1. (a) How does equilibrium level of income is determined? Which factors do changes in the national income?
Ans: To calculate the equilibrium level of income, you'll need a few economic figures to plug into a formula. This exercise can quickly become quite complex when factoring in government spending, inflation, GDP, and a myriad of other macroeconomic calculations.

Most simply, the formula for the equilibrium level of income is when aggregate supply (AS) is equal to aggregate demand (AD), where AS = AD.

Adding a little complexity, the formula becomes \( Y = C + I + G \), where \( Y \) is aggregate income, \( C \) is consumption, \( I \) is investment expenditure, and \( G \) is government expenditure.

Using this formula, an analyst can observe how a change in any of the factors will impact the level of income. For example, if government spending increases, and all other expenditures stay constant, the level of aggregate income must also increase to maintain the equilibrium level of income.

The equilibrium level of income refers to when an economy or business has an equal amount of production and market demand. The definition is a bit abstract, so let's use a simple example of a manufacturing business to explain what it actually means.

The equilibrium level of income is the point at which a business is able to sell all of the goods it planned to. Pretty simple.

The company produces its product to that level, and then sells exactly the same amount. The company's output -- its production -- is equal to the consumer demand to buy the product.

That micro example is pretty easy to understand, and we can use that simplicity to expand our understanding to the macroeconomic level. At the national level, gross domestic product, or GDP, represents the business manufacturing its products. All the businesses, consumers, investors, and government spending in the economy represent the consumers buying those products.

An economy is said to be at its equilibrium level of income when aggregate supply and aggregate demand are equal. In other words, it is when GDP is equal to total expenditure.

(b) Given \( Y = C + Y + G \), \( C = C_0 + bY \)
\( I = I_0 \) and \( G = G_0 \) where \( C_0 = 135 \),

(i) Find the equation for the equilibrium level of income in the reduced form
(ii) Solve for the equilibrium level of income.
Ans:

2. (a) Distinguish between price elasticity of demand and cross elasticity of demand.
Explain with examples the importance of the concept of elasticity of demand.
Ans: Price elasticity of demand measures the responsiveness of quantity demanded when there is a change in price of the particular good you are examining. Cross elasticity of demand measures the responsiveness of quantity demanded when there is a change in price of OTHER goods. PED is always a negative value because the quantity demanded and price have an inverse relationship, i.e. when price increases, quantity demanded will decrease and vice versa.

Whereas CED can be either positive or negative. It all depends on the nature of the goods you're examining. Two types of goods that play an influential role in determining CED of a good is Complementary goods and Substitute goods. Take for example, CED of substitute goods are always positive. This is because the quantity demanded for the substitute goods has a positive relationship with the price of the initial good, i.e. when price of initial good drops, the quantity demanded for substitute goods will drop as well. This is because consumers will always opt for the cheaper alternative, which in this case is the initial good, thus quantity demanded for its substitutes will decrease. Firms can use price elasticity of demand (Ped) estimates to predict:

- The effect of a change in price on the total revenue & expenditure on a product.
- The likely price volatility in a market following unexpected changes in supply - this is important for commodity producers who may suffer big price movements from time to time.
- The effect of a change in a government indirect tax on price and quantity demanded and also whether the business is able to pass on some or all of the tax onto the consumer.
- Information on the price elasticity of demand can be used by a business as part of a policy of price discrimination (also known as yield management).

This is where a monopoly supplier decides to charge different prices for the same product to different segments of the market e.g. peak and off peak rail travel or yield management by many of our domestic and international airlines.

- Depending on the elasticity of a product, the firm can find an alternative marketing strategy that they can adopt to increase revenue.

Elasticity of demand is known as price-elasticity of demand. Because elasticity of demand is the degree of change in amount demanded of a commodity in response to a change in price. Price elasticity of demand can be measured through three popular methods. These methods are:

1. Percentage method or Arithmetic method
2. Total Expenditure method
3. Graphic method or point method.

1. Percentage method:
According to this method price elasticity is estimated by dividing the percentage change in amount demanded by the percentage change in price of the commodity. Thus given the percentage change of both amount demanded and price we can derive elasticity of demand. If the percentage change in amount demanded is greater than the percentage change in price, the coefficient thus derived will be greater than one. If percentage change in amount demanded is less than percentage change in price, the elasticity is said to be less than one. But if percentage change of both amount demanded and price is same, elasticity of demands