3B. Elasticity of demand

Q.1 complete the following statement:
(1) Price elasticity of demand on a linear demand curve at the X-axis is.....
Ans. Zero

(2) Price elasticity of demand on a linear demand curve at the y-axis is equal to.....
Ans. Infinity

(3) Demand curve is parallel to X-axis, in case of.....
Ans. Perfectly elastic demand

(4) When percentage change in quantity demanded is more than the percentage change in price, the demand curve is.....
Ans. Flatter

(5) Ed = 0 in case of.....
Ans. Necessities

Q. 2. Give economic terms:
1) Degree of responsiveness of quantity demanded to change in income only.
Ans. Income elasticity of demand

2) Degree of responsiveness of a change in quantity demanded of one commodity due to change in the price of another commodity.
Ans. Cross elasticity of demand

3) Degree of responsiveness of a change of quantity demanded of a good to a change in its price.
Ans. Price elasticity of demand

4) Elasticity resulting from infinite change in quantity demanded.
Ans. Perfect elasticity

5) Elasticity resulting from a proportionate change in quantity demanded due to a proportionate change in price.
Ans. Unitary elasticity.

Q.3. Complete the correlation:
(1) Perfectly elastic demand:Ed=α :: Perfectly inelastic demand :Ed = 0

(2) Rectangular hyperbola: Unitary elastic demand:: Steeper demand curve: Relatively inelastic demand.
(3) Straight line demand curve: Linear demand curve :: Curved line demand curve: Non linear demand curve.
(4) Pen and ink: Complementary goods:: Tea and Coffee: Substitutes.

(5) Ratio method: $$\mathbf{Ed} = \frac{\%\Delta \mathbf{Q}}{\%\Delta \mathbf{P}}$$

:: Geometrical method: $$\mathbf{Ed} = \frac{\text{Lower segment}}{\text{Upper segment}}$$

Q.4. Assertion and Reasoning type questions:

(1) Assertion (A): Elasticity of demand explains that one variable is influenced by another variable. **Reasoning (R):** The concept of elasticity of demand indicates the effect of price and changes in other factors on demand.

Options: (1) (A) is true, but (R) is false.

(2) (A) is false, but (R) is true.

(3) Both (A) and (R) are true and (R) is the correct explanation of (A)

(4) Both (A) and (R) are true and (R) is not the correct explanation of (A)

Ans. (3) Both (A) and (R) are

(2) Assertion (A): A change in quantity demanded of one commodity due to a change in the price of the other commodity is cross elasticity.
Reasoning (R): Changes in consumers income leads to a change in the quantity demanded.

Options: (1) (A) is true, but (R) is false.

(2) (A) is false, but (R) is true.

(3) Both (A) and (R) are true and (R) the correct explanation of (A)

(4) Both (A) and (R) are true and (R) is not the correct explanation of (A)

Ans. (4) Both (A) and (R) are true and (R) is not the correct explanation of (A)

(3) Assertion (A): Degree of price elasticity is less than one in case of relatively inelastic demand. **Reasoning (R):** Change in demand is less than the change in price.

Options: (1) (A) is true, but (R) is false

(2) (A) is false, but (R) is true.

(3) Both (A) and (R) are true and (R) is the correct explanation of (A)

(4) Both (A) and (R) are true and (R) is not the correct explanation of (A)

Ans. (3) Both (A) and (R) are true and (R) is the correct explanation of (A)

0.5. Distinguish between:

1) Relatively elastic and Relatively inelastic demand
Ans

Relatively elastic	Relatively inelastic demand
1. Meaning When the proportionate change in the price of a commodity brings about greater than proportionate to change in its quantity demanded, the demand is ch said to be relatively elastic.	**1. Meaning** When the proportionate change in the price of a commodity brings about lesser than proportionate change in its quantity demanded, the demand is said to be relatively inelastic.
2. Numerical value In the case of relatively elastic demand, the numerical value of the elasticity of demand is greater than one.	**2. Numerical value** In the case of perfectly inelastic demand, the numerical value of the elasticity of demand is zero.

2) Perfectly elastic demand and Perfectly inelastic demand.
Ans.

Perfectly elastic demand	Perfectly inelastic Demand
1. Meaning When a slight proportionate change in the price of a commodity brings an infinite (unlimited) proportionate change in its quantity demanded, the demand is said to be perfectly elastic.	**1. Meaning** When the proportionate change in the price of a commodity brings no (zero) proportionate change in its quantity demanded, the demand is said to be perfectly inelastic.

2. Numerical value In the case of perfectly elastic demand, the numerical value of the elasticity of demand is infinite.	**2. Numerical value** In the case of relatively inelastic demand, the numerical value of the elasticity of demand is lesser than one.

Q. 6. Answer the following questions:
1) Explain the factors influencing elasticity of demand.

Ans. The factors influencing elasticity of demand are as follows:
(1) Nature of Commodities: Nature of commodities is one of the important factors influencing the elasticity of demand. We can classify commodities as necessaries, comforts and luxury goods. The necessary goods like salt, medicines, etc. have less elastic demand. On the other hand, comfort and luxury goods like cars, perfumes, jewellery, etc. have more elastic demand.

(2) Availability of Substitute Goods: A commodity having larger number of substitutes tends to have elastic demand and vice versa. For example, due to the availability of larger number of substitutes, the demand for cold drinks tends to be elastic. Similarly due to a lack of substitutes, the demand for salt is inelastic.

(3) Number of uses: A commodity which has specific use has less elastic demand. For example, a demand for a particular vegetable is less elastic. A commodity which can be put to several uses has elastic demand. When the price of such a commodity falls. It is put into various uses. Similarly when the price of such a commodity rises, it is put only for important purposes. For example, electricity has elastic demand.

(4) Habits: The demand for habituated goods tends to be inelastic. For example, a smoker's demand for cigarettes is inelastic. On the other hand, the demand for non-habituated goods tends to be elastic. For example, demand for biscuits is more elastic.

(5) Durability: Elasticity of demand also gets influenced by the durability of a commodity Durable commodities such as washing machine. television set tend to have elastic demand and the perishable commodities such as milk, eggs tend to have inelastic demand.

(**6) Complementary Goods:** Demand for complementary goods is inelastic. Complementary goods are demanded jointly. Therefore, their demand remains almost fixed. For example, the demand only for sim card or mobile phone tends to be inelastic. The goods which are not complementary to each other have more elastic demand. For example, the demand of only magazines or only cold drinks is elastic.

(7) Income of consumer: The demand for commodities tends to be inelastic with a rise in income and elastic with a fall in income. For example, a rich person's demand for a particular commodity may be inelastic, but a poor person's demand for that same commodity may be elastic.

(**8) Urgency of needs:** The commodities that are needed urgently, i.e. the commodities whose consumption cannot be postponed have less elastic demand. For example, demand for medicines. On the other hand, the commodities that are not needed urgently, i.e. the commodities whose consumption can be postponed have more elastic demand, E example, demand for computer.

(9) Time period: In a short run, the demand for specific commodity may tend to be inelastic. In the long run, a consumer may demand a cheaper substitute commodity. Thus, the demand for an original commodity tends to be elastic in the long run.

(2) Explain the total outlay method of measuring elasticity of demand?
Ans. (1) Total Outlay Method of measuring elasticity of demand.
Dr. Alfred Marshall has explained the outlay method of measuring elasticity of demand. This method is also called as total expenditure method or total revenue method. Total expenditure means Price Quantity demanded. In this method, the elasticity of demand is measured by comparing the change in the total expenditure on a commodity in response to a change in the price of a commodity. This method can be explained with the help of the following schedule:

commodity	Price (₹)	Demand (per day in units)	Total outlay (₹)	Elasticity od demand
'A'	10	6	60	Ed< 1 (Relativity inelastic)
	20	5	100	
'B'	30	4	120	Ed= (unitary elastic)
	40	3	120	
'C'	50	2	100	Ed> (Relativity elastic)
	60	1	60	

(2) **Relatively inelastic demand:** When a fall in the price of a commodity also leads to a fall in a total expenditure on a commodity and vice versa, then the demand is said to be relatively inelastic. For example, in the above schedule, in the case of commodity 'A', it can be seen that, as a commodity's price falls from Rs20 to Rs210, the total expenditure on it also falls from Rs100 to Rs60. Similarly, as a commodity's price rises from Rs10 to Rs20, the total expenditure on it also rises from Rs60 to Rs

100. In the case of relatively inelastic demand, the price of a commodity and the total expenditure on a commodity are directly related to each other.

(3) **Unitary elastic demand:** When a fall or a rise in the price of a commodity leads to no change in total expenditure on a commodity, then the demand is said to be unitary elastic. For example, in the above schedule, in the case of commodity 'B', it can be seen that, as a commodity's price falls from Rs40 to Rs30, the total expenditure on it remains same i.e. 120. Similarly, as a commodity's price rises from 30 to 40, the total expenditure on it remains same i.e. 120.

(4) Relatively elastic demand: When a fall in the price of a commodity leads to a rise in a total expenditure on a commodity and vice versa, then the demand is said to be relatively elastic. For example, in the above schedule, in the case of commodity 'C'. it can be seen that, as a commodity's price falls from Re60 to Rs50, the total expenditure on it rises from Rs60 to Rs100. Similarly, as a commodity's price rises from Rs50 to Rs60, the total expenditure on it falls from Rs100 to Rs60. In the case of relatively elastic demand, the price of a commodity and the total expenditure on a commodity are inversely related to each other.

(3) Explain importance of elasticity of demand.
Ans. The importance of elasticity of demand can be explained with the help of the following points:
(1) Importance to producers: The concept of elasticity of demand helps the seller in fixing the prices of his products. If the demand for a commodity sold by the producer is inelastic, the producer can charge higher price for such a commodity and can carn the maximum profit. On the other hand, if the demand for a commodity sale by the producer is elastic, the producer can charge lower price for such a commodity and can earn the profit by its maximum sale.

(2) Importance to the Government: The concept of elasticity of demand helps the finance minister and the government in framing the taxation policy. If the demand for a particular commodity is inelastic, the government can collect more revenue by imposing heavy taxes on such a commodity. Therefore, generally heavy taxes are imposed on commodities like cigarettes, liquor, etc. On the other hand, if the demand for a particular commodity is elastic, the government can impose low taxes and can encourage sale of such a commodity and can collect revenue from it.

(3) Importance in factor pricing: The concept of elasticity of demand also helps in the determination of wages of workers. For example, the demand for skilled employees performing higher intellectual work is less elastic, therefore they can demand more salary. On the other hand, the demand for unskilled labourer performing physical work is more elastic, therefore they have to accept

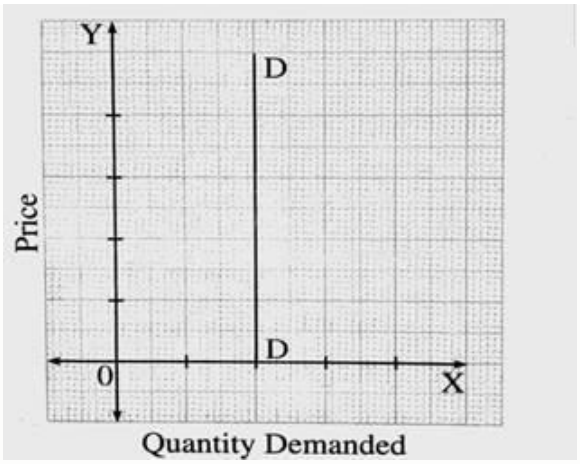
comparatively low wages.

(4) Importance in foreign trade: The concept of elasticity of demand is helpful to the government in determining the terms and conditions for international trade and framing the export and Import policy. If the demand for a commodity exported is inelastic, the country can raise the price of that commodity in the international market. On the other hand, if the demand for a commodity exported is
L elastic, the country can focus on its maximum export at low price in the international market.

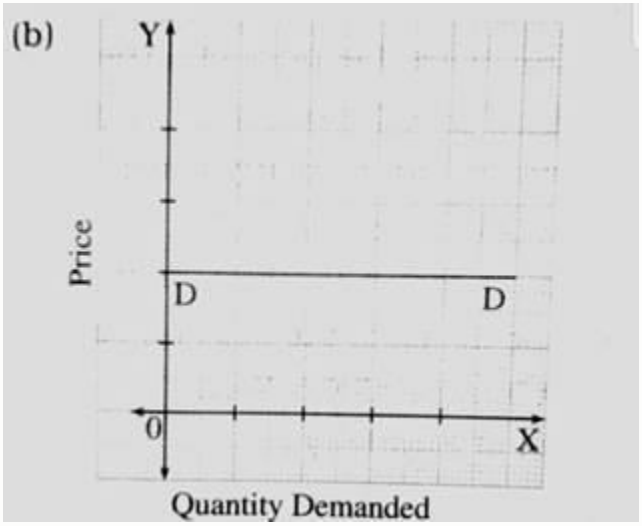
(5) Public utilities: The concept of elasticity of demand is helpful to government in taking decisions regarding manufacturing and selling various goods and services by various sectors in a mixed economy. In order to avoid the exploitation of the consumers and to promote the social welfare. public sector manufactures and sells certain goods and services having less elastic demand. For example, public utilities like railways have inelastic demand. There fore to avoid the exploitation of consumers, the government can either subsidise or nationalise such public utilities. On the other hand, government allows private sector to produce and sell those commodities having relatively elastic demand.

(6) Proportion of expenditures: The concept of elasticity of demand is also helpful in taking decisions regarding consumption of various goods and services. If a proportion of expenditure on a particular product in a person's total income is small and recurring the demand for such a product is relatively inelastic. For example, expenditure on a newspaper. Consumer can regularly consume such a commodity. On the other hand, if a proportion of expenditure on a particular product in a person's total income is large and occasional, the demand for such a product is relatively clastic. With proper economic planning, a consumer can consumers such a commodity. For example. planned expenditure on luxury.

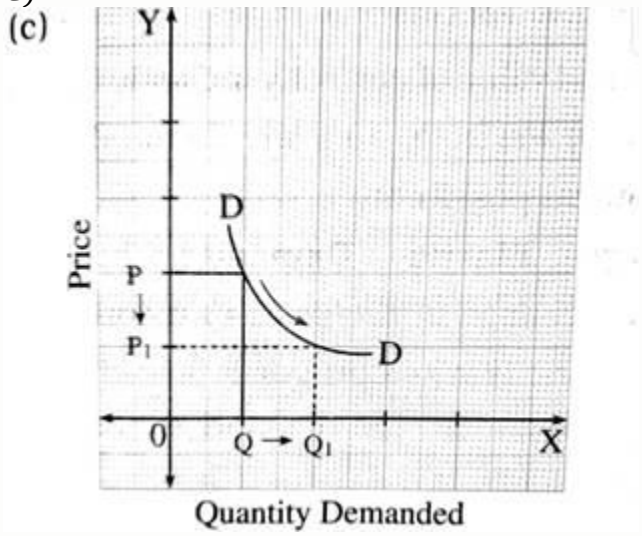
Q. 7. Observe the following figure and answer the questions:
1) Identify and define the degrees of elasticity of demand from the following demand curves.
a)


Y
D
Price
D
0
X
Quantity Demanded

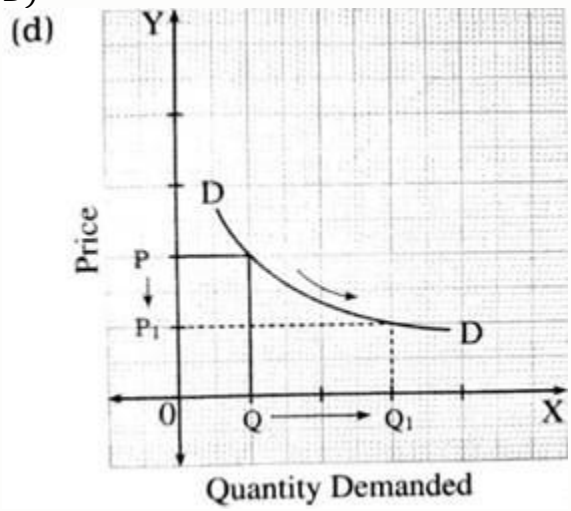
B)


(b)
Y
Price
D
D
0
X
Quantity Demanded

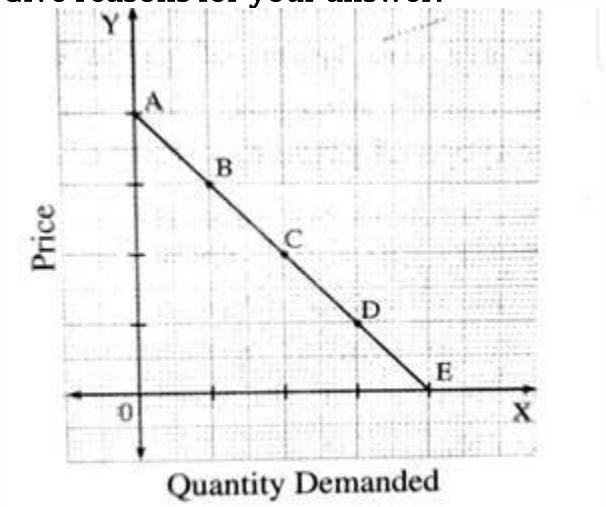
C)


(c)
Y
D
Price
P
P1
D
0
Q → Q1
X
Quantity Demanded

D)



(2) In the following diagram AE is the linear demand curve of a commodity. On the basis of the given diagram state whether the following statements are true or false. Give reasons for your answer.



(1) Demand at point C' is relatively elastic demand.

Ans. False

Reason: On the demand curve AE, the distance of CE is less than that of CA. Thus, point 'C' is close to X-axis. Therefore, the demand at point 'C' is not relatively elastic, but is relatively inelastic.

(2) Demand at point 'B' is unitary elastic demand.

Ans. False.

Reason: On the demand curve AE, the distance of BE is greater than that of BA. Thus. point 'B' is close to Y-axis. Therefore, the demand at point 'B' is not unitary elastic, but is relatively elastic.

(3) Demand at point 'D' is perfectly inelastic demand.
Ans. False.
Reason: On the demand curve AE, the distance of DE is equal to that of A. Thus, point D' is equally close to (equally good away from) X-axis and Y-axis. Therefore, the demand at point D' is not perfectly inelastic. but is unitary elastic.

(4) Demand at point A' is perfectly elastic demand.
Ans. True.
Reason: On the demand curve AE, at point A the lower segment of the demand curve is AE and there is no upper segment of the demand curve. Thus at point A' the numerical value of upper segment of the demand curve is zero. Thus. at point A, the distance AE is greater than that of zero. Thus, point A' lies on the Y-axis. Therefore, the demand at point A' is perfectly elastic.