1.2.3 Price, income and cross elasticities of demand

a) Understanding of price, income and cross elasticities of demand
b) Use formulae to calculate price, income and cross elasticities of demand
c) Interpret numerical values of
- *o price elasticity of demand: unitary elastic, perfectly and relatively elastic, and perfectly and relatively inelastic*
- *o income elasticity of demand: inferior, normal and luxury goods; relatively elastic and relatively inelastic*
- *o cross elasticity of demand: substitutes, complementary and unrelated goods*

d) The factors influencing elasticities of demand
e) The significance of elasticities of demand to firms and government in terms of:
- *o the imposition of indirect taxes and subsidies*
- *o changes in real income*
- *o changes in the prices of substitute and complementary goods*

f) The relationship between price elasticity of demand and total revenue (including calculation)

- The price elasticity of demand measures the sensitivity of the quantity demanded of a product to a change in its own price
- PED= percentage change in quantity demanded/ percentage change in price
- Elastic demand: PED>1 (ignoring minus sign) so a percentage change in price will cause a larger percentage change in quantity demanded.
- Inelastic demand: PED<1 (ignoring minus sign) so a percentage change in price will cause a smaller percentage in quantity demanded

- Perfectly elastic demand: It has a PED of infinity so any fall in price will mean demand falls to zero
- Perfectly inelastic demand: PED= 0 so any change in price will have no effect on quantity demanded
- Unit elasticity of demand: PED=1 so the percentage change in price is equal to the size of percentage change in quantity demanded
- PED will vary along a straight line demand curve. At high prices, a reduction in price will have an elastic PED but PED is inelastic further down. At the midpoint PED=1
- Firms use PED to predict:
  - The effect of a change in price on revenue
  - The price volatility in a market following changes in supply
  - The effect of a change in indirect taxes on price and quantity demanded and whether the business and pass the burden to consumers
- PED can be used for price discrimination:
  - Where a supplier decides to charge different prices for the same product to different segments of the market
  - Usually a firm charges higher prices when demand is price inelastic
- Surge pricing/ dynamic pricing: when market demand temporarily out-strips supply there is a sudden temporary increase in prices
- Factors influencing price elasticity of demand:
  1. Availability of substitutes- more substitutes=more elastic

2. Proportion of income spent on a product: when the percentage of budget is high, demand is usually more elastic
3. Nature of the product: e.g. if it is addictive (inelastic) / necessity (inelastic) / multi-use (inelastic)/ cannot be postponed (inelastic)
4. Durability of product- durable= inelastic
5. Length of time under consideration- longer=elastic as it is easier to change to alternatives
6. Cost of substituting between products: when substitution is high, demand is more inelastic
7. Brand loyalty- loyalty= inelastic, advertising= inelastic
8. Habitual consumption
9. Peak or off peak times- demand in price elastic inelastic at peak times
10. Breadth of definition of product: broadly defined-inelastic

- Affect of PED on revenue:
  1. If demand is elastic, a price change causes total revenue change in the same direction
  2. If it is inelastic total revenue changes in the opposite direction
  3. If it is unit elastic there is no change to revenue
  4. If it is perfectly inelastic, revenue changes by the same proportion in the same direction
  5. If it is perfectly elastic any change causes the revenue to be zero
- The significance of elasticities of demand to firms:
  1. If demand is inelastic they can increase the price
  2. But, if firms know that demand is elastic they can reduce the price
- The significance of elasticities of demand to government:
  1. For the government to maximise tax revenue it will place indirect taxes on products whose demand is inelastic but the consumer bears most of the tax burden
  2. The government will tax elastic products so the producers bear a higher proportion of the tax burden
- Income elasticity of demand (YED): The sensitivity of demand for a product to a change in real income. YED= percentage change in quantity demanded/ percentage change in real income
- A positive sign of YED indicates that the product is normal good while a negative sign represents a inferior good
- Elasticity of YED:
  - Income elastic: YED > 1: they are luxury goods as rising incomes cause a large increase in demand
  - Income inelastic: YED < 1: they are necessities as rising incomes cause a small increase in demand
  - Perfectly inelastic: YED=0 no matter how high incomes rise demand remains constant
- Normal goods have a positive income elasticity of demand so as incomes rise demand rises
- Inferior goods have a negative income elasticity of demand so when incomes rise demand will fall
- The significance of YED for firms:
  1. In recessions they should make inferior goods and in economic growth they should sell normal goods so it is important when making investment decisions.

2. They should sell more income elastic products in growth periods.
3. It allows them to predict sale levels.
4. A firm may choose to have products with various YED's for revenue security

- The significance of YED for the government:
  - If it wishes to maximise tax revenue during a economic boom it will place indirect taxes on products whose demand is income elastic so it can help them estimate tax revenues from indirect taxes on particular goods and services
- Giffen goods: Inferior goods where demand increases as price rise so there is an upward sloping demand curve. This occurs because there aren't available substitutes so the income effect dominates the substitution effect and when prices rise people have less money to buy other products so will spend more on goods important to them and less on other goods so that they still buy a sufficient amount of goods. A point is reached where the price of a Giffen good exceeds the price of the few substitutes so demand falls
- Veblen goods: They are luxury items where demand comes from having a high price because this confers a high status on the buyer.
- Cross elasticity of demand: The sensitivity of demand for one product to a change in the price of another
- XED= percentage change in quantity demanded of product Y/ percentage change in price of product X
- A positive sign of XED indicates the products are substitutes while a negative sign indicates they are complementary
- Substitutes: they are in competitive demand so an increase in the price of one goods leads to an increase in demand for a rival product
- Complements: they are in joint demand so a fall in price of one product causes an increase in demand for complements
- Close substitutes have a strong XED so a small rise in price of A causes a large increase in demand for B
- Weak substitutes have a low XED so a large rise in price of A causes a small increase in demand
- Unrelated products have a XED=0
- Close complements have a strong negative XED so a small fall in price of A causes a large rise in demand for B
- Weak complements have a weak negative XED so a large drop in the price of A causes a small rise in demand
- The value to businesses of XED:
  - It helps businesses in setting prices for their products for example complementary goods can command high prices and substitutes can't be too expensive or too cheap
- Limitations of elasticities:
  - Problems with inaccurate or incomplete data collection
  - Consumer price sensitivity changes over time
  - PED varies by region/ time
  - Not all businesses are profit maximisers
  - Elasticity will vary within product ranges
  - Rival producers will change their market strategies from time to time