TYPES OF ELASTICITY OF DEMAND

- **PRICE ELASTICITY**

Price elasticity measures responsiveness of potential buyers to changes in price. It is the ratio of percentage change in quantity demanded in response to a percentage change in price.

$$\text{Price Elasticity} = \frac{\text{Proportionate change in amount demanded}}{\text{Proportionate change in price}}$$

$$= \frac{\text{Change in demand}}{\text{Amount demanded}} + \frac{\text{Change in price}}{\text{Price}}$$

Suppose the price of a particular brand of a radio set falls from Rs. 500 to Rs. 400 each, i.e., 20 per cent fall. As a result of this fall in price, suppose further that the demand for the radio sets has gone up from Rs. 400 to 600, i.e., 50 per cent. Elasticity of demand will be 50/20 or 2.5 percent.

The concept of price elasticity can be used in comparing the sensitivity of the different types of goods (e.g., luxuries and necessaries) to change in their prices. For example, by this means we may find that the price elasticity for food grains, in general, is 0.5, whereas for fruit it may be 1.5. This means that the demand for food grains is less sensitive to price changes than demand for fruit. Food is a necessary of life and people must buy almost the same quantity, even if its price has risen. The consumer can, however, economize in fruit or any other commodity included in the family budget.

The elasticity of demand is always negative, although by convention it is taken to be positive. It is negative because change in quantity demanded is in opposite direction to the change in price. That is a fall in price is followed by rise in demand, and vice versa. Hence, elasticity is always less than zero, unless of course the demand curve is abnormal, i.e., sloping upward from right to left. Strictly speaking, in mathematical terms, there should be minus sign (-) before figure indicating price elasticity. But by convention, for the sake of simplicity, the minus sign is dropped in economics.

- **INCOME ELASTICITY**

Income Elasticity is a measure of responsiveness of potential buyers to change in income. It shows how the quantity demanded will change when the income of the purchaser changes, the price of the commodity remaining the same. It may be defined thus: The Income Elasticity of demand for a good is the ratio of the percentage change in the amount spent on the commodity to a percentage change in the consumer's income, price of commodity remaining constant. Thus,

$$\text{Income Elasticity} = \frac{\text{Proportionate change in the quantity purchased}}{\text{Proportionate change in Income}}$$

while prices remain constant.
It is equal to unity or one when the proportion of income spent on good remains the same even though income has increased.

It is said to be greater than unity when the proportion of income spent on a good increases as income increases.

It is said to be less than unity when the proportion of income spent on a good decreases as income increases.

Generally speaking, when our income increases, we desire to purchase more of the things than we were previously purchasing unless the commodity happens to be an "inferior" good. Normally, then, since the income effect is positive, income elasticity of demand is also positive.

It is zero income elasticity of demand when change in income makes no change in our purchases, and it is negative when with an increase in income, the consumer purchases less, e.g., in the case of inferior goods.

It may be carefully noted that for any individual seller or firm, the demand for the product as a whole may be inelastic. By lowering the price, as compared with his rivals, the seller can infinitely increase the demand for his product. The demand curve will thus be a horizontal line.

Elasticity, viz., price elasticity and income elasticity, are valuable aids in the measurement of demand for different commodities. As such they are also helpful in measuring the incidence of taxation.

- **CROSS ELASTICITY**

Here, a change in the price of one good causes a change in the demand for another. Cross elasticity of Demand for X and Y

$$= \frac{\textbf{Proportionate change in purchases of commodity X}}{\textbf{Proportionate change in the price of commodity Y}}$$

This type of elasticity arises in the case of inter-related goods such as substitutes and complementary goods.

The two commodities will be complementary, if a fall in the price of Y increases the demand for X and conversely, if a rise in the price of one commodity decreases the demand for the other. They will be substitute or rival goods if a reduction in the price of Y decreases the demand for X, and also if a rise in price of one commodity (say tea) increases the demand for the other commodity (say coffee). The cross elasticity of complementary goods is positive and that between substitutes, it is negative.

It should, however, be remembered that cross elasticity will indicate complementarities or rivalry only if the commodities in question figure in the family budget in small proportions.

Cross elasticity of demand can be used to indicate boundaries between industries. Goods with high cross elasticity constitute one industry, whereas goods with low cross elasticity constitute different industries. It is not to be supposed that cross elasticity represents reciprocal relationship. It is not a two-way street. The cross elasticity of a tea with respect to coffee is not the same as that of coffee with respect to tea. The tastes of the consumer, his money income and all prices except of the commodity Y are assumed to remain constant.