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Elasticity of Demand(H.W)

Q6. Let slope of demand curve = - 0.5. Calculate e_D when initial price is ₹ 20 per unit and initial quantity is 50 units of the commodity.

Ans. Slope of demand curve = $\frac{\Delta P}{\Delta Q} = - 0.5$

$$\therefore \frac{1}{\text{Slope}} = \frac{\Delta Q}{\Delta P} = - \frac{1}{0.5}$$

$$e_D = - \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} = - \frac{1}{0.5} \cdot \frac{20}{50} = |- 0.8| = 0.8$$

Q7. Explain, by giving examples, how do the following determine price elasticity of demand:

- (i) nature of the good
- (ii) availability of substitutes

Ans. (i) **Luxuries versus Necessities.** The price elasticity of demand is likely to be low for necessities and high for luxuries. A necessity is a good or service that the consumer must have such as food (bread, milk) and medicines. Luxuries are goods that are enjoyable but not essential. *Example:* travelling by air, eating in a 5-Star hotel. If the price of necessities rise, then demand will not fall by a greater proportion because their purchase cannot be delayed. That is why, the price elasticity of demand in case of necessity is low.

(ii) **Availability of Close Substitutes.** A good having close substitutes will have an elastic demand and a good with no close substitutes will have an inelastic demand. *Example:* commodities such as pen, cold drink, car, etc. have close substitutes. When the price of these goods rise, the price of their substitutes remaining constant, there is proportionately greater fall in the quantity demanded of these goods. That is, their demand is elastic. Commodities such as prescribed medicines and salt have no close substitutes and hence, have an inelastic demand.

Q8. A 10 percent rise in price of a good leads to 60 per-cent fall in its demand. A consumer buys 80 units of the good at a price of ₹ 20 per unit. How many units will the consumer buy when price changes to ₹ 22?

Ans. $e_D = \frac{\% \text{ change in demand}}{\% \text{ change in price}} = \frac{60}{10} = 6$

$$P = ₹ 20 \quad Q = 80 \text{ units}$$

$$P_1 = ₹ 22$$

$$\Delta P = 2 \quad Q_1 = ?$$

$$\therefore e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} \Rightarrow 6 = \frac{\Delta Q}{2} \cdot \frac{20}{80} \Rightarrow \Delta Q = 48 \text{ units}$$

$$\therefore Q_1 = Q - \Delta Q = 80 - 48 = 32 \text{ units.}$$

Q9. If the quantity of a commodity demanded remains unchanged as its price changes then what will be the value of price elasticity of demand?

Ans. Since change in quantity demanded (ΔQ) is zero, the value of elasticity of demand will be zero.

Q10. A 20 percent fall in price leads to 80 percent rise in the demand for a good. A consumer buys 100 units of the good at the price of ₹ 20 per unit. At what price will the consumer buy 200 units of the good?

Ans. $e_D = \frac{\% \text{ change in demand}}{\% \text{ change in price}} = \frac{80}{20} = 4$

$$P = ₹ 20 \quad Q = 100 \text{ units}$$

$$P_1 = ? \quad Q_1 = 200 \text{ units}$$

$$\Delta Q = 100 \text{ units}$$

$$e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} \Rightarrow 4 = \frac{100}{\Delta P} \cdot \frac{20}{100} \Rightarrow \Delta P = 5$$

$$\therefore P_1 = P - \Delta P = 20 - 5 = ₹ 15$$

Q11. What happens to marginal utility when total utility increases?

Ans. Marginal utility is positive and declining.

Q12. When a consumer is below the budget line, what does it mean?

Ans. It means that consumer is not spending his entire income.