

Subject Microeconomics

Final Assignment

Q1: Explain the following concepts.

### 1. **The benefit principle**

#### **Benefit principle**

The benefit principle is the idea that government spending should be met by the people who receive them. In other words, everyone who receives government spending, should contribute towards it. This benefit principle was the justification for Margaret Thatcher's Poll Tax. Everyone was charged the same poll tax rate because the argument was that everyone benefited from the same public services. In practice the benefit principle is hard to apply because many of those in need of government benefits – the old, sick and unemployed are the least likely to be able to pay. A general principle more commonly used is the ability to pay.

### 2. **Lump- sum Taxes**

#### **Lump-Sum Tax**

A tax in which the taxpayer is assessed the same amount regardless of circumstance. An example of a lump sum tax is a \$55 fee on all employees who work in a township. Another example is tag fees on vehicles, which are the same regardless of the income of vehicle owners. Lump sum taxes are regressive, meaning persons with lower income pay more as a percentage of their income.

### 3. **Marginal tax rate versus average tax rates**

Misunderstandings about two different types of tax rates often create confusion in discussions about taxes. A taxpayer's average tax rate (or effective tax rate) is the share of income that he or she pays in taxes. By contrast, a taxpayer's marginal tax rate is the tax rate imposed on his or her last dollar of income. Taxpayers' average tax rates are lower — usually much lower — than their marginal rates. People who confuse the two can end up thinking that taxes are much higher than they actually are.

#### **4. Proportional tax**

Proportional tax is the taxing mechanism in which the taxing authority charges the same rate of tax from each taxpayer, irrespective of income. This means that lower class, or middle class, or upper class people pay the same amount of tax.

#### **5. Regressive tax**

A regressive tax is a tax applied uniformly, taking a larger percentage of income from low-income earners than from high-income earners. It is in opposition to a progressive tax, which takes a larger percentage from high-income earners.

#### **6. Progressive tax**

A progressive tax is a tax that imposes a lower tax rate on low-income earners compared to those with a higher income, making it based on the taxpayer's ability to pay. That means it takes a larger percentage from high-income earners than it does from low-income individuals.

### **Q2: Define elasticity and explain the following elasticity concepts.**

Elasticity is a measure of a variable's sensitivity to a change in another variable, most commonly this sensitivity is the change in price relative to changes in other factors. ... It is predominantly used to assess the change in consumer demand as a result of a change in a good or service's price.

#### **1. Income elasticity**

Jump to Interpretation - A positive income elasticity of demand is associated with normal goods; an increase in income will lead to a rise in demand. If income elasticity of demand of a commodity is less than 1, it is a necessity good. If the elasticity of demand is greater than 1, it is a luxury good or a superior good.

#### **2. Price elasticity**

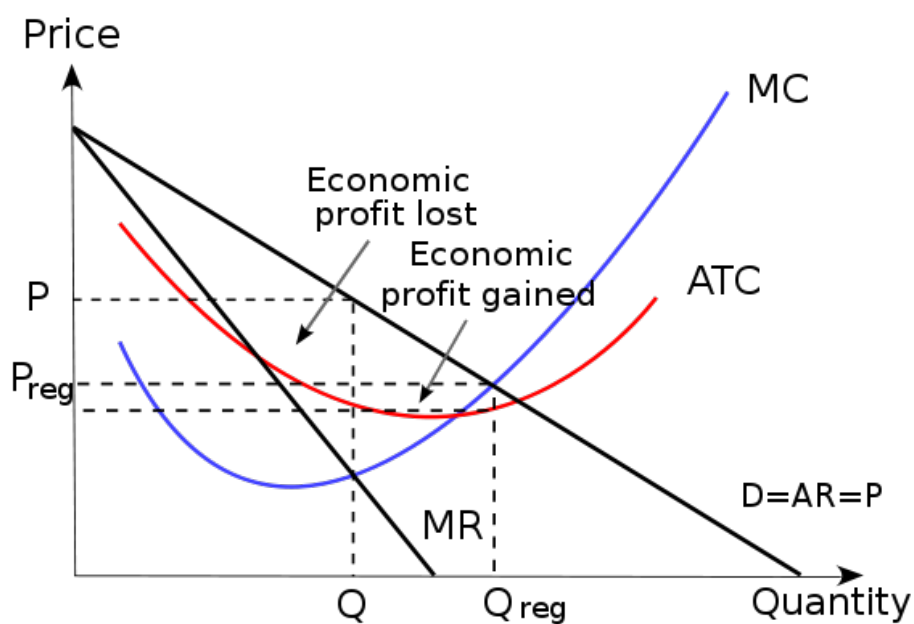
Perfectly elastic and perfectly inelastic refer to the two extremes of elasticity. Perfectly elastic means the response to price is complete and infinite: a change in price results in the quantity falling to zero. Perfectly inelastic means that there is no change in quantity at all when price changes.

### 3. Cross price elasticity of demand

The cross elasticity of demand or cross-price elasticity of demand measures the responsiveness of the quantity demanded for a good to a change in the price of another good, *ceteris paribus*. It is measured as the percentage change in quantity demanded for the first good that occurs in response to a percentage change in price of the second good. For example, if, in response to a 10% increase in the price of fuel, the demand for new cars that are fuel inefficient decreased by 20%, the cross elasticity of demand would be: An increase in the price of fuel will decrease demand for cars that are not fuel efficient. A negative cross elasticity denotes two products that are complements, while a positive cross elasticity denotes two substitute products. For example, if products A and B are complements, an increase in the price of B leads to a decrease in the quantity demanded for A. Equivalently, if the price of product B decreases, the demand curve for product A shifts to the right reflecting an increase in A's demand, resulting in a negative value for the cross elasticity of demand. The exact opposite reasoning holds for substitutes.

#### Q3: (a) Define Monopoly and explain characteristics of Monopoly?

A monopoly is a specific type of economic market structure. A monopoly exists when a specific person or enterprise is the only supplier of a particular good. As a result, monopolies are characterized by a lack of competition within the market producing a good or service good or service.



Shows a monopoly and the Monopoly: The graph price (P) and change in price (P reg) as well as the output (Q) and output change (Q reg).

### **Characteristics of a Monopoly**

A monopoly can be recognized by certain characteristics that set it aside from the other market structures:

- **Profit maximize:** a monopoly maximizes profits. Due to the lack of competition a firm can charge a set price above what would be charged in a competitive market, thereby maximizing its revenue.
- **Price maker:** the monopoly decides the price of the good or product being sold. The price is set by determining the quantity in order to demand the price desired by the firm (maximizes revenue).
- **High barriers to entry:** other sellers are unable to enter the market of the monopoly.
- **Single seller:** in a monopoly one seller produces all of the output for a good or service. The entire market is served by a single firm. For practical purposes the firm is the same as the industry.
- **Price discrimination:** in a monopoly the firm can change the price and quantity of the good or service. In an elastic market the firm will sell a high quantity of the good if the price is less. If the price is high, the firm will sell a reduced quantity in an elastic market.

#### **(b) Discuss price determination under monopoly?**

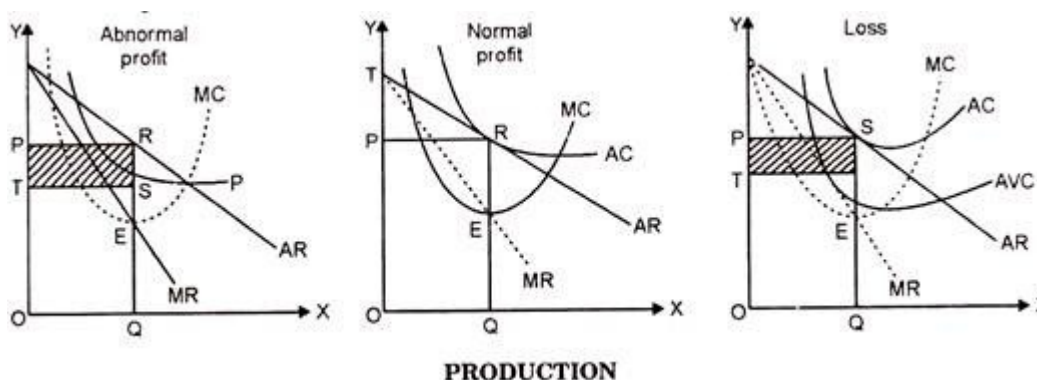
Let us make an in-depth study of the determination of value or price under monopoly. Under Monopoly every seller wants to earn maximum Profit. This fact Prof. Marshall has stated that monopolist wants to earn "Maximum Monopoly Gain" by selling his goods. This thing Mrs. Robinson has stated as Net Monopoly Revenue. Now, the important question arises that how monopolist should fix his price, so that he may earn maximum profit? On this point two economists written above are of this opinion the price determination under monopoly condition is similar to those of perfect competition. The only difference is that in perfect competition the average revenue curve and marginal revenue curve are same and parallel to X-axis where as in Monopoly these curves are downwards sloping curves. The Monopolist behaves like a firm. His aim is maximisation of profits and if there are losses, then minimisation of losses. The profits are maximised when marginal cost is equal to marginal revenue. The losses are

minimum where marginal cost is equal to marginal revenue but afterwards marginal cost must be rising.

A Monopolist being the only producer and seller of that commodity can determine its price and the quantity of its production or supply. He cannot do both the things simultaneously. Either he fixes the price and leaves the output to be determined by the consumer demand at that price or he can fix the output to be produced and leave the price to be determined by the consumers' demand for his product. But it is a common experience that he leaves the price to the market mechanism and determines the volume of output. Under no circumstances, he will be ready to bear losses. If, in a short period, the cost of production of a commodity is zero, he will go on producing it to the extent or so long the marginal revenue from the sale of that commodity does not fall to zero. As soon as the marginal reserve is zero he will not increase its supply. Some economists think that, in a short period, three different situations may arise before the monopolist:

- (i) When the monopolist earns abnormal profits,
- (ii) When he gets only normal profits, and
- (iii) When he suffers losses.

**The explanation and diagrams of these situations are given below:**



On the point E the firm is in equilibrium when  $MC = MR$ . Thereafter MC curve starts to rise. Under the condition, OP is the price and OQ is the 'total production' of the commodity so determined. In order to calculate profits or losses, we will have to measure the difference between AR and AC. If  $AR > AC$ , the difference between the two is profit per unit and by multiply it with total number of units produced we can get total profit.

In the first figure  $RQ = OP$  is the price,  $TO$  is the cost of production per unit. Thus,  $RS = PT$  is unit for profit. On the  $OQ$  quantity of production, total profit is  $PTSR$  shaded area which is abnormal profit. In the second figure  $RQ = OP$  is the determined price and  $RQ$  is the average cost. Under this condition, there will be only normal profit.

In the figure three also price per unit is  $RQ = OP$  but cost per unit is  $SQ$ . Thus,  $SR$  ( $TP$ ) is loss per unit. As a result  $TPRS$  shaded area will be the total loss. But this loss is only short period phenomenon. In the long period, this loss will disappear, under that condition and situation, only profit will be earned.

Determination of Price in the Long Period:

In the long period the monopolist introduces changes in his equipment's and techniques of production. During this period in order to gain excess profit, he will change efficiency and capacity of his resources according to his need. But the determination of the quantity of production follows, the same line as under short period.

Q4: Discuss the following models.

### 1. **The Cournot Model:**

Cournot MODEL; is an economic model describing an industry structure in which rival companies offering an identical product compete on the amount of output they produce, independently and at the same time. It is named after its founder, French mathematician Augustin Cournot.

#### KEY TAKEAWAYS

Cournot model; is an economic model in which competing firms choose a quantity to produce independently and simultaneously.

The model applies when firms produce identical or standardized goods and it is assumed they cannot collude or form a cartel.

The idea that one firm reacts to what it believes a rival will produce forms part of the perfect competition theory.

## **Understanding Cournot model;**

Companies operating in markets with limited competition, called oligopolies, often compete by seeking to steal market share away from each other. One way to do this is to alter the number of goods sold.

According to the law of supply and demand, higher output drives down prices, while lower output raises them. As a result, companies must consider how much quantity a competitor is likely to churn out to have a better chance of maximizing profits.

In short, efforts to maximize profit are based on competitors' decisions and each firm's output decision is assumed to affect the product price. The idea that one firm reacts to what it believes a rival will produce forms part of the perfect competition theory.

The Cournot model is applicable when companies produce identical or standardized goods. It assumes they cannot collude or form a cartel, have the same view of market demand, and are familiar with competitor operating costs.

## **2. The Stackelberg Model:**

This model was developed by the German economist Heinrich von Stackelberg and is an extension of Cournot's model. It is assumed, by von Stackelberg, that one duopolist is sufficiently sophisticated to recognise that his competitor acts on the Cournot assumption. This recognition allows the sophisticated duopolist to determine the reaction curve of his rival and incorporate it in his own profit function, which he then proceeds to maximise like a monopolist. Assume that the isoprofit curves and the reaction functions of the duopolists are those depicted in figure 9.20. If firm A is the sophisticated oligopolist, it will assume that its rival will act on the basis of its own reaction curve. This recognition will permit firm A to choose to set its own output at the level which maximizes its own profit. This is point a (in figure 9.20) which lies on the lowest possible isoprofit curve of A, denoting the maximum profit A can achieve given B's reaction curve.

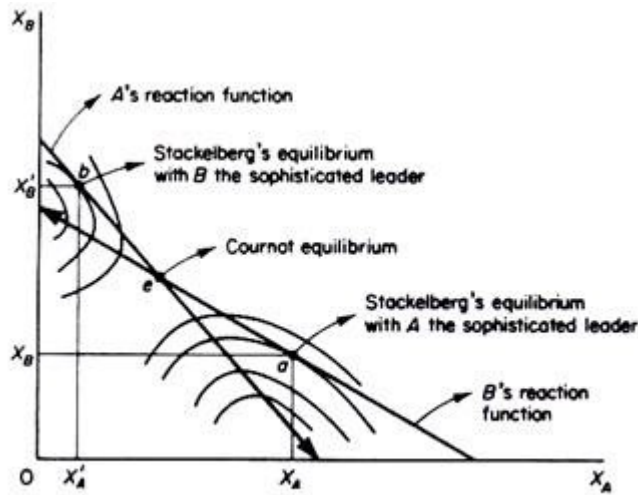


Figure 9.20

Firm A, acting as a monopolist (by incorporating B's reaction curve in his profit-maximizing computations) will produce  $X_A$ , and firm B will react by producing  $X_B$  according to its reaction curve. The sophisticated oligopolist becomes in effect the leader, while the naive rival who acts on the Cournot assumption becomes the follower. Clearly sophistication is rewarding for A because he reaches an isoprofit curve closer to his axis than if he behaved with the same naivete as his rival. The naive follower is worse off as compared with the Cournot equilibrium, since with this level of output he reaches an isoprofit curve further away from his axis. If firm B is the sophisticated oligopolist, it will choose to produce  $X'_B$ , corresponding to point b on X's reaction curve, because this is the largest profit that B can achieve given his isoprofit map and A's reaction curve. Firm B will now be the leader while firm A becomes the follower. B has a higher profit and the naive firm A has a lower profit as compared with the Cournot equilibrium.

In summary, if only one firm is sophisticated, it will emerge as the leader, and a stable equilibrium will emerge, since the naive firm will act as a follower.



However, if both firms are sophisticated, then both will want to act as leaders, because this action yields a greater profit to them. In this case the market situation becomes unstable. The situation is known as Stackelberg's disequilibrium and the effect will either be a price war until one of the firms surrenders and agrees to act as follower, or a collusion is reached, with both firms abandoning their naive reaction functions and moving to a point closer to (or on) the Edge-worth contract curve with both of them attaining higher profits. If the final equilibrium lies on the Edge-worth contract curve the industry profits (joint profits) are maximised