Chapter 4: Elasticity of Demand

Question: 1

Fill in the blank with appropriate alternatives given below:

The demand for salt is _____.

Options

- elasticity
- inelastic
- infinite elastic
- unitary elastic

Solution

The demand for salt is **inelastic**.

Explanation:

Salt is a necessity good. In addition to this, there are no close substitutes available for salt. Thus, the demand for salt is inelastic i.e. any change in its price will not affect demand.

Question: 2

Fill in the blank with appropriate alternatives given below:

Income elasticity of demand for inferior goods is _____.

Options

- positive
- negative
- zero
- greater than one

Solution

Income elasticity of demand for inferior goods is **negative**.

Explanation:

Inferior goods are those goods the demand for which is negatively related to income. In other words, inferior goods are those goods the demand for which decreases with an increase in income. Therefore, income elasticity of demand for inferior goods is negative.

Question: 3

Fill in the blank with appropriate alternatives given below:

Perfectly elastic demand curve is _____.

Options

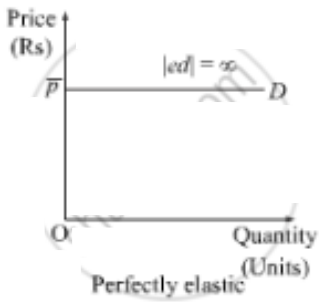
- horizontal to OX axis
- horizontal to OY axis
- flatter
- steeper

Solution

Perfectly elastic demand curve is **<u>horizontal to OX axis</u>**.

Explanation:

Demand for a good is said to be perfectly elastic when the demand is infinitely responsive to changes in price. In other words, even a small change in price brings about a large change in demand. Such a demand curve is a horizontal straight line parallel to x-axis.



Question: 4

Fill in the blank with appropriate alternatives given below:

Cross elasticity of demand is applicable to _____ goods.

Options

- unrelated
- substitute
- inferior
- natural

Solution

Cross elasticity of demand is applicable to **substitute** goods.

Explanation:

Cross elasticity of demand is a concept that is with regard to related goods. It is the measurement of the degree of responsiveness of quantity demanded due to change in the price of related goods. As substitute goods are a kind of related goods, cross elasticity of demand is applicable to such goods.

Question: 5

Fill in the blank with appropriate alternatives given below:

The slope of demand curve is _____ in case of inelastic demand.

Options

- flatter
- steeper
- horizontal
- vertical

Solution

The slope of demand curve is **steeper** in case of inelastic demand.

Explanation:

Demand is said to be inelastic, When the demand for a good is less responsive to its price. In this case, the percentage change in the demand for a good is less than the percentage change in its price and $|e_d| < 1$. The demand curve in such situations is steeper.

Question: 6

Match the following:

Group A	Group B
1. Cars and petrol	a. Elastic demand
2. Point method	b. Complementary
3. Necessary goods	c. Geometric method
	d. Inelastic demand

Solution

Group A	Group B
1. Cars and petrol	b. Complementary
2. Point method	c. Geometric method
3. Necessary goods	d. Inelastic demand

1. Cars and petrol are complementary goods. In other words, they are goods which are demanded together. For such goods there exists an inverse relation between the demand for one good and the price for other good. That is, a rise in the price of petrol will lead to a fall in the demand for cars.

2. Geometric method is also called point method of measuring elasticity. Under this method, elasticity is measured at different points on a demand curve.

3. Necessary goods are those goods which a consumer demands for sustaining his life. A consumer cannot reduce the consumption of these goods. For example, food is a necessity good. The demand for such goods does not change much in response to the changes in their prices. Even when the price rises the consumer cannot reduce their demand. Hence, such goods have an inelastic demand.

Question: 7

State whether the following statement is TRUE and FALSE.
Demand for luxuries is elastic.

Solution

TRUE

Luxuries are the goods which are not essential, rather, they are consumed for leisure or comfort purposes. For example, air conditioners, branded

garments etc. The demand for such goods is highly responsive to the change in their price. A rise in their price reduces the demand for them and vice-versa. This is because in case, the price rises, the consumer can do away with these goods, on the other hand, when the price rises the consumer tends to demand more of such goods to increase his comfort level in living. Thus, such goods have elastic demand.

Question: 8

State whether the following statement is TRUE and FALSE.
Perfectly inelastic demand curve is parallel to the X axis.

Solution

FALSE

Perfectly inelastic demand implies that the demand for the commodity is completely unresponsive to the change in the price of the commodity. That is, a change in price has no effect on the demand. A specific quantity of the good would be demanded no matter the price. In such cases, the demand curve is vertical line parallel to Y axis.

Question: 9

State whether the following statement is TRUE and FALSE.
Total outlay is price multiplied by quantity.

Solution

TRUE

Total outlay or total expenditure is a method of measuring price elasticity. Total expenditure of a good is defined as the product of its price and the quantity demanded at that price.

Algebraically,
Total Outlay = Price × Quantity Demanded

Question: 10

State whether the following statement is TRUE and FALSE.
Unitary Elastic Demand rarely occurs in practice.

Solution

TRUE

Unitary elasticity implies that a certain percentage increase in price is offset by equal percentage decrease in demand. If price of a good rises by two times, then the demand for the good gets halved. Similarly, a

percentage decrease in price is offset by an equal percentage increase in demand for the good. Such an exact behaviour rarely occurs in practice.

Question: 11

State whether the following statement is TRUE and FALSE.
Concept of Elasticity of Demand is useful for finance minister.

Solution

TRUE

Elasticity of demand helps in selecting goods and services that can be taxed and on which subsidy should be provided. Thus, the concept of elasticity of demand is used by the finance minister to determine the taxation policy and to fix subsidies.

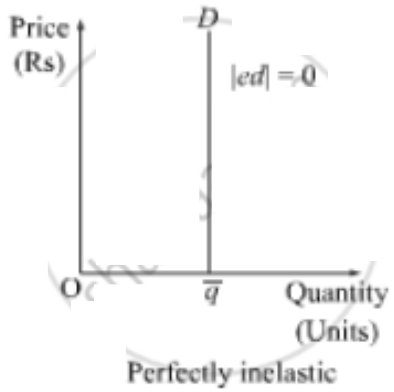
Question: 12

Answer the detail :
What are the types of Price Elasticity of Demand?

Solution: 1

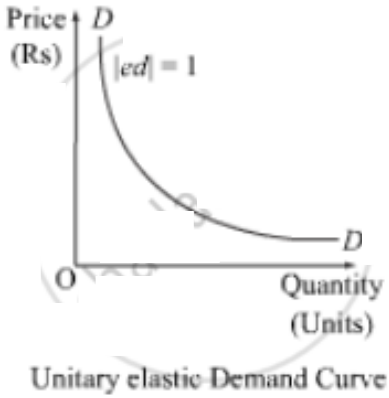
The following are the different types of price elasticity of demand:

Perfectly inelastic demand
Demand is said to be perfectly inelastic when the quantity demanded is independent of the price of the good. In other words, the quantity demanded does not show any responsiveness to the change in the price. Thus, elasticity of demand is perfectly inelastic i.e. $|E_d| = 0$. This can be represented as follows:



Unitary elastic demand
When the demand for a good responds exactly in the same amount as the change in its price, the demand is said to be unitary elastic. In this case,

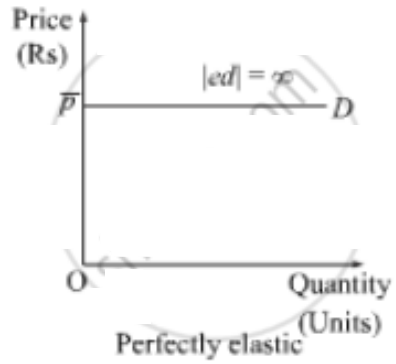
the percentage change in the demand for a good is equal to the percentage change in its price and $|e_d| = 1$.



Unitary elastic Demand Curve

Perfectly elastic demand

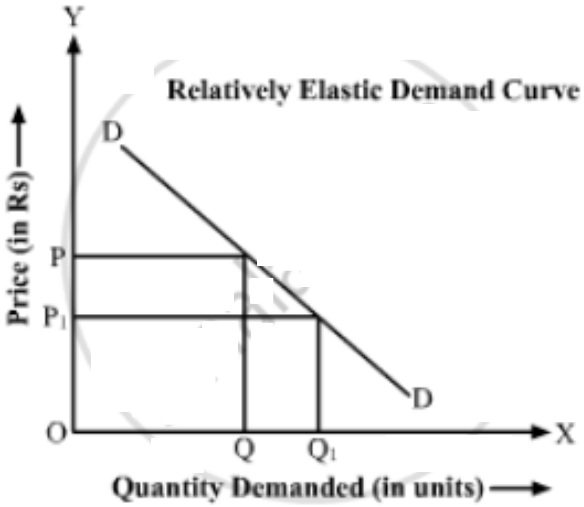
The demand is said to be perfectly elastic when the price is independent of the quantity demanded. In other words, a slight change in the price can lead to very high change in the quantity demanded. Thus, the elasticity of demand is perfectly elastic i.e. $|E_d| = \infty$.



Perfectly elastic

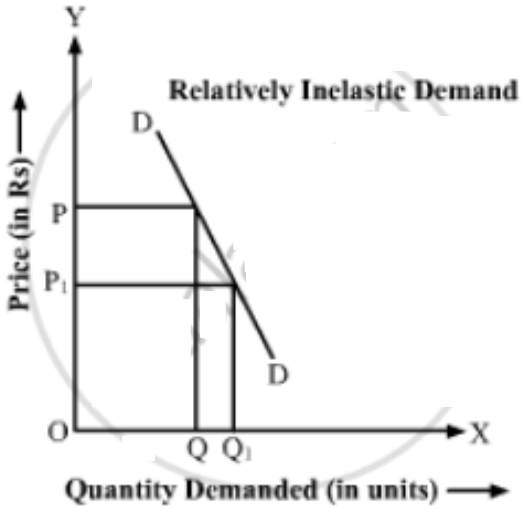
Relatively elastic demand

The demand is said to be relatively elastic if it is highly responsive to its price. In this case, the percentage change in demand is greater than the percentage change in the price. Here, $|e_d| > 1$.



Relatively inelastic demand

The demand for a commodity is said to be relatively inelastic when change in price leads to a proportionately less change in the quantity demanded. Here, $|e_d| < 1$.



The elasticity of demand is less than one i.e. $|E_d| < 1$.

Question: 13

Define or explain the following concept:
Cross Elasticity of Demand

Solution

Cross elasticity of demand is the measure of the responsiveness of demand for a good to a change in the price of a related good.

Ec = Proportionate change in quantity demanded of good X/Proportionate change in price of good Y

Question: 14

Define or explain the following concept:
Unitary Elastic Demand

Solution

Unitary elastic demand implies that a change in the price of a commodity leads to a proportionate change in the quantity demanded of that commodity. For instance, if the demand for Good X is unitary elastic, a 50% increase in the price of Good X will lead to a 50% decline in the quantity demanded of Good X. In this case, $E_d = 1$.

Question: 15

Define or explain the following concept:
Income Elasticity of Demand

Solution

Income elasticity of demand measures the responsiveness of quantity demanded with respect to a change in the income of the consumer, while other factors including price of the commodity remain unchanged.

Em = Proportionate change in quality demanded of good X/Proportionate change in income of the consumer

Question: 16

Define or explain the following concept:
Elastic Demand

Solution

Elastic demand for a good implies that the demand for a good is highly responsive to its price. In this case, the percentage change in demand is greater than the percentage change in price and $|E_d| > 1$. This implies that a little change in price will lead to a significant change in quantity demanded.

Question: 17

Give reason or explain the following statement:
Demand for necessaries is inelastic.

Solution

Necessary goods are those goods which a consumer demands for sustaining his life. A consumer cannot reduce the consumption of these goods. For example, food is a necessity good. The demand for such goods does not change much in response to the changes in their prices. Even when the price rises the consumer cannot reduce their demand. Hence, such goods have an inelastic demand.

Question: 18

Give reason or explain the following statement:
Demand for habitual goods is inelastic.

Solution

The goods that a consumer is habituated to, such as liquor, cigarettes, etc., have inelastic demand. As the consumer is habituated of these goods, a change in the price of these goods has lesser impact on their demand. For example, if a person is habituated of cigarettes a rise in price of it will not have much impact on the demand as it is difficult for the consumer to do away with cigarette. Thus, the demand for such goods is inelastic.

Question: 19

Give reason or explain the following statement:
Concept of Elasticity of Demand helps trade union leaders.

Solution

The concept of elasticity of demand is used by trade union leaders in collective bargaining. For instance, the trade union leaders can bargain for higher wages if they know that the demand for their labour is inelastic.

Question: 20

Give reason or explain the following statement:
Demand for commodity having multiple uses has elastic demand.

Solution

A commodity that can be used for different purposes (such as milk) will have an elastic demand. This is because if the price of this commodity increases, it will be used only for important purposes leading to a drastic fall in demand.

Question: 21

Give reason or explain the following statement:
Demand for goods having snob appeal has elastic demand.

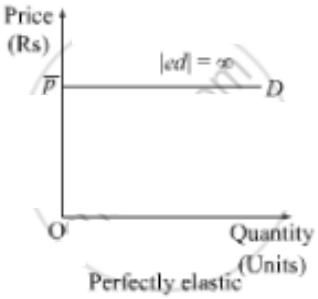
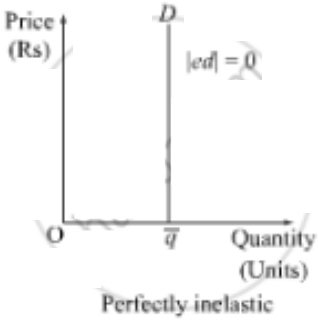
Solution

Snob appeal refers to the perception that higher priced goods are better. Also, for some people, higher priced goods are linked with their status symbol. Such products may include designer clothes, diamonds etc. Such an effect makes the demand for the good inelastic.

Question: 22

Distinguish between:
Perfectly elastic demand and perfectly inelastic demand.

Solution

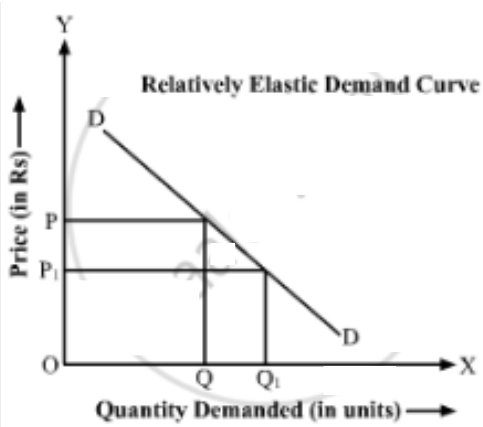
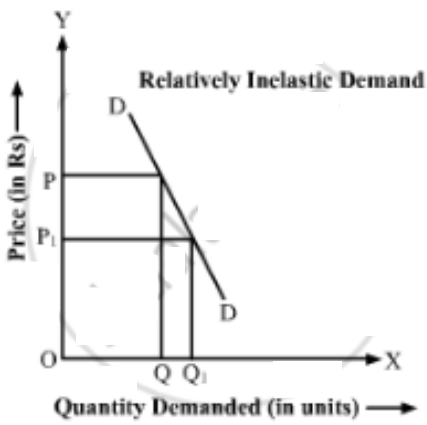
Perfectly elastic demand	Perfectly inelastic demand
It implies that the demand is infinitely responsive to any change in the price of the good.	It implies that the demand is completely unresponsive to any change in the price of the good.
The perfectly elastic demand curve is parallel to the OX axis. 	The perfectly elastic demand curve is parallel to the OY axis. 
Here, $E_d = \infty$	Here, $E_d = 0$

Question: 23

Distinguish between:"
Relatively elastic demand and relatively inelastic demand.

Solution

Relatively elastic demand	Relatively inelastic demand
In this case, the change in price leads to a proportionately large change in the quantity demanded.	In this case, the change in price leads to a proportionately less change in the quantity demanded.
It represents a flatter demand curve.	It represents a steeper demand curve.

	
Here, $E_d > 1$	ere, $E_d < 1$

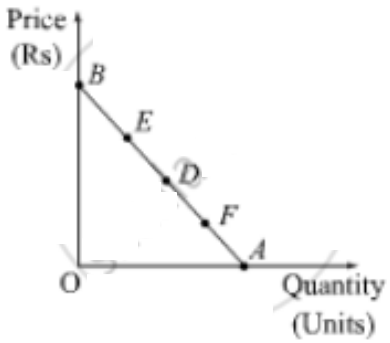
Question: 24

Write short note on:
Geometric method

Solution

Geometric method is also called point method of measuring elasticity. Under this method, elasticity is measured at different points on a demand curve. This method of measuring price elasticity was developed by Dr. Marshall. A demand curve can either be a straight line demand curve or a rectangular hyperbola curve. Accordingly, we study the geometric method of measuring elasticity for the two types of demand curves. The price elasticity on any point of the demand curve is calculated by using the following formula.

point Elasticity of demand = Lower segment of the demand curve below the given point/Upper segment of the demand curve above the given point



In the figure, AB is a straight line demand curve

Now consider point D on the demand curve. Elasticity at this point (D) can be calculated as:

As the point D lies at the middle of the demand curve, so the lower segment of point D (i.e. DA) is equal to the upper segment of point D (i.e. DB). Thus, e_d at point D is equal to 1.

At point B, point elasticity of demand is equal to

$$e_d = \frac{\text{Lower segment}}{\text{Upper segment}} = \frac{\text{BA}}{\text{Zero}} = \sim$$

As against this, at point A, the elasticity of demand is equal to

$$e_d = \frac{\text{Lower segment}}{\text{Upper segment}} = \frac{\text{Zero}}{\text{AB}} = \text{Zero}$$

At point F, the elasticity of demand is calculated as:

$$e_d \text{ at point F} = \frac{\text{FA}}{\text{BF}} > 1$$

Question: 25

Write short note on:
Ratio method

Solution

According to this method, elasticity is measured as the ratio of percentage change in quantity demanded to the percentage change in price i.e.

$$e_d = \frac{\text{Percentage change in the dem and for a good}}{\text{Percentage change in the price of the good}}$$

$$\text{or } , e_d = \frac{\frac{\text{change in Demand}}{\text{Initial Demand}} \times 100}{\frac{\text{Intial Demand}}{\text{Initial Price}} \times 100}$$

$$\text{or } , e_d = -\frac{\frac{Q_2 - Q_1}{Q_1} \times 100}{\frac{\text{P}_2 - \text{P}_1}{\text{P}_1} \times 100}$$

$$\text{or } e_d = \frac{\frac{\Delta Q}{Q_1} \times 100}{\frac{\Delta \text{P}}{\text{P}} \times 100}$$

$$\therefore e_d = \frac{\Delta Q}{\text{Q}_1} \times \frac{\text{P}}{\Delta \text{P}}$$

where:

Q_2 represents final quantity demanded

Q_1 represents initial quantity demanded

ΔQ represents change in quantity demanded

P_2 represents final price

P_1 represents initial price

ΔP represents change in price

Question: 26

Answer the following question :
Explain the concept of Elasticity of Demand

Solution

The word 'elasticity' means flexibility or responsiveness. Accordingly, elasticity of demand refers to the responsiveness of demand to the change in various determining factors. We know that the demand for a good depends on a number of factors such as its price, income, tastes, preferences and the price of related goods. Thus, elasticity of demand helps in estimating the change in demand that results from the change in one or more of these factors.

Question: 27

Answer the following question :
Explain the importance of concept of Elasticity of Demand for international trade.

Solution

In international trade, the concept of elasticity of demand plays an important role. This concept proves helpful in determining the norms that would prove beneficial for international trade. For instance, based on the elasticity of the commodities that are exported, the country can decide on the price that is to be charged. For exports that have inelastic demand, higher price can be charged. Similarly, the concept can be used to formulate export and import policies in a better manner.

Question: 28

State with reason whether you agree or disagree with the following statement.
Various factors influence Elasticity of Demand

Solution

Elasticity of demand is affected by a variety of factors as described below.

1. **Nature of a Good-** The price elasticity of demand depends on the nature of a good. The goods and services can be broadly divided into three categories- Necessities, Luxuries, Jointly-demanded goods. For instance, necessities have inelastic demand ($|e_d| < 1$). On the other hand, luxury goods have high price elasticity.

2. **Substitutes-** The demand for a good that has more number of substitutes available will be relatively more elastic. On the contrary, if a good has no close substitutes, then it will have an inelastic demand.

3. **Several Uses-** A commodity that can be used for different purposes (such as milk) will have an elastic demand. This is because if the price of this commodity increases, then it will be used only for important purposes leading to a drastic fall in demand. On the contrary, a good that has limited usage will have an inelastic demand.

4. **Consumers' Income-** People with very high or very low incomes have an inelastic demand as the change in the price of a good will have lower impact on the consumers' demand for that good. On the contrary, the middle-income earners will have an elastic demand as their demand is very responsive to the prices of goods.

5. **Consumers' Habits-** The goods that a consumer is habituated to such as, liquor, cigarettes, etc. have an inelastic demand. A change in the prices of these goods has lesser impact on their demand as the consumer is habituated to these goods and hence cannot reduce their consumption.

6. **Period of Time-** In the short run, the demand is inelastic as a consumer would not have the time to change his/her habits and long-time practices. However, in the long run, the demand would be elastic as he/she would get time to change his/her habits.

7. **Income Spent on Goods-** The goods that account for a very small proportion of a consumer’s income such as, newspaper, etc. will have an inelastic demand. On the other hand, the goods that account for a very large proportion of a consumer’s income such as, clothes,

house rents, etc. will have an elastic demand.

8. **Possibility of Postponement of Demand-** Demand for those commodities whose consumption can be postponed will be price elastic. As against this, those commodities that are urgently required and whose consumption cannot be postponed will have an inelastic demand.

Question: 29

State with reason whether you agree or disagree with the following statement.
Total outlay method is one of the methods of measuring Elasticity of Demand.

Solution

Total outlay or the total expenditure method is one of the methods of measuring elasticity of demand. Under this method, we examine how the total expenditure or total outlay incurred on the good changes with a change in its price. Total outlay or total expenditure of a good is defined as the product of its price and the quantity demanded at that price. Algebraically,

Total outlay = Price × Quantity Demanded

There can be following three possible situations of total expenditure.

1. If with a rise (or fall) in the price of good, the total expenditure remains constant, then demand for the good is said to be unitary elastic i.e. $|e_d| = 1$.
2. If with a rise (or fall) in the price of a good, the total expenditure falls (or rises), then demand for the good is said to be greater than unitary elastic i.e. $|e_d| > 1$.
3. If with a rise (or fall) in the price of a good, the total expenditure rises (or falls), then demand for the good is said to be less than unitary elastic i.e. $|e_d| < 1$.

Question: 30

Answer the detail :
Explain Ratio method and Geometric method of measuring Elasticity of Demand.

Solution

Ratio method:
Ratio method is used to estimate elasticity at any point on a straight line

demand curve. Elasticity is measured as the ratio of percentage change in quantity demanded to the percentage change in price i.e.

ed = Percentage change in demand for a good/Percentage change in price of a good

Geometric Method:
Geometric method is also called point method of measuring elasticity. Under this method, elasticity is measured at different points on a demand curve. This method of measuring price elasticity was developed by Dr. Marshall. A demand curve can either be a straight line demand curve or a rectangular hyperbola curve. Accordingly, we study the geometric method of measuring elasticity for the two types of demand curves. The price elasticity on any point of the demand curve is calculated by using the following formula:

Price Elasticity of Demand = Lower segment of the demand curve below the given point/Upper segment of demand curve above the given point

line demand curve, the elasticity will be equal to one. For points above the mid-point the elasticity will be greater than one. On the contrary for points below the mid-point the elasticity will be less than one.

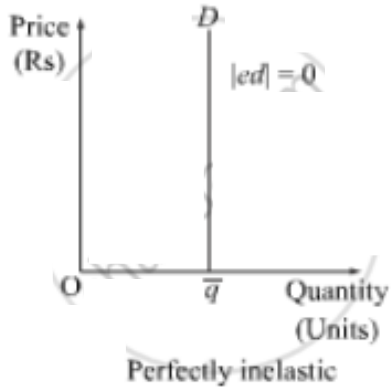
Question: 31

Answer the detail :
What are the types of Price Elasticity of Demand?

Solution: 1

The following are the different types of price elasticity of demand:

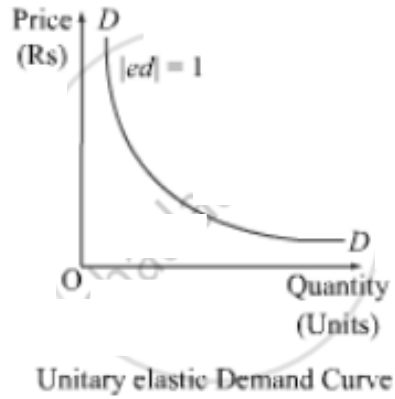
Perfectly inelastic demand
Demand is said to be perfectly inelastic when the quantity demanded is independent of the price of the good. In other words, the quantity demanded does show any responsiveness to the change in the price. Thus, elasticity of demand is perfectly inelastic i.e. $|E_d| = 0$. This can be represented as follows:



Perfectly inelastic

Unitary elastic demand

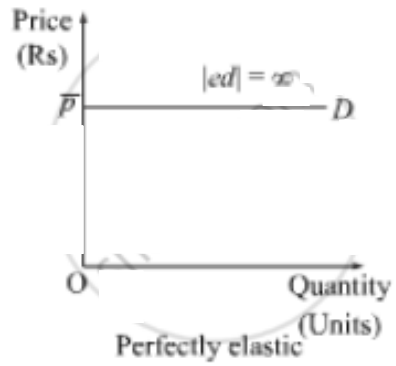
When the demand for a good responds exactly in the same amount as the change in its price, the demand is said to be unitary elastic. In this case, the percentage change in the demand for a good is equal to the percentage change in its price and $|e_d| = 1$.



Unitary elastic Demand Curve

Perfectly elastic demand

The demand is said to be perfectly elastic when the price is independent of the quantity demanded. In other words, a slight change in the price can lead to very high change in the quantity demanded. Thus, the elasticity of demand is perfectly elastic i.e. $|E_d| = \infty$.

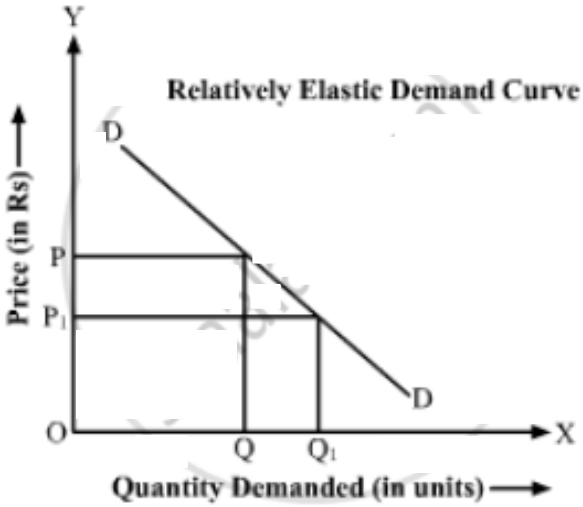


Perfectly elastic

Relatively elastic demand

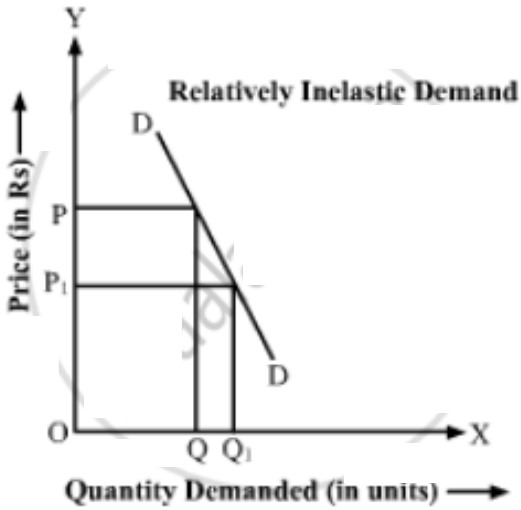
The demand is said to be relatively elastic if it is highly responsive to its

price. In this case, the percentage change in demand is greater than the percentage change in the price. Here, $|e_d| > 1$.



Relatively inelastic demand

The demand for a commodity is said to be relatively inelastic when change in price leads to a proportionately less change in the quantity demanded. Here, $|e_d| < 1$.



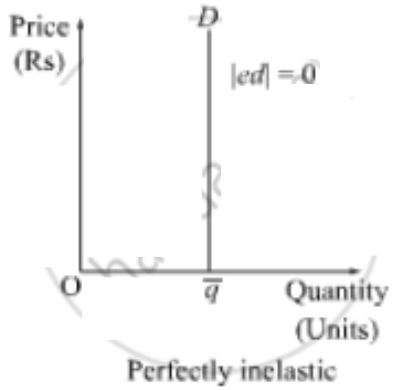
The elasticity of demand is less than one i.e. $|E_d| < 1$.

Solution: 2

The following are the different types of price elasticity of demand:

Perfectly inelastic demand

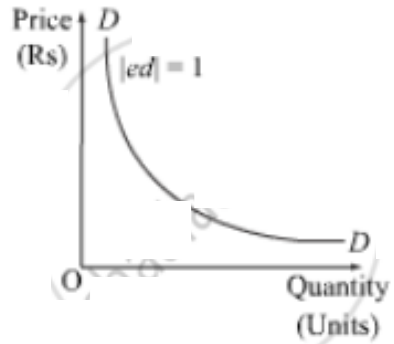
Demand is said to be perfectly inelastic when the quantity demanded is independent of the price of the good. In other words, the quantity demanded does not show any responsiveness to the change in the price. Thus, elasticity of demand is perfectly inelastic i.e. $|E_d| = 0$. This can be represented as follows:



Perfectly inelastic

Unitary elastic demand

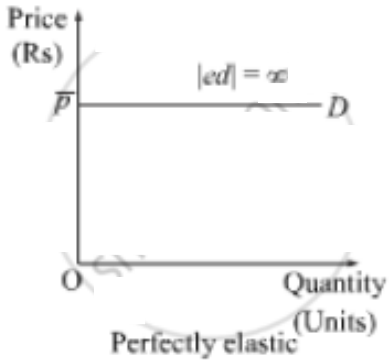
When the demand for a good responds exactly in the same amount as the change in its price, the demand is said to be unitary elastic. In this case, the percentage change in the demand for a good is equal to the percentage change in its price and $|e_d| = 1$.



Unitary elastic Demand Curve

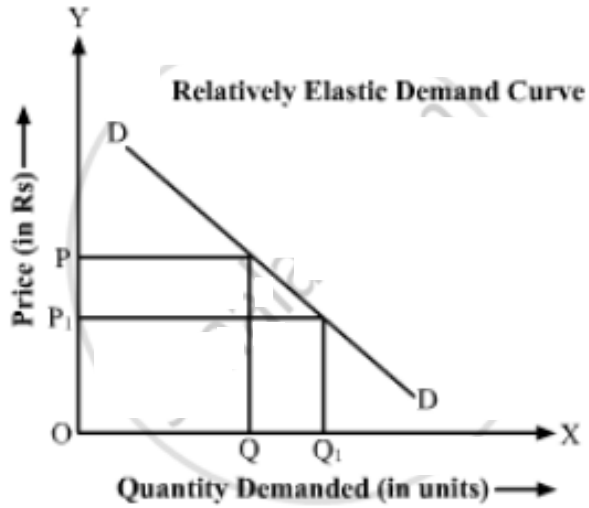
Perfectly elastic demand

The demand is said to be perfectly elastic when the price is independent of the quantity demanded. In other words, a slight change in the price can lead to very high change in the quantity demanded. Thus, the elasticity of demand is perfectly elastic i.e. $|E_d| = \infty$.



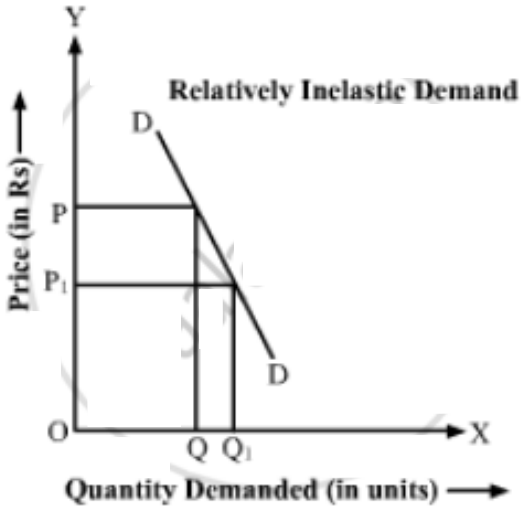
Relatively elastic demand

The demand is said to be relatively elastic if it is highly responsive to its price. In this case, the percentage change in demand is greater than the percentage change in the price. Here, $|e_d| > 1$.



Relatively inelastic demand

The demand for a commodity is said to be relatively inelastic when change in price leads to a proportionately less change in the quantity demanded. Here, $|e_d| < 1$.



The elasticity of demand is less than one i.e. $|E_d| < 1$.

Question: 32

Define or explain the following concept:
Cross Elasticity of Demand

Solution

Cross elasticity of demand is the measure of the responsiveness of demand for a good to a change in the price of a related good.

Ec = Proportionate change in quantity demanded of good X/Proportionate change in price of good Y

Question: 33

Define or explain the following concept:
Unitary Elastic Demand

Solution

Unitary elastic demand implies that a change in the price of a commodity leads to a proportionate change in the quantity demanded of that commodity. For instance, if the demand for Good X is unitary elastic, a 50% increase in the price of Good X will lead to a 50% decline in the quantity demanded of Good X. In this case, $E_d = 1$.

Question: 34

Define or explain the following concept:
Income Elasticity of Demand

Solution

Income elasticity of demand measures the responsiveness of quantity demanded with respect to a change in the income of the consumer, while other factors including price of the commodity remain unchanged.

Em = Proportionate change in quality demanded of good X/Proportionate change in income of the consumer

Question: 35

Define or explain the following concept:
Elastic Demand

Solution

Elastic demand for a good implies that the demand for a good is highly responsive to its price. In this case, the percentage change in demand is greater than the percentage change in price and $|E_d| > 1$. This implies that a little change in price will lead to a significant change in quantity demanded.

Question: 36

Give reason or explain the following statement:
Demand for necessaries is inelastic.

Solution

Necessary goods are those goods which a consumer demands for sustaining his life. A consumer cannot reduce the consumption of these goods. For example, food is a necessity good. The demand for such goods does not change much in response to the changes in their prices. Even when the price rises the consumer cannot reduce their demand. Hence, such goods have an inelastic demand.

Question: 37

Give reason or explain the following statement:
Demand for habitual goods is inelastic.

Solution

The goods that a consumer is habituated to, such as liquor, cigarettes, etc., have inelastic demand. As the consumer is habituated of these goods, a change in the price of these goods has lesser impact on their demand. For example, if a person is habituated of cigarettes a rise in price of it will not have much impact on the demand as it is difficult for the consumer to do away with cigarette. Thus, the demand for such goods is inelastic.

Question: 38

Give reason or explain the following statement:
Concept of Elasticity of Demand helps trade union leaders.

Solution

The concept of elasticity of demand is used by trade union leaders in collective bargaining. For instance, the trade union leaders can bargain for higher wages if they know that the demand for their labour is inelastic.

Question: 39

Give reason or explain the following statement:
Demand for commodity having multiple uses has elastic demand.

Solution

A commodity that can be used for different purposes (such as milk) will have an elastic demand. This is because if the price of this commodity increases, it will be used only for important purposes leading to a drastic fall in demand.

Question: 40

Give reason or explain the following statement:
Demand for goods having snob appeal has elastic demand.

Solution

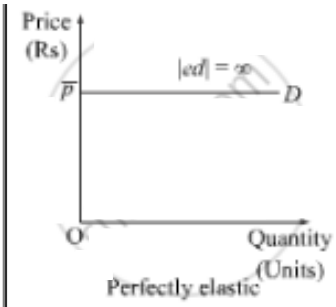
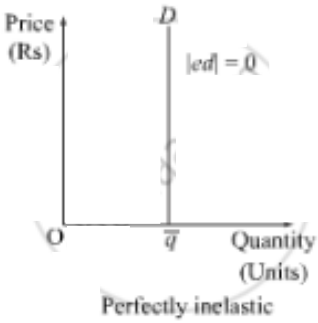
Snob appeal refers to the perception that higher priced goods are better. Also, for some people, higher priced goods are linked with their status symbol. Such products may include designer clothes, diamonds etc. Such an effect makes the demand for the good inelastic.

Question: 41

Distinguish between:
Perfectly elastic demand and perfectly inelastic demand.

Solution

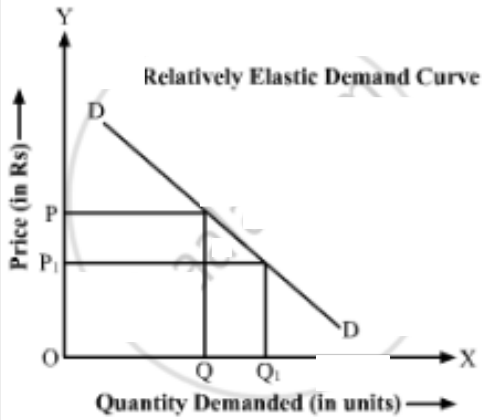
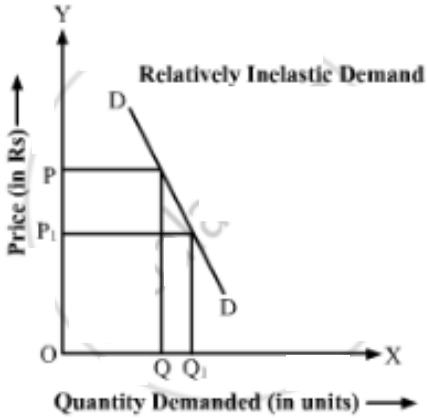
Perfectly elastic demand	Perfectly inelastic demand
It implies that the demand is infinitely responsive to any change in the price of the good.	It implies that the demand is completely unresponsive to any change in the price of the good.
The perfectly elastic demand curve is parallel to the OX axis.	The perfectly elastic demand curve is parallel to the OY axis.

	
Here, $E_d = \infty$	Here, $E_d = 0$

Question: 42

Distinguish between:
Relatively elastic demand and relatively inelastic demand.

Solution

Relatively elastic demand	Relatively inelastic demand
In this case, the change in price leads to a proportionately large change in the quantity demanded.	In this case, the change in price leads to a proportionately less change in the quantity demanded.
It represents a flatter demand curve. 	It represents a steeper demand curve. 
Here, $E_d > 1$	ere, $E_d < 1$

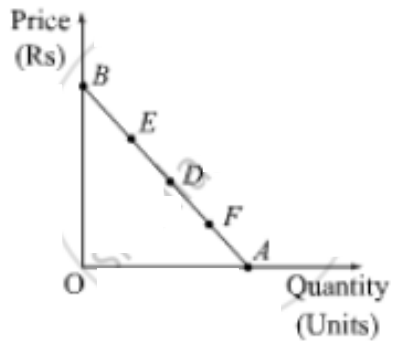
Question: 43

Write short note on:
Geometric method

Solution

Geometric method is also called point method of measuring elasticity. Under this method, elasticity is measured at different points on a demand curve. This method of measuring price elasticity was developed by Dr. Marshall. A demand curve can either be a straight line demand curve or a rectangular hyperbola curve. Accordingly, we study the geometric method of measuring elasticity for the two types of demand curves. The price elasticity on any point of the demand curve is calculated by using the following formula.

point Elasticity of demand = Lower segment of the demand curve below the given point/Upper segment of the demand curve above the given point



In the figure, AB is a straight line demand curve

Now consider point D on the demand curve. Elasticity at this point (D) can be calculated as:

$$e_d = \frac{\text{Lower segment}}{\text{Upper segment}} = \frac{\text{DA}}{\text{DB}}$$

As the point D lies at the middle of the demand curve, so the lower segment of point D (i.e. DA) is equal to the upper segment of point D (i.e. DB). Thus, e_d at point D is equal to 1.

At point B, point elasticity of demand is equal to

$$e_d = \frac{\text{Lower segment}}{\text{Upper segment}} = \frac{\text{BA}}{\text{Zero}} = \sim$$

As against this, at point A, the elasticity of demand is equal to

$$e_d = \frac{\text{Lower segment}}{\text{Upper segment}} = \frac{\text{Zero}}{\text{AB}} = \text{Zero}$$

At point F, the elasticity of demand is calculated as:

$$e_d \text{ at point F} = \frac{\text{FA}}{\text{BF}} > 1$$

Question: 44

Write short note on:
Ratio method

Solution

According to this method, elasticity is measured as the ratio of percentage change in quantity demanded to the percentage change in price i.e.

$$e_d = \frac{\text{Percentage change in the dem and for a good}}{\text{Percentage change in the price of the good}}$$

$$\text{or } , e_d = \frac{\frac{\text{change in Demand}}{\text{Initial Demand}} \times 100}{\frac{\text{Intial Demand}}{\text{Initial Price}} \times 100}$$

$$\text{or } , e_d = -\frac{\frac{Q_2 - Q_1}{Q_1} \times 100}{\frac{\text{P}_2 - \text{P}_1}{\text{P}_1} \times 100}$$

$$\text{or } e_d = \frac{\frac{\Delta Q}{Q_1} \times 100}{\frac{\Delta \text{P}}{\text{P}} \times 100}$$

$$\therefore e_d = \frac{\Delta Q}{\text{Q}_1} \times \frac{\text{P}}{\Delta \text{P}}$$

where:

Q_2 represents final quantity demanded

Q_1 represents initial quantity demanded

ΔQ represents change in quantity demanded

P_2 represents final price

P_1 represents initial price

ΔP represents change in price

Question: 45

Answer the following question :
Explain the concept of Elasticity of Demand

Solution

The word 'elasticity' means flexibility or responsiveness. Accordingly, elasticity of demand refers to the responsiveness of demand to the change in various determining factors. We know that the demand for a good depends on a number of factors such as its price, income, tastes, preferences and the price of related goods. Thus, elasticity of demand helps in estimating the change in demand that results from the change in one or more of these factors.

Question: 46

Answer the following question :
Explain the importance of concept of Elasticity of Demand for international trade.

Solution

In international trade, the concept of elasticity of demand plays an important role. This concept proves helpful in determining the norms that would prove beneficial for international trade. For instance, based on the elasticity of the commodities that are exported, the country can decide on the price that is to be charged. For exports that have inelastic demand, higher price can be charged. Similarly, the concept can be used to formulate export and import policies in a better manner.

Question: 47

State with reason whether you agree or disagree with the following statement.
Various factors influence Elasticity of Demand

Solution

Elasticity of demand is affected by a variety of factors as described below.

1. **Nature of a Good-** The price elasticity of demand depends on the nature of a good. The goods and services can be broadly divided into three categories- Necessities, Luxuries, Jointly-demanded goods. For instance, necessities have inelastic demand ($|e_d| < 1$). On the other hand, luxury goods have high price elasticity.

2. **Substitutes-** The demand for a good that has more number of substitutes available will be relatively more elastic. On the contrary, if a good has no close substitutes, then it will have an inelastic demand.

3. **Several Uses-** A commodity that can be used for different purposes (such as milk) will have an elastic demand. This is because if the

price of this commodity increases, then it will be used only for important purposes leading to a drastic fall in demand. On the contrary, a good that has limited usage will have an inelastic demand.

4. **Consumers' Income-** People with very high or very low incomes have an inelastic demand as the change in the price of a good will have lower impact on the consumers' demand for that good. On the contrary, the middle-income earners will have an elastic demand as their demand is very responsive to the prices of goods.

5. **Consumers' Habits-** The goods that a consumer is habituated to such as, liquor, cigarettes, etc. have an inelastic demand. A change in the prices of these goods has lesser impact on their demand as the consumer is habituated to these goods and hence cannot reduce their consumption.

6. **Period of Time-** In the short run, the demand is inelastic as a consumer would not have the time to change his/her habits and long-time practices. However, in the long run, the demand would be elastic as he/she would get time to change his/her habits.

7. **Income Spent on Goods-** The goods that account for a very small proportion of a consumer's income such as, newspaper, etc. will have an inelastic demand. On the other hand, the goods that account for a very large proportion of a consumer's income such as, clothes, house rents, etc. will have an elastic demand.

8. **Possibility of Postponement of Demand-** Demand for those commodities whose consumption can be postponed will be price elastic. As against this, those commodities that are urgently required and whose consumption cannot be postponed will have an inelastic demand.

Question: 48

State with reason whether you agree or disagree with the following statement.
Total outlay method is one of the methods of measuring Elasticity of Demand.

Solution

Total outlay or the total expenditure method is one of the methods of measuring elasticity of demand. Under this method, we examine how the total expenditure or total outlay incurred on the good changes with a change in its price. Total outlay or total expenditure of a good is defined as

the product of its price and the quantity demanded at that price. Algebraically,

Total outlay = Price × Quantity Demanded

There can be following three possible situations of total expenditure.

1. If with a rise (or fall) in the price of good, the total expenditure remains constant, then demand for the good is said to be unitary elastic i.e. $|e_d| = 1$.
2. If with a rise (or fall) in the price of a good, the total expenditure falls (or rises), then demand for the good is said to be greater than unitary elastic i.e. $|e_d| > 1$.
3. If with a rise (or fall) in the price of a good, the total expenditure rises (or falls), then demand for the good is said to be less than unitary elastic i.e. $|e_d| < 1$.

Question: 49

Answer the detail :
Explain Ratio method and Geometric method of measuring Elasticity of Demand.

Solution

Ratio method:
Ratio method is used to estimate elasticity at any point on a straight line demand curve. Elasticity is measured as the ratio of percentage change in quantity demanded to the percentage change in price i.e.

ed = Percentage change in demand for a good/Percentage change in price of a good

Geometric Method:
Geometric method is also called point method of measuring elasticity. Under this method, elasticity is measured at different points on a demand curve. This method of measuring price elasticity was developed by Dr. Marshall. A demand curve can either be a straight line demand curve or a rectangular hyperbola curve. Accordingly, we study the geometric method of measuring elasticity for the two types of demand curves. The price elasticity on any point of the demand curve is calculated by using the following formula:

Price Elasticity of Demand = Lower segment of the demand curve below the given point/Upper segment of demand curve above the given point

line demand curve, the elasticity will be equal to one. For points above the mid-point the elasticity will be greater than one. On the contrary for points

below the mid-point the elasticity will be less than one.

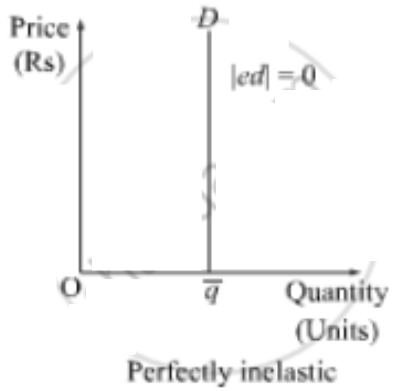
Question: 50

Answer the detail :
What are the types of Price Elasticity of Demand?

Solution: 1

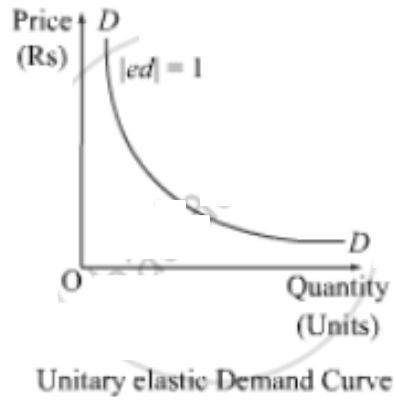
The following are the different types of price elasticity of demand:

Perfectly inelastic demand
Demand is said to be perfectly inelastic when the quantity demanded is independent of the price of the good. In other words, the quantity demanded does not show any responsiveness to the change in the price. Thus, elasticity of demand is perfectly inelastic i.e. $|E_d| = 0$. This can be represented as follows:



Perfectly inelastic

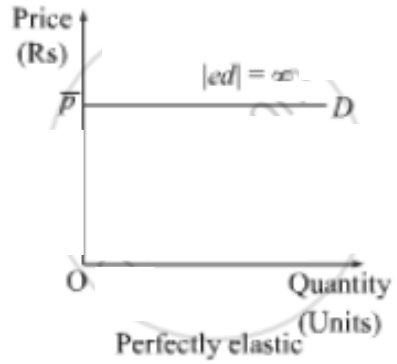
Unitary elastic demand
When the demand for a good responds exactly in the same amount as the change in its price, the demand is said to be unitary elastic. In this case, the percentage change in the demand for a good is equal to the percentage change in its price and $|e_d| = 1$.



Unitary elastic Demand Curve

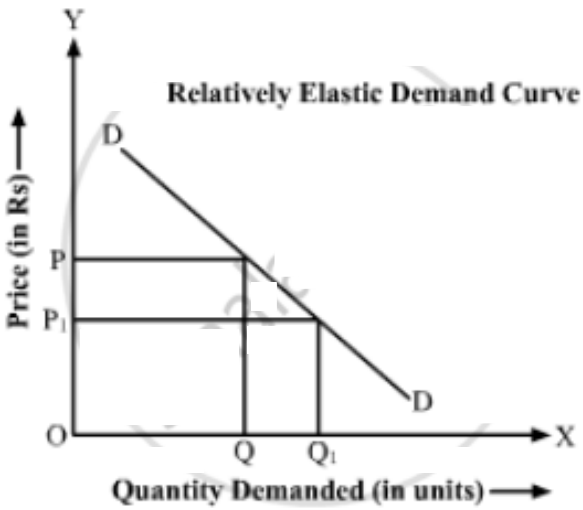
Perfectly elastic demand

The demand is said to be perfectly elastic when the price is independent of the quantity demanded. In other words, a slight change in the price can lead to very high change in the quantity demanded. Thus, the elasticity of demand is perfectly elastic i.e. $|E_d| = \infty$.



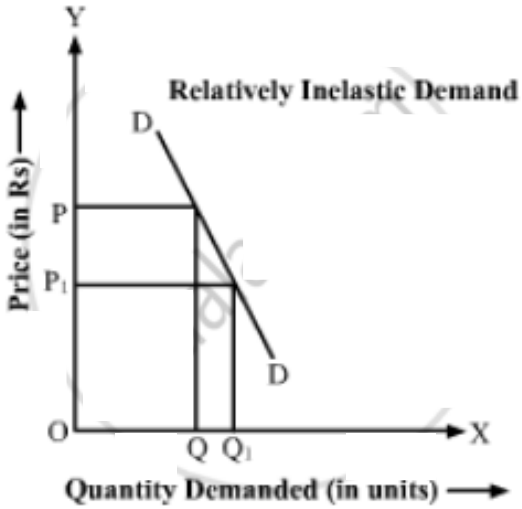
Relatively elastic demand

The demand is said to be relatively elastic if it is highly responsive to its price. In this case, the percentage change in demand is greater than the percentage change in the price. Here, $|e_d| > 1$.



Relatively inelastic demand

The demand for a commodity is said to be relatively inelastic when change in price leads to a proportionately less change in the quantity demanded. Here, $|e_d| < 1$.

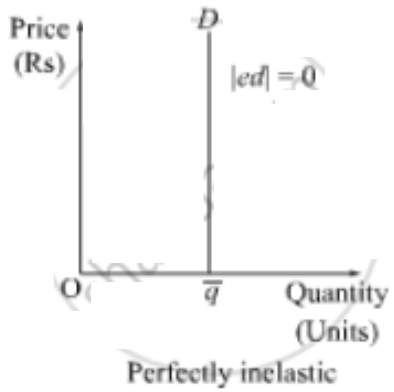


The elasticity of demand is less than one i.e. $|E_d| < 1$.

Solution: 2

The following are the different types of price elasticity of demand:

Perfectly inelastic demand
Demand is said to be perfectly inelastic when the quantity demanded is independent of the price of the good. In other words, the quantity demanded does not show any responsiveness to the change in the price. Thus, elasticity of demand is perfectly inelastic i.e. $|E_d| = 0$. This can be represented as follows:



Unitary elastic demand
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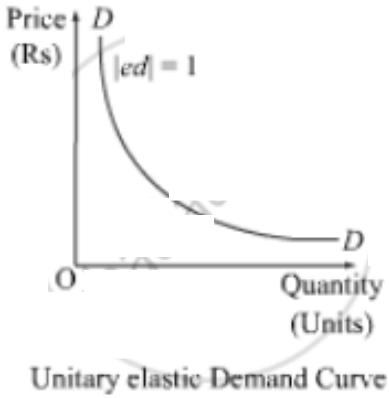
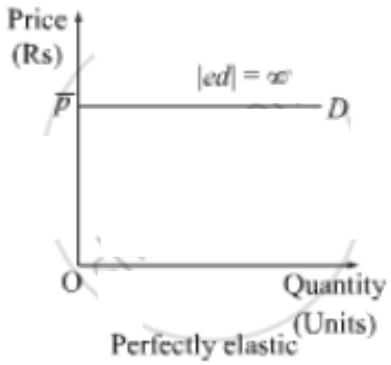


Unitary elastic Demand Curve

Perfectly elastic demand

The demand is said to be perfectly elastic when the price is independent of the quantity demanded. In other words, a slight change in the price can lead to very high change in the quantity demanded. Thus, the elasticity of demand is perfectly elastic i.e. $|E_d| = \infty$.



Perfectly elastic

Relatively elastic demand

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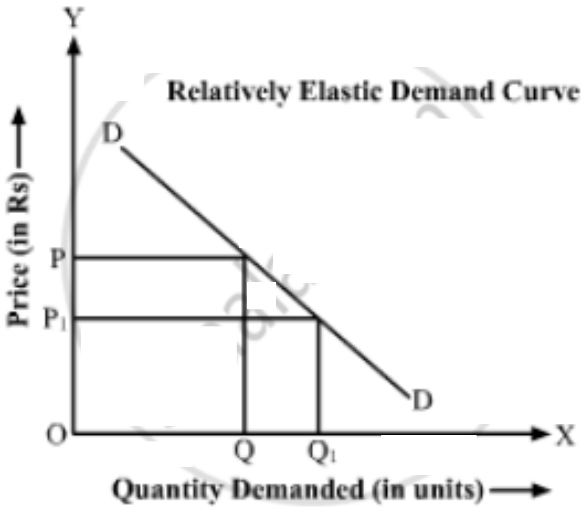

Relatively inelastic demand

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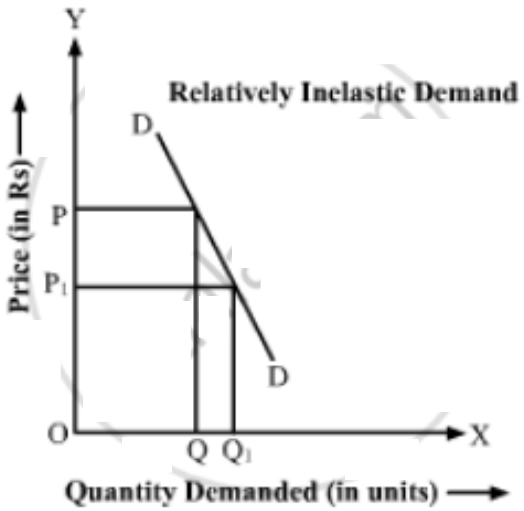

The elasticity of demand is less than one i.e. $|E_d| < 1$.