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Problem 1

Opportunity Cost

- Define the term " Opportunity Cost"

Opportunity cost is the value of the foregone mutually exclusive alternatives.

When choice are to be made between several mutually exclusive

alternatives in terms of decision making, opportunity cost is the value of alternative that is forgone due to selection of some other alternatives.

Generally, opportunity cost is the value of next best alternative that can be achieved with same input. For example: George had \$2 in his pocket which is enough to buy either a cup of tea or a cup of coffee. Among them if he selects a cup of coffee as his choice, then tea here is an opportunity cost.

- The higher the opportunity cost of doing something, the less likely it will be done. Explain this statement

Opportunity cost states for the value of the forgone mutually exclusive alternatives that can be achieved from the same level of input as for the selected alternative. If the opportunity cost of doing something is higher, means that the other alternative is better than the alternative under consideration. The entity here shall be better off selecting the other alternative rather selecting the primary one. Thus, from economic point of view, the opportunity cost shall be taken, and the other part is less likely to be done. Thus, the higher the opportunity cost of doing something, the less likely it will be done.

- Economists believe that a change in opportunity cost can change a person's behavior. Explain (very briefly) this statement with example(s)

Change in opportunity cost can make person either in better off condition or worst off condition selecting the primary alternative. Change in opportunity cost means change in the value of next best alternative. If the change decreases the value of opportunity cost, the behavior of person will stick on to the current alternative, whereas if the value increases, the behavior of person shall intend to take the opportunity cost rather than the primary one. Thus, the behavior of person can change with the change in opportunity cost. For example: there are two normal gadgets available in market for \$200. Among them, a person finds one of them better and keeps the other as an opportunity cost. Meanwhile, another company introduces similar gadget of latest technology by the same price. Now, the person feels that the condition would be better off if he purchase the latest one to be in the better off condition. Here, the latest gadget becomes the opportunity in the later condition that modified the behavior of person. Hence, change in opportunity cost can change a person's behavior.

- Explain briefly, “ ceteris paribus” assumption

Ceteris paribus literally means with other things the same in Latin. The phrase can be translated as holding all other things constant in order to find the specific result out of some casual relationship model. This assumption is based upon scientific study where a dependent variable is affected by several other independent variables. Scientists tend to find casual-relationship of a particular variables keeping control over other affecting independent variable and stimulate a particular one. Here the theory or study assumes that all other factors are kept constant or in equal condition that their effect is neutralized on the dependent variable.

Problem 2

Production Possibility Frontier

Questions

- Explain with graphs, the term “ Production Possibility Frontier”

Production Possibility Frontier is the graphical representation of different production possibilities that can be achieved with the available level of input.

Graphically, it can be presented as following:

Here in the above figure, the inclined dome represents the different combination of product A and product B that can be produced. With the available level of input, increase in production of one product shall reduce the production of other. Here, the production possibility frontier explains the different level of production output that can be produced with the available level of input.

- Explain with one example the term “ scarcity”

Human desires are unlimited. Those desires can be between the range of feasibility or beyond it. The tool to fulfill those desires is the available limited resources. Since, the available resources are limited in nature; all the desires cannot be fulfilled. Thus, person must make choices among desire converting desire into demand. For demand, there should be desire to consume, resources to achieve, and willingness to use those resources. Since, limited resources are available to fulfill all the desire, there is scarcity of resources available to every human being. Thus, scarcity here refers to the limited resources to fulfill the unlimited human desire.

- Why Economics is defined as a science of choice?

Human desires are unlimited and to fulfill those desire there are limited

resources available. Thus, priority must be assigned to each of the desire to convert them into feasible one. Only the desire having ability to consume, and willingness to consume are considered to be demand. Here, at every state person tend to select the alternative that takes them to better off condition compared to all other alternatives. Economics tend to understand the demand, limited resources and different alternatives through with the resources can be utilized to procure maximum beneficial output. There are several choices made to make situation a better off condition. Thus, it can be stated that Economics is defined as a science of choice.

- Is scarcity means poverty or lack of something? Explain your answer with example(s)

Poverty means the acute lacking of something that is required to fulfill the basic standard of living. But scarcity means the lack of resources to fulfill all the desires one can have. The poverty can be scarcity as it is condition where the basics of living are not available to one, but scarcity is not the poverty. Scarcity is the unavailability of necessary resources to be in better off state. If, Harry does not have food to eat, then the basic of living here is a scarce one. This condition can be interpreted as being poor or poverty. But if Harry does have foods available that can survive him but he lacks some better tasty food to eat, then the condition is scarcity to fulfill all his desire, but he is definitely not into poverty. Thus, all conditions of poverty can be conditions of scarcity, but all the conditions of scarcity cannot be conditions of poverty.

Problem 3

Demand and Supply

Questions

Demand is the desire to consume something that is backed by the ability to consume and willingness to consume. The law of demand states that there is negative relationship between price of the product and demand. Since, there are always limited resources available to fulfill the desire, people have tendency to reduce level of consumption if there is rise in the price or more value should be paid for the similar level of consumption. The law states that when price rises demand falls and when price falls the demand rises.

- Explain why demand curve slopes downwards

The demand curve is composed of two variables: demand and price. Price being an independent variable is plotted on X-axis whereas demand being dependent is plotted at the Y-axis. There is negative relationship between price and demand, demand falls as price of the commodity increases.

Graphically it can be represented as following:

Here, in the above figure, price is plotted in X-axis whereas demand is plotted in Y-axis. The increase in price reduced the demand for the commodity thus the curve is downward sloping with different level of price and demand for the commodity.

The law of supply states that, producer tend to produce and supply more in case of rise in price of commodity. The supplier shall be in condition of better off in getting more value for per unit of their commodity. The law of supply states the positive relationship between price of the commodity and its supply in the market. It can be further elaborated as if the price of the

commodity increases its supply increases, and if the price decreases its supply also decreases.

- Explain why supply curve slopes upwards

Supply curve is composed of independent variable price on the X-axis and dependent variable Y on the Y-axis. Since, the law of supply illustrates that there is positive relationship between price of the commodity and its supply, supply tends to increase with the price, which forms an upward sloping supply curve. Graphically, it can be illustrated as following:

Here, in the figure illustrated above, price is plotted in X-axis and supply is plotted in Y-axis. When the price of the commodity increases, there is an increase in supply and vice versa. Thus, according to the law of supply, the supply curve is sloped upward.

Problem 4

Demand and Supply / Equilibrium Price

Questions

- Define the term “ Demand”

Demand literally means the desire for consumption of something. But in economic term, demand is a consumer’s desire to consume something. The demand here must be backed by the willingness to pay the price of the commodity and ability to pay it. The demand here means the specific quantity of goods or services with specific price associated with the product. The demand for any goods or services is inversely proportional to the price of the commodity.

- Define the term “ Supply”

In economics, supply means the selling of products (either goods or services)

in a given price at a particular market segment. Here the supply should be backed by sellers' desire to supply, ability and willingness to supply. Supply of a particular good is positively related with the price of commodity, where the rise in price shall rise the supply level of commodity.

- What are the factors that cause a shift in the demand curve

Some of the factors that cause shift in demand curve are as following:

- Change in the price of Complement goods

When there is change in the price of complement good, the demand for the commodity shifts opposite to the price change. Increase in price shall decrease the demand of commodity whereas decrease in price shall raise the demand of commodity.

- Change in the price of Substitute goods

Change in price of substitute shall have positive impact on demand of commodity. If there is increase in price of substitute, demand for commodity increases whereas if there is decrease, demand shall decrease

- Change in disposable income

Change in disposable income changes the purchasing power of consumer, thus they follow a different pattern of demand for the commodities. This shall have shift in demand curve as new demand curve is formed with change in purchasing ability of person.

- Change in taste and preference

Change in taste and preference of customer takes the demand of commodity to a different level, where the demand doesn't move in the regular demand curve. Positive change shall lead to shift in rightward direction whereas

negative change shall lead in leftward direction.

- Differentiate between equilibrium price and equilibrium quantity

Condition of equilibrium is the condition where demand and supply meet each other. Equilibrium price is the where demand of the commodity is equal to the supply. The quantity where demand meets supply is the equilibrium quantity. Graphically,

Here in the figure, the point representing the corresponding value to demand/supply interaction in X-axis is equilibrium price and in Y-axis is equilibrium quantity.

Problem 5

Questions

Consider the following demand equation: $Q_d = 1500 - 32P$

Let price (P) in the equation equal \$10

- Solve for Quantity demanded (Qd)

Solution,

$$Q_d = 1500 - 32 \times 10$$

$$= 1500 - 320$$

$$= 1180$$

The quantity demanded for the commodity is 1180 units.

- Explain or interpret your results in (i) above

Here, the interpretation of equation shall be: a unit rise in price decreases the demand of commodity by 32 units from the constant quantity of 1500. At

price of \$10, the demand of commodity shall be 1180 units.

Now here is a supply equation: $Q_s = 1200 + 43P$

Let \$5 equal price (P)

- Solve for quantity supplied (Qs).

Solution,

$$Q_s = 1200 + 43 \times 5$$

$$= 1200 + 215$$

$$= 1415$$

Thus, the quantity supplied at price level of \$5 is 1415 units.

- Interpret your results in (iii) above

The interpretation of equation here is: with a unit price rise, the supply shall increase by 43 units at the constant level of 1200 units.

- Given the two equations (demand and supply equations) above, find the equilibrium price

Solution,

$$1500 - 32P = 1200 + 43P$$

$$\text{Or, } 75P = 300$$

$$\text{Or, } P = 4$$

Thus, the equilibrium price for the commodity is \$4

Problem 6

Rationing Device

Questions

- Why is there a need for a rationing device, whether it is price or something

else?

In economic definition, rationing device is the mechanism for controlled distribution of scarce resources. These resources here shall illustrate the resources such as goods or services. There is need for the rationing device in economy because the device shall illustrate the value associated with the resources. By accessing the associated value, the resources can be utilized to maximum extent to maximize the economic value of consumption. With the rationing device, there are high chances that resources are utilized to their maximum extent.

- Describe three non-price rationing devices

Three non-price rationing devices are mentioned as following:

Queuing: It is referred as waiting line, where the rationing is facilitated as first come, first serve basis. The willingness of people in consuming goods can be changed because of the waiting line. Some product in demand can be unlisted if there is a waiting line associated with it.

Coupons: There are several coupon systems that are required to buy the good along with the money. In several conditions, government issues coupons that need to be produced along with the price to purchase goods or services.

Limited allotment: Such rationing methods are used at the time of crisis. This helps people to have only the required level of scarce resource rather than having ample of it.

Consumer surplus is the state where the consumer is able to procure some monetary gain because of purchasing good in price less than the highest

price they are willing to pay. Producer surplus is the benefit to the producer by selling goods at the market price which is higher than the price where they are willing to sell for it. Graphically, it can be illustrated as:

Here, at the equilibrium price, the consumer surplus is represented by the light shade of grey whereas producer surplus is stated by the darker shade of grey. The consumer surplus exists, when the price is below the expected level whereas, producer surplus exists when the price is above the expected level. Both the surplus exists, when the price is below the equilibrium level. To eradicate such surplus, price must be rightly fixed at the equilibrium level.

Problem 7

Elasticity

Questions

- What is price elasticity of demand? Write the formula for price elasticity of Demand

Price elasticity of Demand means the quantity change in demand with one unit change in price of the commodity. It explains the sensitivity of demand with respect to change in price of the commodity. Mathematically, it can be written as:

$$E_r = \frac{dQ}{Q} \frac{P}{dP}$$

Where, $E(r)$ = price elasticity of demand

Q = quantity demanded

dQ = change in quantity demanded

P = Price

dP = change in price

- What is Income elasticity of demand? Write the formula for the income elasticity of demand

Income elasticity of demand means the quantity change in demand with one unit change in income of the consumer. This explains the sensitivity of demand with respect to the change in income of the consumer.

Mathematically,

$$E_i = \frac{dQ}{Q} \frac{dI}{I}$$

Where, $E(i)$ = Income elasticity of demand

Q = quantity demanded

dQ = change in quantity demanded

I = Income

dI = change in income

- What is cross elasticity of demand? Write the formula for the cross elasticity of demand

Cross elasticity of demand means the quantity change in demand with one unit change in price of other commodities. This explains the sensitivity of demand with respect to the change in price of other complementary, substitutes, or other non-related goods. Mathematically,

$$E_{xy} = \frac{dQ_x}{Q_x} \frac{dP_y}{P_y}$$

$$E_i = \frac{dQ}{Q} \frac{dI}{I}$$

Where, $E(xy)$ = Cross elasticity of demand

Q_x = quantity demanded of commodity x

dQ_x = change in quantity demanded of commodity x

P_y = Price of commodity Y

dP_y = change in Price of commodity Y

- What are the characteristics of price elasticity of demand?

Four main characteristics of price elasticity of demand are as following:

- Perfectly Elastic Demand - when demand of the commodity changes to infinite extent with a unit change in price of that commodity.
- Elastic Demand - when the demand for the commodity changes higher than the unit change in price of the commodity
- Inelastic Demand - when the demand changes less than the unit change in the price of the commodity
- Perfectly Inelastic demand - when there is no change in demand at all despite of change in price of the commodity.

Problem 8

Consumer Choice

Questions

- Define the term Utility. Provide one real life example to explain your definition

Utility is the psychological unit of satisfaction gained from the consumption of a particular commodity (goods or services). This is a unit that represents the psychological value that is gained through fulfilling desire by consuming certain goods or services.

For Example, Lee is hungry. He finds an apple for himself. He has willingness to consume it and has ability to pay for it. He purchases and consumes it.

The psychological satisfaction here gained from apple to quench his hunger is measured in terms of utility. This unit is the subjective concern of the

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consumer.

- What is Total Utility

The total satisfaction gained from consumption of several units of goods or services is known as total utility. This is the accumulated satisfaction gained from consuming several units of goods and services.

- Define Marginal Utility

Marginal utility is additional level of satisfaction gained from the consumption of one more unit of such goods and services. It is the measurement of additional satisfaction gained from consumption of one additional unit of good or service.

Utility is the level of satisfaction derived from consumption of particular goods and services. The law of diminishing marginal utility states that the marginal utility gained from additional consumption of similar goods and services keeps on declining until the desire is fulfilled and further marginal utility is zero. For example, when Lee consumed the first apple, he gained a degree of satisfaction. He fulfilled some of his desire with this. Now the additional consumption of apple won't guarantee him similar degree of satisfaction as the level of satisfaction keep on declining. Graphically, Here in the above figure, as the quantity of consumption is increased, the respective unit of utility is decreased. Thus, law of diminishing marginal utility explains the negative relationship between utility and quantity consumed.

Problem 9

Production and Costs

Questions

- Differentiate between explicit and implicit costs.

The implicit cost is the cost that is included in or associated with some other cost. Implicit cost are not shown or recorded as a separate cost. On contrary, explicit cost is cost that is a separate cost and is recorded in a separate heading. Explicit costs can be recorded in books of accounts whereas implicit cost cannot be recorded in books of accounts. For example, cost for producing a product can be recorded in book thus it as a whole and its segregation as raw material cost, labor cost is the explicit costs. The opportunity cost for the production of that product cannot be recorded anywhere thus it's an implicit cost.

- As we add more capital to more labor, eventually the law of diminishing marginal returns will set in." What is wrong with this statement?

For the law of diminishing marginal utility, the labor is perfectly divisible, whereas it is the mobile factor that can be changed. In statement, capital is treated as sensitive factor as capital is added to more labor. In law of variable proportion, only one factor can be changed that is labor. This statement reflects the return on scale, i. e. long term production theory.

- Differentiate between short run and long run

Short run is that period of time, where limited resources can be modified and changed. In production theories, labor is said to be the mobile factor that can be modified in short period of time with the available unit of capital and other resources.

Long run is that period of time, where all the factors of production can be modified. This period is considered to be the hypothetical period where it is assumed that economic process is able to find the lowest possible cost

associated with the highest possible return on the production.

- What is Marginal Physical Product (MPP)?

Marginal Physical Product (MPP) is the extra output generated by an extra variable input. The additional product unit generated by adding one more unit of variable input factor is MPP. For example: if 20 units of additional products can be produced adding 1 unit of labor then MPP here is 20 units.

Problem 10

Production and Costs contd.

Questions

- Suppose a marginal cost (MC) curve falls when output is in the range of 1 unit to 10 units, flattens out and remains constant over an output range of 10 units to 20 units, and then rises over a range of 20 units to 30 units. What does this have to say about the marginal physical product (MPP) of the variable input?

The MPP curve will be of inverted shape of MC curve. The curve will rise from 1 to 10 units, remains flat at 10 - 20 units and then falls from the range of 20-30 units.

- Draw one graph to show the relationship between MC, AVC and ATC.

- Explain why marginal cost curve cuts both AVC and ATC curves at their respective low points?

Marginal cost is the additional cost associated with producing one more unit of any goods or service. The nature of marginal cost curve is U shaped because of economies of scale. Since, the additional cost associated with producing one more unit rise, the total cost and average cost also rise. Thus, the rise in total cost and AVC is because of rise in marginal cost as a whole.

Thus, marginal cost rise when they rise in accumulate. Thus, marginal cost always intersects both AVC and TC at their respective low points.

- What is sunk cost?

Sunk cost are the preliminary cost associated with the business. These costs are not directly involved in the production process. These costs cannot be recovered even if the business is not started or the business is collapsed. For example: the research cost for oil drilling project is a sunk cost. The company must bear that cost even if there is possibility of oil procurement or not.

Problem 11

MPP/ Total Cost (unit cost)

Question

Do changes in marginal physical product influence unit costs? Explain your answer.

Change in Marginal Physical Product means producing one more unit product (goods or services) employing one additional unit of labor or other factor of production. High marginal physical product indicates there exists economies of scale, where the resources are not fully utilized. Lowering MPP infers the least economies of scale involved in production of goods and services. In this case, changes in MPP directly impacts upon the unit cost. High MPP means there is least cost associated with producing one more unit of product whereas low MPP means there is high cost associated with more unit production of product. Thus changes in MPP influence unit cost.

Problem 12

Total, Average and Marginal Costs

Question

In the table above, calculate and fill the missing values; AFC, AVC, TC, ATC and MC

Problem 13

- Explain why marginal cost curve cuts both AVC and ATC curves at their respective low points?

Marginal cost is the additional cost associated with producing one more unit of any goods or service. The nature of marginal cost curve is U shaped because of economies of scale. Since, the additional cost associated with producing one more unit rise, the total cost and average cost also rise. Thus, the rise in total cost and AVC is because of rise in marginal cost as a whole. Thus, marginal cost rise when they rise in accumulate. Thus, marginal cost always intersects both AVC and TC at their respective low points.

- Show two ways to calculate ATC

When the firm engaged in short-run production, then the total cost per unit of output that the firms incurs is called average total cost. It can be calculated using two methods. As ATC is the total cost per unit of output produced, it is generally calculated by dividing the total cost of production by total output. Mathematically,

$$ATC = \frac{\text{Total Cost of Production}}{\text{Total Output}}$$

Alternatively, average total cost is calculated by adding the average fixed cost and average variable cost. Mathematically, $ATC = AFC + AVC$

- What happens to Unit Costs as MC increases?

When MC increases the unit cost also increase. The rate of reduction if AFC is lower than rate of increase in AVC, so the curve if raised by the pressure of rise in AVC compared to fall in AFC.

- Do changes in MPP influence Unit Cost

Yes, the changes in MPP influences unit cost because MPP is lower when there is low economies of scale in term of production. This means there is high cost associated with producing one more additional unit of product varying the input range used for production.

Problem 14

Absolute vs. Relative Prices

Formula for the Relative price

Let the first good be good X and the second good, good Y, then;

Relative price of good X = Absolute price of good X/ absolute price of good Y

Question

If the absolute (or money) price of good A is \$40 and the absolute price of good B is \$60, what is the relative price of each good?

Relative price of good A = Absolute price of good A/ Absolute price of good B

= \$40/\$60

= $2/3 = 0.667$

So, Relative price of good A to good B is \$ 0.667

Relative price of good B = Absolute price of good B/ Absolute price of good A

= \$60/\$40

= $3/2 = 1.5$

So, Relative price of good B to good A is \$ 1.5

Problem 15

Questions

Draw graphs for the following,

- FC
- AFC
- VC
- AVC
- TC
- ATC
- MC