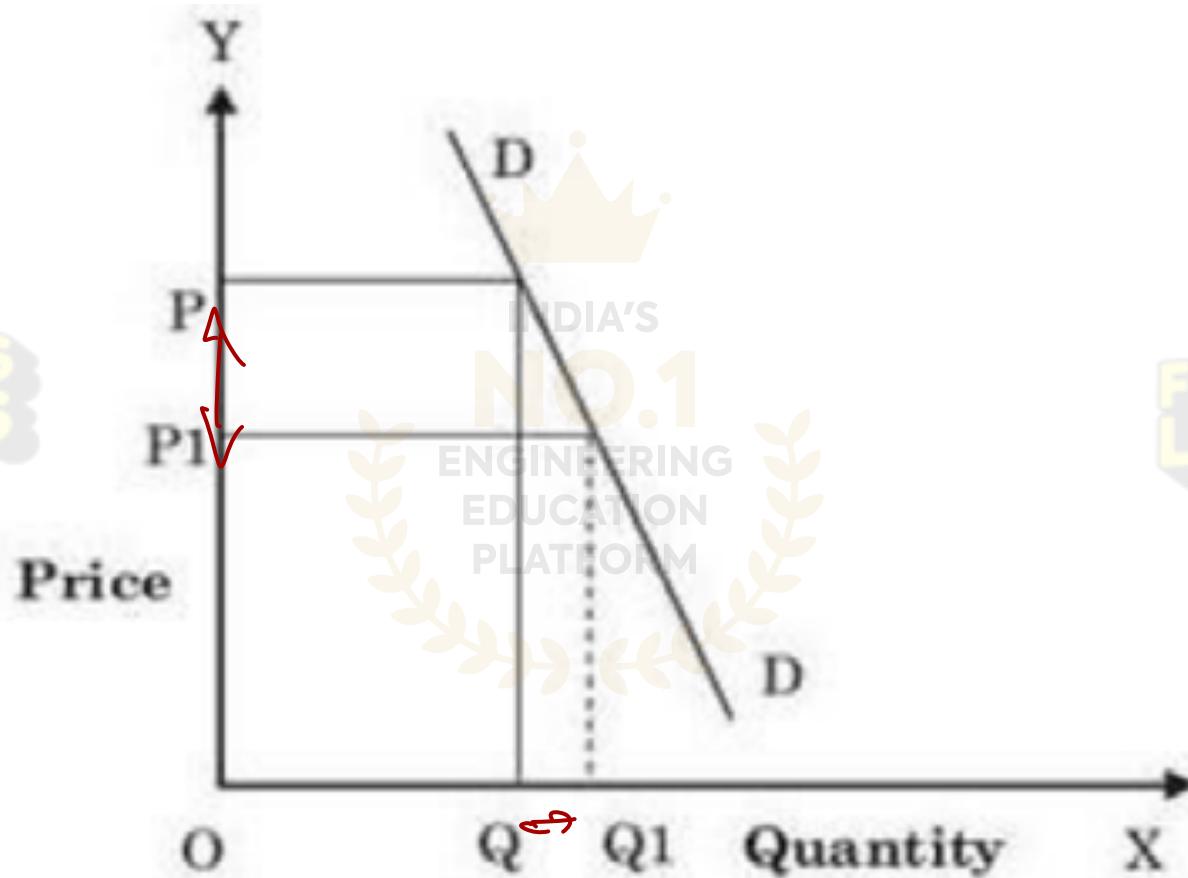
RELATIVELY INELASTIC DEMAND (PED < 1)

- % change in quantity < % change in price
- Demand doesn't change much

Graph: Steep downward curve

Example: Petrol, salt, life-saving medicines





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INCOME ELASTICITY OF DEMAND (YED)

Income Elasticity of Demand (YED) measures how much the **quantity demanded** of a good changes in response to a **change in consumer income**

Formula:

$$YED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$$



TYPES OF INCOME ELASTICITY :

Type	YED Value	Example	Meaning
Positive (Normal goods)	$YED > 0$	Branded clothes, TVs	Income ↑ → Demand ↑
Negative (Inferior goods)	$YED < 0$	Local tea, public transport	Income ↑ → Demand ↓
Unitary Elastic	$YED = 1$	Restaurant meals	% change in income = % change in demand
Income Inelastic	$YED < 1$ (but > 0)	Rice, salt (basic goods)	Income ↑ → Small demand ↑
Income Elastic	$YED > 1$	Luxury cars, electronics	Income ↑ → Big demand ↑



CROSS ELASTICITY OF DEMAND(XED)

Cross Elasticity of Demand (XED) measures how much the **quantity demanded** of one good changes when the **price of a related good** changes.

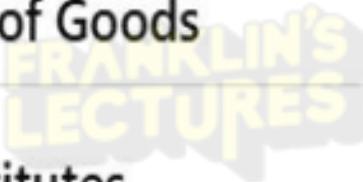
Formula:

$$XED = \frac{\% \text{ change in quantity demanded of Good A}}{\% \text{ change in price of Good B}}$$



TYPES OF CROSS ELASTICITY:

Type of Goods



Substitutes

XED Sign

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Positive (+)

Negative (-)

Complements

Unrelated Goods

Zero (0)

Meaning

Price of B ↑ → Demand for A ↑

Price of B ↑ → Demand for A ↓

No relationship between A and B



Pepsi

Coca-Cola

Fanta

Fruit punch



APPLICATIONS OF ELASTICITY:

- **Pricing Decisions:** Understand how changing price affects revenue.
- **Taxation Policy:** Governments tax inelastic goods more, as people still buy them.
- **Revenue Forecasting:** Predict earnings based on price and quantity shifts.
- **Subsidy Planning:** Provide subsidies where price sensitivity is high (e.g., public transport)



Q. What are the types of price elasticity of demand?

At an initial advertisement expenditure of Rs.50000, the demand for a firm's product is 80,000 units. When the advertisement budget is increased to Rs.60000, the sales value increased to 90,000 units, Calculate advertisement elasticity of demand. (2024, 7 marks)



Adv elasticity of demand = $\frac{\% \text{ change in qty demanded}}{\% \text{ change in price}}$

$\% \text{ change in qty} =$



Initial qty = 80000 units

New qty = 90000 units

$$\frac{90000 - 80000}{80000} \times 100$$

$$= \frac{10000}{80000} \times 100$$

12.5%

% change in price = Initial value = ₹ 50000
 New value = ₹ 60000



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$$= \frac{60000 - 50000 \times 100}{50000}$$

$$= \frac{10000 \times 100}{50000}$$

20%

$$= \frac{12.5\%}{20\%} = \underline{\underline{0.625}}$$

$$AED = \underline{\underline{0.625}}$$



Q. What is inelastic demand? (2022, 3 marks)

Even if the price changes a lot, the qty demanded has no or minimal change.

This usually happens with essential goods.

$$PED < 1$$



Q. Suppose the price of coffee rises from Rs. 4.50 per hundred grams to Rs. 5 per hundred grams and as a result the consumer's demand for tea increases from 60 hundred grams to 70 hundred grams. Find the cross elasticity of demand of tea and coffee. (2023,7 marks)

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$$\times ED = \frac{\% \text{ change in qty demanded of tea}}{\% \text{ change in price of coffee}}$$

i). change in qty demanded of tea



²

Initial qty = 60 g



New qty = 70 g

$$\% \text{ change} = \frac{70 - 60}{60} \times 100$$

$$= \frac{10}{60} \times 100 \\ = \underline{\underline{16.67\%}}$$

% change in price of coffee =



Festival price = ₹ 4.5



New price = ₹ 5

$$= \frac{5 - 4.5}{4.5} \times 100$$

$$= \frac{0.5}{4.5} \times 100$$

$$= \frac{1}{9} \times 100 \approx \underline{\underline{11\%}}$$

$$X \in \mathbb{D} \Rightarrow \frac{16.67\%}{11.11\%} = \underline{\underline{1.5}}$$



+ve value indicates
both goods are
substitutes



Q. What is cross elasticity of demand? Suppose cross elasticity of demand between X and Y is 0.5. If there is a 50 percent change in the price of Y, what will be the percentage change in the quantity demanded of X? (2021,7 marks)



$$XED = 0.5$$

$$XED = \frac{\% \text{ change in qty demanded of good } X}{\% \text{ change in price of good } Y}$$

$$0.5 = \frac{x}{50}$$



50×0.5
 $= 25\% \rightarrow$ change in quantity demanded
of good X



THANK YOU