# Learn DU

## SOLVED PYQ

**Paper:** Introductory Microeconomics

**Course:** B. A.(Hons.) Economics I Year

**Year:** 2023

*(All questions carry equal marks. Attempt any Five questions from among the questions given below.)*

**Q. 1. Do you think Economists' approach to establishing linkage between individuals and society is more appealing than thinkers from other domains? Elaborate.** 18

**Ans.** The intricate relationship between the individual and society forms the cornerstone of social philosophy, posing profound questions about human existence, identity, and interaction. Society, in its essence, encompasses the regularities, customs, and norms that govern human behavior, providing the framework within which individuals navigate their lives. However, society is not an entity separate from individuals; rather, it is the collective manifestation of their cooperative efforts and interactions.

At the heart of the relationship between the individual and society lies the notion that human life is inherently social. From birth, individuals are immersed in a complex web of social relations, cultural practices, and institutional structures that shape their identities and experiences. Society, therefore, serves as the crucible within which individuals develop their sense of self, acquire knowledge, and engage with others.

While society is shaped by the collective actions of individuals, it is not merely the sum of its parts. Instead, society possesses its own emergent properties and dynamics, which exert a powerful influence on individual behavior and outcomes. Institutions, such as family, education, religion, and government, play a crucial role in shaping social norms, values, and expectations, which in turn shape individual attitudes, beliefs, and behaviors.

The relationship between the individual and society is inherently reciprocal. Individuals contribute to the formation and functioning of society through their actions, decisions, and interactions. At the same time, society provides the context within which individuals live, interact, and derive meaning from their lives. Thus, individuals and society are inextricably linked, with each depending on the other for existence and meaning.

Society exists to serve individuals, not the other way around. While society provides the necessary conditions for human life to arise and continue, its ultimate purpose is to promote the well-being and flourishing of individuals. Human life, with its inherent dignity and worth, is the ultimate end to which society should be directed. Society should strive to create conditions that enable individuals to fulfill their potential, pursue their interests, and lead fulfilling lives.

However, the relationship between the individual and society is not without tensions and conflicts. At times, the interests of individuals may clash with the interests of society

as a whole, leading to moral dilemmas and ethical quandaries. Questions of justice, equality, and freedom often arise in debates about the proper balance between individual rights and societal interests. Resolving these tensions requires careful consideration of competing values, principles, bns priorities.

Moreover, the relationship between the individual and society is deeply intertwined with questions of culture and identity. Society encompasses individuals within its cultural framework, shaping their beliefs, values, and worldviews. Culture, as a societal force, provides individuals with a sense of belonging, identity, and meaning. However, culture can also be a source of division and conflict, as different groups within society may hold divergent cultural norms and practices.

The relationship between the individual and society is further complicated by the role of power and inequality. In many societies, power dynamics shape the distribution of resources, opportunities, and privileges, leading to disparities in wealth, status, and access to social goods. Individuals from marginalized groups may face systemic barriers and discrimination that limit their opportunities for full participation in society. Addressing these structural inequalities requires collective action and social change to create a more just and equitable society.

**Q. 2. Give the difference between price elasticity and income elasticity of demand? Discuss factors influencing price elasticity of demand?**     **7,11**

**Ans.** Economics uses the ideas of price elasticity and income elasticity to quantify how shifts in a given set of parameters impact the demand for an item or service. Nevertheless, they offer distinct perspectives on consumer behaviour and concentrate on various aspects.

**Price Elasticity of Demand (PED):** PED calculates the quantity demanded's responsiveness, ceteris paribus (assumes all other variables stay constant), to changes in a product or service's price.

It is computed by dividing the percentage change in price by the percentage change in quantity demanded.

The following is the price elasticity of demand formula:

$$= \% \text{ Change in Demanded Quantity} / \% \text{ Change in Price}$$

A high price elasticity of demand (PED > 1) indicates that demand is sensitive to price changes, meaning that a small change in price leads to a relatively large change in quantity demanded. Conversely, a low price elasticity of demand (PED < 1) suggests that demand is relatively insensitive to price changes.

Price elasticity of demand can be influenced by factors such as the availability of substitutes, the necessity of the good, and the proportion of income spent on the good.

**Income Elasticity of Demand (YED):** Income elasticity of demand measures the responsiveness of quantity demanded to changes in consumer income, again, assuming all other factors remain constant.

It is calculated as the percentage change in quantity demanded divided by the percentage change in income.

The formula for income elasticity of demand is:

$$YED = \%\text{Change in Quantity Demanded} / \% \text{ Change in Income}$$

A positive income elasticity of demand ($YED > 0$) indicates that the good is a normal good, meaning that as consumer income increases, the quantity demanded also increases. If $YED > 1$. it's considered a luxury good, meaning that demand increases proportionately more than income. Conversely, a negative income elasticity of demand ($YED < 0$) suggests that the good is an inferior good. meaning that as consumer income increases, the quantity demanded decreases.

Income elasticity of demand helps economists understand how changes in consumer income affect the demand for different goods and services. which is crucial for understanding consumer behavior and market dynamics.

**Q. 3. Explain how absolute cost advantage and comparative cost advantage differ from each other?**    9,9

Calculate gains from trade from the following data relating to two countries producing two goods:

**Table: Production of Food and Cloth by country A and country B.**

|       | Country A | Country B |
|-------|-----------|-----------|
| Food  | 75        | 100       |
| Cloth | 100       | 120       |

**Ans. (a)**

| Points | Absolute Advantage | Comparative Advantage |
|--------|--------------------|-----------------------|
| Definition | Absolute advantage refers to a situation where one individual, country, or entity can produce a good or service with fewer resources or at a lower cost than others. | Comparative advantage refers to a situation where one individual, country, or entity has a lower opportunity cost in producing a particular good or service compared to others. |
| Resource Efficiency | Absolute advantage focuses on the efficiency of resource utilization in production. | Comparative advantage emphasizes the opportunity cost of producing one good over another. |
| Production Efficiency | With absolute advantage, the focus is on producing a good or service more efficiently or at a lower cost than others. | Comparative advantage considers the trade-off between producing different goods and services. |
| Resource Allocation | Absolute advantage implies that resources should be allocated to the individual. country, or entity with the lowest production cost for a particular good or service. | Comparative advantage suggests that resources should be allocated based on the opportunity cost of production. |

| Specialization | Absolute advantage may lead to specialization in producing goods or services in which an entity has the lowest production cost. | Comparative advantage encourages specialization in producing goods or services with the lowest opportunity cost. |
|---|---|---|
| Competitiveness | Absolute advantage can result in a competitive edge for an individual, country, or entity in the production of a specific good or service. | Comparative advantage allows for specialization and trade, promoting mutually beneficial exchanges between individuals, countries, or entities. |
| International Trade | Absolute advantage may lead to increased exports of goods or services in which an individual, country, or entity has an absolute advantage. | Comparative advantage promotes international trade by suggesting that countries should specialize in producing goods or services with lower opportunity costs and import others. |
| Measurement | Absolute advantage is measured by comparing the absolute efficiency of production, such as the total number of resources used or the cost of production. | Comparative advantage is measured by comparing the opportunity costs of production, considering the trade-offs between producing different goods or services. |
| Limited Resources | Absolute advantage does not consider the availability of resources or their scarcity. It solely focuses on production efficiency. | Comparative advantage takes into account the scarcity of resources and the need to allocate them effectively by considering opportunity costs. |
| Dynamic Perspective | Absolute advantage may change over time as technology, resource availability, or production methods evolve. | Comparative advantage can change based on shifts in resource availability, technology, or changes in production costs. |
| Examples | A country may have an absolute advantage in producing oil due to its abundant reserves and advanced extraction methods. | A country may have a comparative advantage in producing agricultural goods because it can produce them at a lower opportunity cost compared to manufacturing goods. |
| Specialized Skills | Absolute advantage may rely on specialized skills or unique factors that enable one entity to outperform others in production. | Comparative advantage focuses on the trade-offs and opportunity costs between different goods or services. It may not require unique skills or factors. |

| Collaboration | Absolute advantage may not necessitate collaboration or trade with other entities if the entity can produce all goods or services efficiently. | Comparative advantage encourages collaboration and trade by recognizing the benefits of specialization and resource allocation. |
|---|---|---|
| Long-Term Impact | Relying solely on absolute advantage may hinder long-term growth if other entities develop competitive advantages or if the absolute advantage becomes obsolete. | Comparative advantage allows for flexible resource allocation and adaptation to changing market conditions, fostering long-term economic growth. |
| Importance of Scale | Absolute advantage does not consider the scale of production or economies of scale. | Comparative advantage considers economies of scale and the benefits of increased production when assessing opportunity costs. |
| Economic Efficiency | Absolute advantage aims for efficient production within a specific entity or country. | Comparative advantage aims for efficient resource allocation globally or across entities. |
| Policy Implications | Policies based on absolute advantage may focus on protecting domestic industries from foreign competition to preserve the advantage. | Policies based on comparative advantage may encourage free trade and the removal of barriers to allow for efficient resource allocation and global specialization. |

**(b)**

| | Country A | Country B |
|---|---|---|
| Food | 75 | 100 |
| Cloth | 100 | 120 |

Here. Country A has an absolute advantage in both food and cloth but comparing the comparative costs, we see that B has a comparative advantage in Food (120 – 100 < 100 – 75). If there is complete specialisation, country A specialises in Cloth and B specialises in Food. The gains in trade would be such that the division (of 25 – 20) is equal. So gain of A = gain of B = 2.5 (under the assumption of 1:1 distribution of gains)

**Q. 4. Derive market demand curve and market supply for a normal good? Explain the factors which influence the market demand and market supply of the good?** 9,9

**Ans.** Figure "The Demand Curve of an Individual Household" is an example of a household's demand for chocolate bars each month. Taking the price of a chocolate bar as given. as well as its income and all other prices, the household decides how many chocolate bars to buy. Its choice is represented as a point on the household's demand

curve. For example. at $5. the household wishes to consume five chocolate bars each month. The remainder of the household income—which is its total income minus the $25 it spends on chocolate—is spent on other goods and services. If the price decreases to $3, the household buys eight bars every month. In other words, the quantity demanded by the household increases. Equally. if the price of a chocolate bar increases. the quantity demanded decreases. This is the law of demand in operation.

One way to summarize this behavior is to say that the household compares its marginal valuation from one more chocolate bar to price. The marginal valuation is a measure of how much the household would like one more chocolate bar. The household will keep buying chocolate bars up to the point where

marginal valuation = price.

| Price ($) | Household 1 Demand | Household 2 Demand | Market Demand |
|-----------|-------------------|-------------------|---------------|
| 1 | 17 | 10 | 27 |
| 3 | 8 | 3 | .1 |
| 5 | 5 | 2 | 7 |
| 7 | 4 | 1.5 | 5.5 |
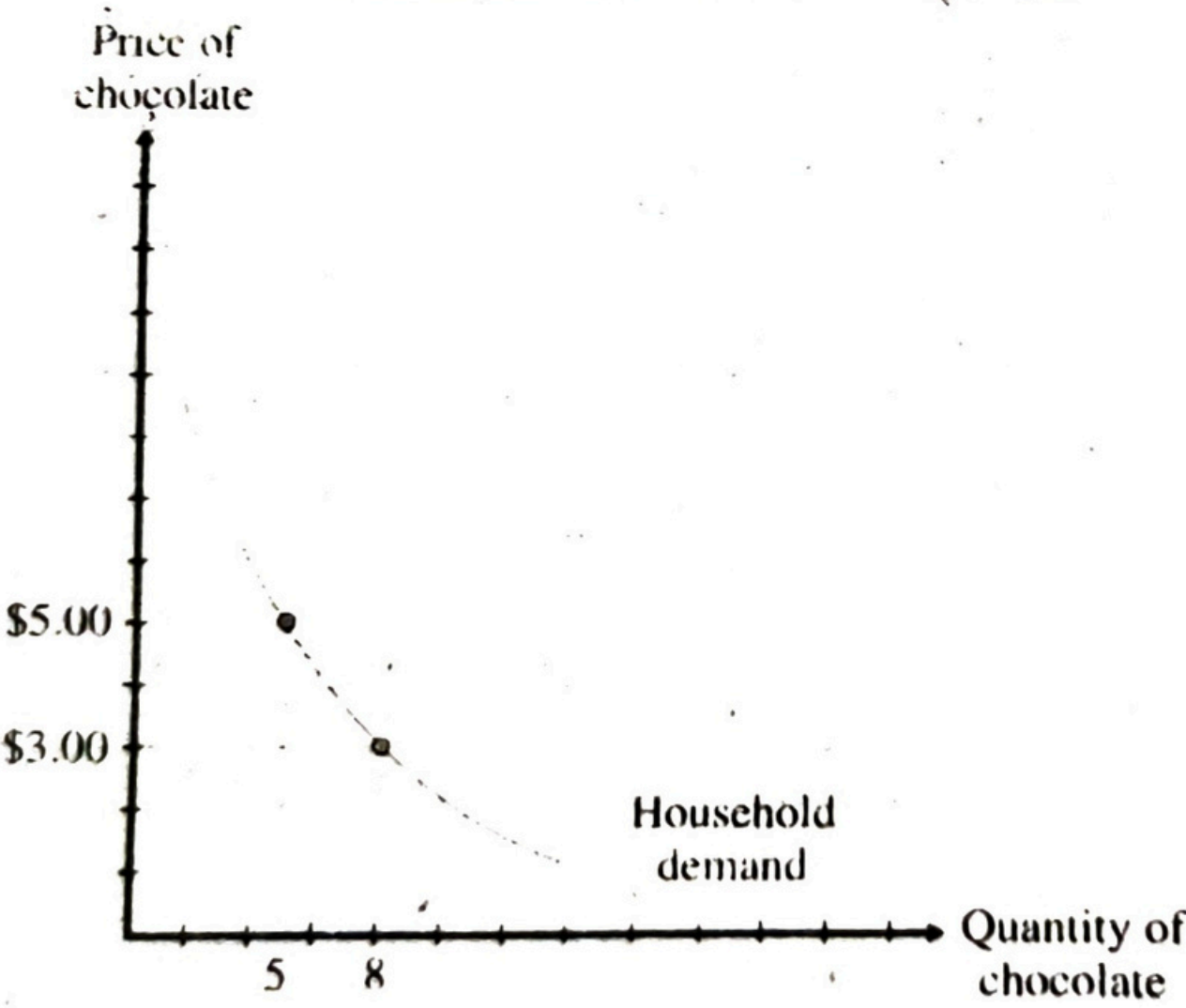


In most markets. many households purchase the good or the service traded. We need to add together all the demand curves of the individual households to obtain the market demand curve. To see how this works. look at Table I "Individual and Market Demand" and Figure 2 "Market Demand". Suppose that there are two households. Part (a) of Figure 2 "Market Demand" shows their individual demand curves. Household 1 has the demand curve from Figure1 "The Demand Curve of an Individual Household". Household 2 demands fewer chocolate bars at every price. For example, at $5, household 2 buys 2 bars per month: at $3. it buys 3 bars per month. To get the market demand, we simply add together the demands of the two households at each price. For example, when the price is $5. the market demand is 7 chocolate bars (5 demanded by household 1 and 2 demanded by household 2). When the price is $3, the market demand is 11 chocolate bars (8 demanded by household 1 and 3 demanded by household 2). When we carry

out the same calculation at every price, we get the market demand curve shown in part (b) of Figure 2 "Market Demand".



(a)

(b)
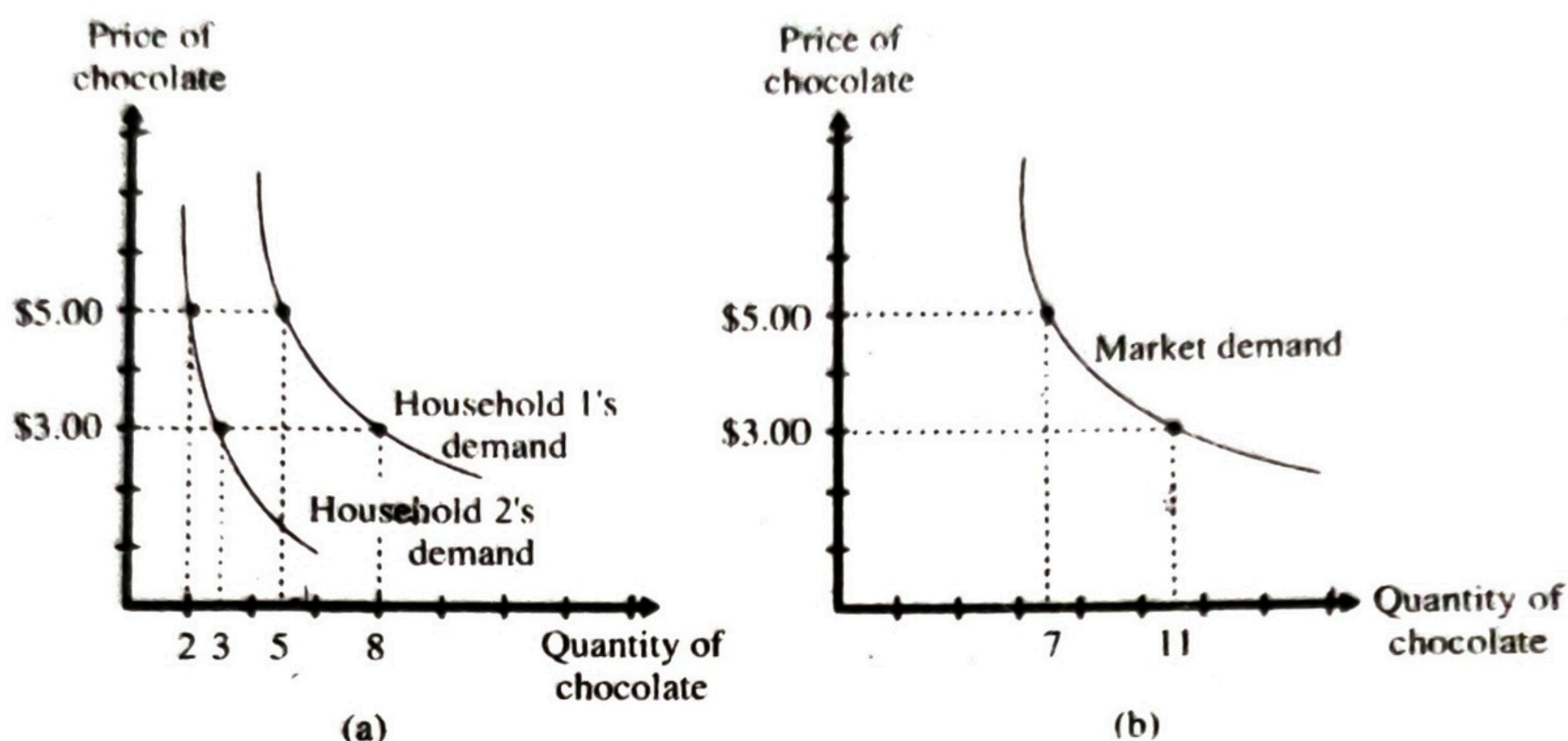
Because the individual demand curves are downward sloping, the market demand curve is also downward sloping: the law of demand carries across to the market demand curve. As the price decreases, each household chooses to buy more of the product. Thus the quantity demanded increases as the price decreases. Although we used two households in this example, the same idea applies if there are 200 households or 20,000 households. In principle, we could add together the quantities demanded at each price and arrive at a market demand curve.

There is a second reason why demand curves slope down when we combine individual demand curves into a market demand curve. Think about the situation where each household has a unit demand curve: that is, each individual buys at most one unit of the product. As the price decreases, the number of individuals electing to buy increases, so the market demand curve slopes down.

In a competitive market, a single firm is only one of the many sellers producing and selling exactly the same product. The demand curve facing a firm exhibits perfectly elastic demand, which means that it sets its price equal to the price prevailing in the market, and it chooses its output such that this price equals its marginal cost of production. If it were to try to set a higher price, it could not sell any output at all. If it were to set a lower price, it would be throwing away profits. Thus, for a competitive firm, the quantity produced satisfies this condition:

$$price = marginal\ cost.$$

We typically expect that marginal cost will increase as a firm produces more output. Marginal cost is the cost of producing one extra unit of output. The cost of producing an additional unit of output generally increases as firms produce a larger and larger quantity. In part, this is because firms start to hit constraints in their capacities to produce more product. For example, a factory might be able to produce more output only by running extra shifts at night, which require paying higher wages.

If marginal cost is increasing, then we know the following:

• Given a price, there is only one level of output such that price equals marginal

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cost.

• As the price increases, a firm will produce more.

Indeed, the supply curve of an individual firm is the same as its marginal cost curve.

Figure 3 "The Supply Curve of an Individual Firm" illustrates the supply curve for a firm. A firm supplies seven chocolate bars at $3 and eight chocolate bars at $5. From this we can deduce that the marginal cost of producing the seventh chocolate bar is $3. Similarly, the marginal cost of producing the eighth chocolate bar is $5.
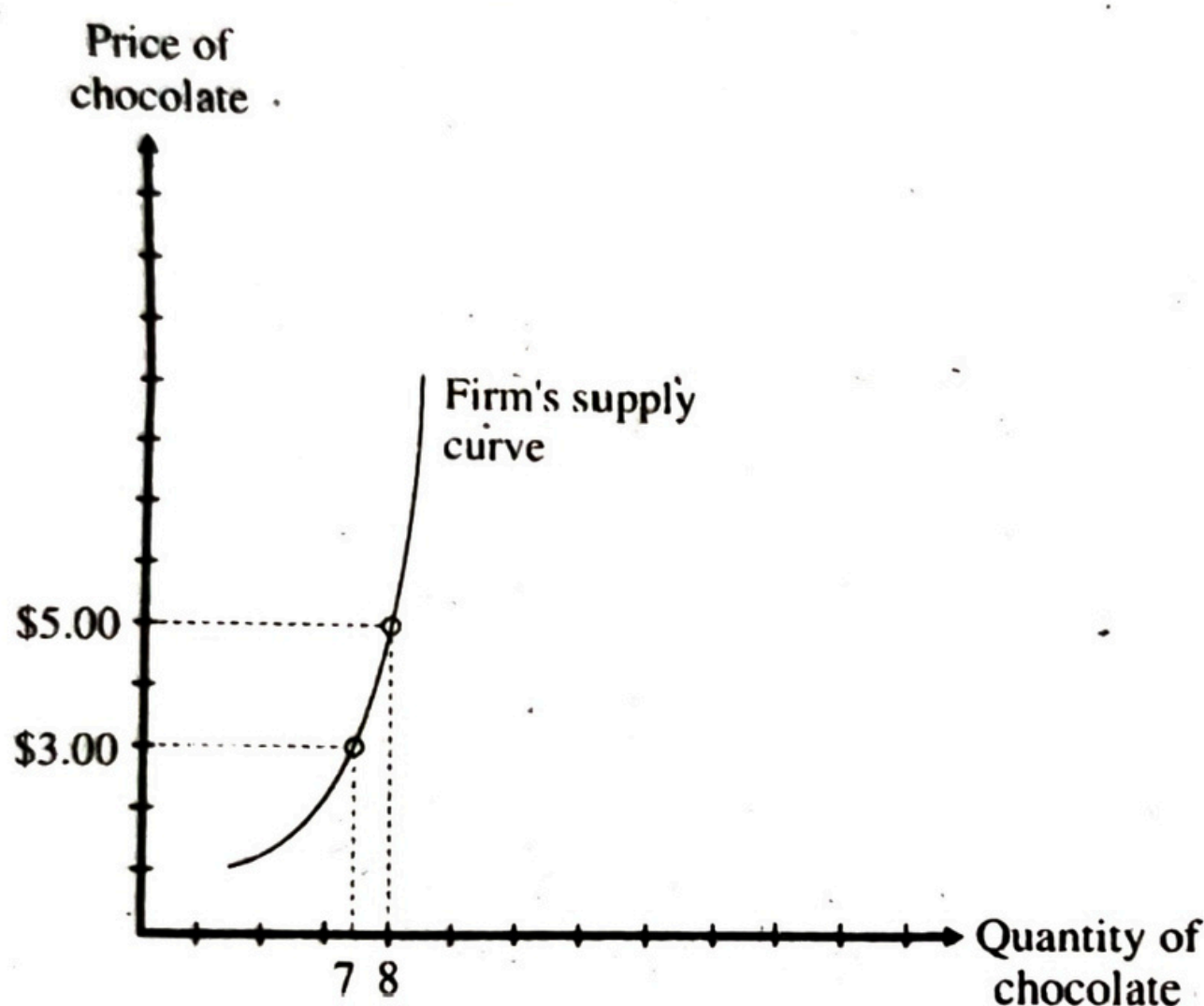


Just as the market demand curve tells us the total amount demanded at each price, the market supply curve tells us the total amount supplied at each price. It is obtained analogously to the market demand curve: at each price we add together the quantity supplied by each firm to obtain the total quantity supplied at that price. If we perform this calculation for every price, then we get the market supply curve. Figure 4 "Market Supply" shows an example with two firms. At $3, firm 1 produces 7 bars, and firm 2 produces 3 bars. Thus the total supply at this price is 10 chocolate bars. At $5, firm 1 produces 8 bars, and firm 2 produces 5 bars. Thus the total supply at this price is 13 chocolate bars.



(a)

(b)
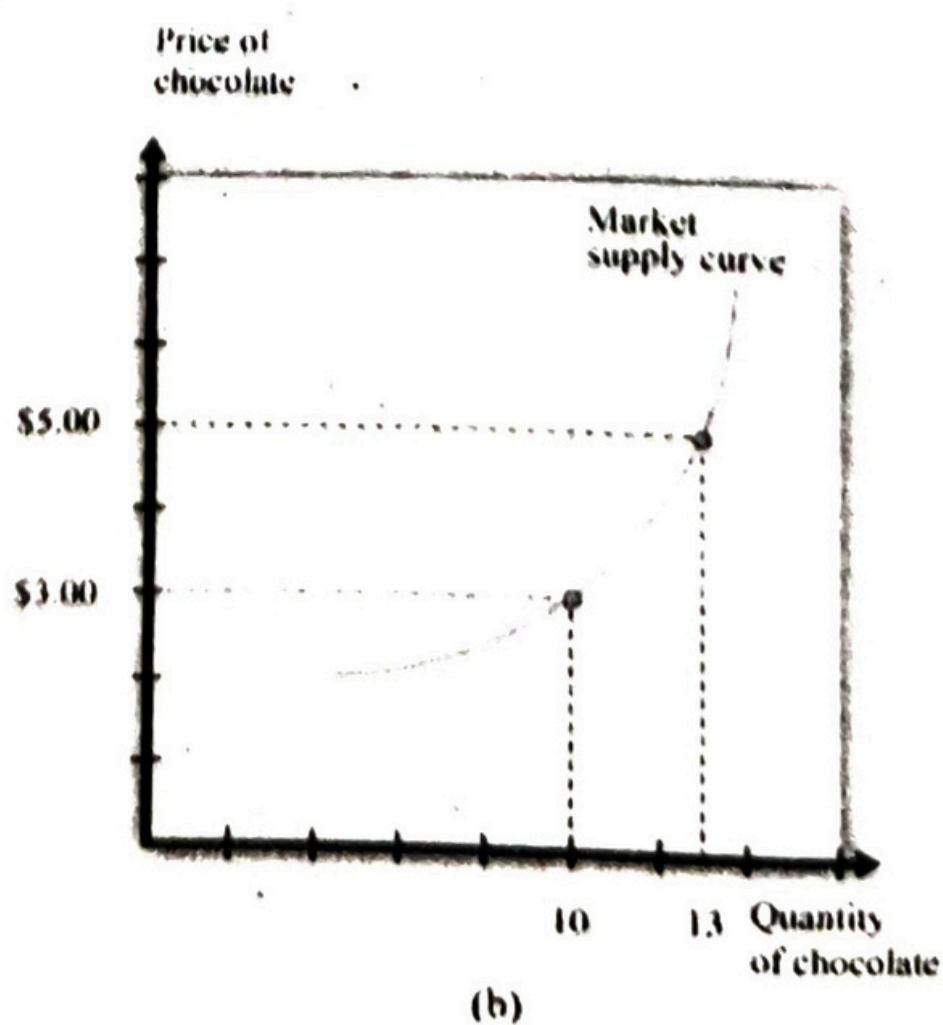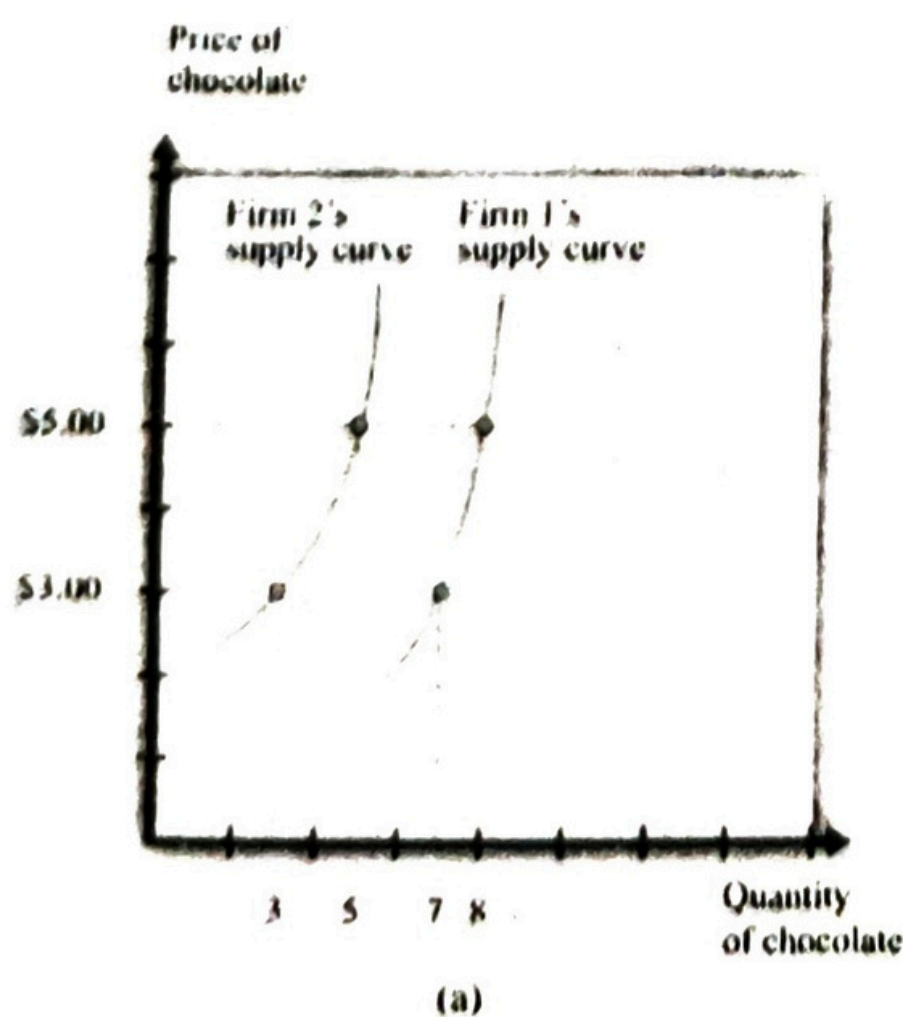
The market supply curve is increasing in price. As price increases, each firm in the market finds it profitable to increase output to ensure that price equals marginal cost. Moreover, as price increases, firms who choose not to produce and sell a product may be induced to enter into the market.

In general, both mechanisms come into play. The market supply curve slopes up for two reasons:

1. As the price increases, more firms decide to enter the market—that is, these firms produce some positive quantity other than zero.
2. As the price increases, firms increase the quantity that they wish to produce.

Several factors influence the market demand and supply of a good, shaping the equilibrium price and quantity in the market. Let's explore the key factors for both demand and supply:

## Factors Influencing Market Demand:

1. **Price of the Good:** A higher price typically leads to lower demand, following the law of demand. Conversely, a lower price usually results in higher demand.
2. **Consumer Income:** For normal goods, an increase in consumer income generally leads to higher demand, as consumers have more purchasing power. For inferior goods, however, higher incomes may lead to lower demand.
3. **Prices of Related Goods:** The demand for a good can be influenced by the prices of substitute goods and complementary goods. Higher prices of substitutes often lead to increased demand for the good in question, while higher prices of complements usually decrease demand.
4. **Consumer Preferences and Tastes:** Changes in consumer preferences, trends, and tastes can significantly impact demand. Advertising, marketing strategies, and cultural shifts can all influence consumer preferences and thereby affect demand.
5. **Population Demographics:** Factors such as population size, age distribution, and income distribution can affect overall demand patterns. For instance, an aging population may increase demand for healthcare services and retirement products.
6. **Expectations about Future Prices:** Anticipated changes in prices can influence current demand. For example, if consumers expect prices to rise in the future, they may increase their current purchases, leading to higher demand.
7. **Government Policies and Regulations:** Government policies such as taxes, subsidies, and regulations can affect demand for certain goods. For instance, subsidies for electric vehicles may increase their demand, while taxes on cigarettes may decrease demand.

## Factors Influencing Market Supply:

1. **Price of the Good:** The law of supply states that, all else being equal, a higher price leads to higher quantity supplied, and a lower price leads to lower quantity supplied. Therefore, the price of the good itself is a primary determinant of supply.
2. **Production Costs:** Factors such as the cost of raw materials, labor, technology, and energy prices directly impact production costs. Higher production costs typically lead to lower supply, while lower production costs increase supply.

3. **Technological Advancements:** Innovations and technological advancements can lead to improvements in production processes, efficiency, and productivity, lowering costs and increasing supply.

4. **Prices of Inputs:** Changes in the prices of inputs (e.g., raw materials, labor) can affect production costs and thus influence supply. For example, an increase in the price of steel may lead to higher production costs for car manufacturers, reducing the supply of cars.

5. **Number of Suppliers:** The number of firms operating in the market can a fect overall market supply. More firms entering the market can increase supply, while firms exiting the market may decrease supply.

6. **Government Policies and Regulations:** Government regulations, taxes, subsidies, and quotas can affect the cost of production and the ability of firms to enter or exit the market, thereby influencing supply.

7. **Natural Factors:** Natural disasters, weather conditions, and environmental factors can impact the supply of certain goods, particularly agricult. and natural resources.

**Q. 5. Given the following information anñwer the question! given below:**

Quantity demanded = 200 – P

Quantity supplied = 20 + P

(i) Calculate Consumer Surplus and Producer Surplus.

(ii) Change in Consumer Surplus and Producer Surplus at a Price fixed at 60.

$$9,9$$

**Ans.**

$$Qd = 200 - P$$
$$Qs = 20 + P$$

At equilibrium,

$$200 - P = 20 + P$$
$$180 = 2P$$
$$P = 90$$
$$Q = 110$$

$$\text{Consumer surplus} = 1/2 \, (200 - 90) \times 110 = 110 \times 110/2 = 6050$$
$$\text{Producer surplus} = 1/2 \times (90 - 20) \times 110 = 3850$$

**(b)** If $P = 60$

Consumer surplus rises and producer surplus declines.

Consumer surplus increases by Area of trapezium = $1/2 \, (110 + 80) \times (90 - 60) = 2850$

Producer surplus decreases by the triangle = $1/2 \times 30 \times 110 = 1650$

**Q. 6. Distinguish between pure strategy and mixed strategy. Create a game tree considering the first player as the first mover in the following payoff matrix:**

| | | Player 2 | |
|---|---|---|---|
| | | X | Y |
| Player 1 | X | (– 5, 5) | (10, 10) |
| | Y | (10, 10) | (– 5, 5) |

$$9,9$$

**Ans. Pure Strategies:** Definition: Pure strategies involve a straightforward decision where a player commits to a single course of action with certainty.

**Characteristics:**

**Deterministic:** In pure strategies. the player knows exactly what action to take in every possible situation.

**No Randomization:** There is no element of randomness or uncertainty involved in selecting a pure strategy.

**Single Action:** Each player chooses a single action without considering the probability distribution over possible actions.

**Example:** In a simple game like rock-paper-scissors, where each player chooses only one of the three options (rock. paper. or scissors) without any randomization or uncertainty, they are employing pure strategies.

**Mixed Strategies:**

**Definition:** Mixed strategies involve a probabilistic approach where a player chooses among multiple possible actions based on a specified probability distribution.

**Characteristics:**

**Probabilistic:** In mixed strategies. players randomize their actions according to a probability distribution over the available options.

**Uncertainty:** There is an element of uncertainty involved. as players do not know in advance which action they will take in any given situation.

**Combination of Actions:** Players may mix multiple actions in different proportions, depending on their strategic objectives and preferences.

**Example:** In a game like matching pennies. where one player chooses "heads" or "tails" and the other player simultaneously chooses the opposite. players may adopt a mixed strategy by randomly selecting "heads" with a certain probability and "tails" with the complementary probability.

**Distinctions:**

**Certainty vs. Uncertainty:** Pure strategies involve certainty. while mixed strategies introduce uncertainty through randomization.

**Single Action vs. Probability Distribution:** Pure strategies entail selecting a single action. whereas mixed strategies involve choosing among multiple actions based on probabilities.

**Deterministic vs. Probabilistic Outcome:** In pure strategies. the outcome is deterministic and directly linked to the chosen action. while mixed strategies result in probabilistic outcomes due to randomization.

```
                        Player 1
                    /              \
                  X                  Y
                 / \                / \
Player 2:  X     Y      X       Y
              / \  / \    / \    / \
          (-5.5) (10.10) (10.10) (- 5.5)
```

**Q. 7. Define inequality and poverty. Explain Lorenz Curve technique to measure Inequality and Multi-dimensional Poverty index to measure the extent of poverty?**

5,6,5,6,5

**Ans. Inequality:** Inequality refers to the unequal distribution of resources, wealth, opportunities, or income among individuals to groups within a society or between different societies. It reflects disparities in access to resources and opportunities, leading to differences in living standards, social status, and well-being. Inequality can manifest in various forms, including economic inequality (income and wealth disparities), social inequality (education, healthcare, and social services access), and political inequality (power and influence). High levels of inequality can have adverse effects on social cohesion, economic growth, and overall human development.

**Poverty:** Poverty is a condition characterized by a lack of basic necessities required for a decent standard of living, including food, shelter, clothing, healthcare, and education. It is often defined in terms of income levels, where individuals or households earn incomes below a certain threshold known as the poverty line. However, poverty is a multidimensional concept that encompasses not only economic deprivation but also social exclusion, limited access to opportunities, and vulnerability to risks and shocks. Poverty can be both absolute (severe deprivation) and relative (compared to the living standards of the broader society).

**Lorenz Curve:** The Lorenz Curve is a graphical representation used to measure income or wealth inequality within a population. It compares the cumulative distribution of income or wealth against the cumulative distribution of the population ranked by income or wealth. The curve plots the percentage of total income or wealth held by the cumulative percentage of the population. A perfectly equal distribution of income or wealth would result in a diagonal line (known as the line of perfect equality), while increasing deviations from this line indicate higher levels of inequality. The extent of inequality is often quantified using the Gini coefficient, which is calculated based on the area between the Lorenz Curve and the line of perfect equality. A higher Gini coefficient indicates greater inequality, while a lower coefficient reflects more equal distribution.

**Multidimensional Poverty:** Multidimensional poverty measures go beyond income-based measures of poverty to assess various dimensions of deprivation that individuals or households may experience. These dimensions typically include education, health, standard of living, housing conditions, access to basic services, and social exclusion. Multidimensional poverty indices combine indicators from these different dimensions to provide a more comprehensive understanding of poverty. The aim is to capture the complex and interconnected nature of poverty and identify individuals or households experiencing deprivation across multiple dimensions. Unlike income-based measures, multidimensional poverty indices help policymakers design targeted interventions that address the specific needs of the poorest and most vulnerable populations, thereby promoting inclusive and sustainable development.

**Q. 8. Write short notes on any two:**                                            9,9
    (i) Features of Public Good
    (ii) Incidence of Indirect Tax
    (iii) Tragedy of Commons
    (iv) Central Problems of an Economy
**Ans. (i) Features of Public Good**

**Non-Excludability**: Definition: Non-excludability refers to the inability to exclude individuals from consuming a good or service once it is provided, regardless of whether they pay for it or not. In other words, once a public good is made available, it is difficult or impractical to prevent anyone from enjoying its benefits.

**Characteristics:**

**Universal Access:** Public goods are accessible to all members of society, irrespective of their ability or willingness to pay for them. For example, national defense protects all citizens within a country's borders, regardless of whether they contribute taxes toward its funding.

**Infeasibility of Exclusion:** Due to the nature of public goods, attempting to exclude individuals from consuming them would be costly, impractical, or even impossible. For instance, it would be challenging to prevent people from benefiting from street lighting or national parks.

**Implications:**

**Market Failure:** Non-excludability leads to market failure because private markets may not adequately provide public goods since there is no direct way to charge individuals for their consumption. Without the ability to exclude non-payers, private firms may find it unprofitable to supply public goods.

**Government Intervention:** Governments often intervene to provide public goods since they have the authority and resources to collect taxes and finance the provision of goods that benefit society as a whole. Public goods are typically funded through taxation or public funding mechanisms.

**Examples:**

**Clean Air:** It is challenging to exclude individuals from breathing clean air once it is available in a certain area. Therefore, clean air is considered a public good since its benefits are non-excludable.

**Knowledge and Information:** Once knowledge or information is disseminated, it can be accessed and utilized by anyone, regardless of whether they contributed to its creation or distribution. Hence, knowledge and information are often considered public goods.

**Non-Rivalrous Consumption:**

**Definition:** Non-rivalrous consumption refers to the characteristic of a good or service where one person's consumption of the good does not reduce its availability or diminish its utility for others. In other words, consumption by one individual does not detract from the ability of others to consume the same good.

**Characteristics:**

**Shared Benefits:** Public goods provide shared benefits to all individuals in society, with each person's consumption adding to the overall collective benefit without diminishing the utility for others. For example, a fireworks display in a public park can be enjoyed by everyone present without reducing enjoyment for others.

**Absence of Depletion:** Unlike private goods, where consumption by one individual reduces the quantity available for others, public goods do not get depleted or used up through consumption. Therefore, they can be simultaneously consumed by multiple individuals without any rivalry or competition.

**Implications:**

**Efficient Allocation:** Non-rivalrous consumption allows public goods to be efficiently

allocated among individuals without concerns about scarcity or competition for resources. Since consumption by one person does not affect others, there is no need to ration or allocate public goods based on individual demand.

**Maximization of Welfare:** The non-rivalrous nature of public goods enables them to maximize social welfare by providing benefits to all members of society without diminishing returns. This characteristic is essential for promoting equity and ensuring that everyone has access to essential goods and services.

**Examples:**

**Public Parks:** The enjoyment of a public park by one individual does not reduce its availability or diminish its utility for others. Multiple individuals can simultaneously enjoy the park's amenities, such as walking trails, playgrounds, and picnic areas, without rivalry.

**Radio Broadcasts:** Broadcasting a radio program does not diminish its availability or quality for other listeners. The signal can be received by numerous individuals simultaneously without any depletion or reduction in its effectiveness.

**(ii) Incidence of Indirect Tax:** Tax incidence of indirect taxes is not clear. in fact. statutory (legal) incidence in most cases tells us nothing about economic (final) incidence. The incidence of indirect tax imposed on a good or service depends on price elasticity of demand (PED) and price elasticity of supply (PES) of a concerned good or service.

The tax incidence depicts the distribution of the tax obligations, which must be covered by the buyer and seller. The level at which each party participates in covering the obligation shifts based on the associated price elasticity of the product or service in question as well as how the product or service is currently affected by the principles of supply and demand.

Tax incidence reveals which group—consumers or producers—will pay the price of a new tax. For example, the demand for prescription drugs is relatively inelastic. Despite changes in cost, its market will remain relatively constant.

**Levying New Taxes on Inelastic and Elastic Goods:** Another example is that the demand for cigarettes is mostly inelastic. When governments impose a cigarette tax, producers increase the sale price by the full amount of the tax, transferring the tax burden to consumers. Through analysis, it is found the demand for cigarettes is unaffected by price. Of course, there are limits to this theory. If a pack of cigarettes suddenly increased from $5 to $1,000, consumer demand would fall.

If the levying of new taxes on an elastic good, such as fine jewelry, occurs, most of the burden would likely shift to the producer as an increase in price may have a significant impact on the demand for the associated goods. Elastic goods are goods with close substitutes or that are nonessential.

**Price Elasticity and Tax Incidence:** Price elasticity is a representation of how buyer activity changes in response to movements in the price of a good or service. In situations where the buyer is likely to continue purchasing a good or service regardless of a price change, the demand is said to be inelastic. When the price of the good or service profoundly impacts the level of demand, the demand is considered highly elastic.

Examples of inelastic goods or services can include gasoline and prescription medicines. The level of consumption across the economy remains steady with price changes. Elastic products are those whose demand is significantly affected by price. This group of products includes luxury goods, houses, and clothing.

The formula for determining the consumer's tax burden with "E" representing elasticity is as follows:

- E (supply) / (E (demand)) + E (supply)

The formula for determining the producer or supplier's tax burden with "E" representing elasticity is as follows:

- E (demand) / (E (demand) + E (supply))

Tax incidence shows who or what ultimately bears the burden of a tax, as opposed to just who directly pays the tax.

**(iii) Tragedy of Commons:** A common resource or "commons" is any resource, such as water or land, that provides users with tangible benefits but which nobody has an exclusive claim. The tragedy of the commons is an economic problem where the individual consumes a resource at the expense of society.

If an individual acts in their best interest, it can result in harmful over-consumption to the detriment of all. This phenomenon may result in under-investment and total depletion of a shared resource.

The tragedy of the commons occurs when an economic good is rivalrous in consumption, non-excludable, scarce, and a common-pool resource. Each consumer consumes as much as they can as fast as they can before others deplete the good, and no one has the incentive to reinvest in maintaining or reproducing the good.

- **Rival good:** A rival good is one that only one person can consume and cannot be shared. All consumers are rivals competing for that unit, and each person's consumption subtracts from the total supply of the good.
- **Non-excludable:** A good is non-excludable when individual consumers are unable to prevent others from also consuming it.
- **Scarce:** The good must be scarce since a non-scarce good cannot be rivalrous in consumption.
- **Common-pool resource:** A common-pool resource functions as a hybrid between a public and private good because it is shared and available to everyone but also scarce, with a finite supply.
- Institutional and technological factors play a role in the rivalry and excludability of a good. Societies have developed methods of dividing and enforcing exclusive rights to economic goods and natural resources or punishing those who over-consume common resources.
- Regulatory Solutions
- Top-down government regulation or direct control of a common-pool resource can reduce over-consumption, and government investment in the conservation and renewal of the resource can help prevent its depletion. Government regulation can limit how many cattle may graze on government lands or issue fish catch quotas.
- Assigning private property rights over resources to individuals can convert a common-pool resource into a private good. Technologically it may mean developing a way to identify, measure, and mark units or parcels of the common pool resource into private holdings, such as branding cattle.
- William Forster Lloyd argued for this around the time of the English Parliament's Enclosure Acts, which stripped traditional common property arrangements to grazing lands and fields and divided the land into private holdings.

- Collective Solutions
- Economists led by Nobelist Elinor Ostrom touted customary arrangements among rural villagers and aristocratic lords, including common access to most grazing and farmlands and managing their use and conservation.3 Practices such as crop rotation, seasonal grazing, and enforceable sanctions against overuse and abuse of the resource meant collective action arrangements readily overcame the tragedy of the commons.

**(iv) Central Problems of an Economy:** An economic problem generally means the problem of making choices that occurs because of the scarcity of resources. It arises because people have unlimited desires but the means to satisfy that desire is limited. Therefore, satisfying all human needs is difficult with limited means.

**Causes of Economic Problem:** Scarcity of resources: Resources like labour, land, and capital are insufficient as compared to the demand. Therefore, the economy cannot provide everything that people want.

Unlimited Human Wants: Human beings' demands and wants are unlimited which means they will never be satisfied. If a person's one want is satisfied, they will start having new desires. People's wants are unlimited and keep multiplying, therefore, cannot be satisfied because of limited resources.

Alternative Uses: Resources being scarce, the same resources are used for different purposes, and it is therefore essential to make a choice among resources. For instance, petrol is used in vehicles and is also used for generators, running machines, etc. Therefore, the economy should now make a choice within the alternative uses.

**List of Economic Problems:**

**(A) What to produce?**

A country cannot produce all goods because it has limited resources.

It has to make a choice between different goods and services.

Every economy has to decide what goods and services should be produced.

**Example:** If a farmer has a single piece of agricultural land, then he has to make a choice between two goods, i.e., whether to grow rice or wheat.

Similarly, our government has to decide where to allocate funds, for the production of defence goods or consumer goods, and if both, then in what proportion.

**(B) How to produce?**

This problem refers to the choice of technique of production. It arises when there is an availability of more than one way to produce goods and services.

There are mainly two techniques of production. These are:

Labour intensive technique(greater use of labour)

Capital intensive technique(greater use of machines)

Labour intensive technique promotes employment whereas capital intensive technique promotes efficiency and growth.

**(C) For whom to produce?**

The society cannot satisfy all the wants of all the people. Therefore, it has to decide who should get how much of the total output of goods and services.

Society has to make choice of whether luxury goods or normal goods have to be produced. This distribution or proportion directly relates to the purchasing power of the economy.

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