AP Microeconomics Sample Paper

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SECTION I – MCQ's

1. Which of the following best describes the concept of opportunity cost?
a. The value of the next best alternative forgone when a choice is made
b. The total cost of producing a good or service
c. The amount of profit earned by a firm
d. The price at which a good or service is sold
Answer: a
Explanation: Opportunity cost refers to the cost of a choice in terms of the next best alternative that is foregone. In other words, it is the value of the benefits that could have been gained from the next best alternative forgone.

2. If the price of a good increases, which of the following will happen in the market for that good?
a. Quantity demanded will increase
b. Quantity supplied will decrease
c. Quantity demanded will decrease
d. Quantity supplied will increase
Answer: c
Explanation: When the price of a good increases, consumers tend to reduce their demand for that good and seek out less expensive alternatives. This leads to a decrease in the quantity demanded.

3. If a firm is earning economic profits in the short run, which of the following is likely to happen in the long run?
a. More firms will enter the market, driving down prices and reducing profits
b. The firm will increase its production and expand its operations
c. The firm will reduce its production and exit the market
d. The firm will maintain its current level of production and profits
Answer: a
Explanation: If a firm is earning economic profits in the short run, it is likely that other firms will notice the high profit margins and decide to enter the market, attracted by the prospect of earning profits themselves. This increase in the number of firms supplying the market will lead to an increase in supply, which will ultimately lead to a decrease in the price of the goods.

4. Which of the following is an example of a positive externality?
a. Pollution from a factory that harms nearby residents
b. A vaccine that reduces the spread of disease
c. A tax on cigarettes that reduces smoking
d. A road that generates traffic congestion
Answer: b
Explanation: A positive externality occurs when the production or consumption of a good or service generates benefits for third parties who are not directly involved in the transaction.

5. Which of the following is a characteristic of a perfectly competitive market?

a. Many buyers and sellers
b. Homogeneous products
c. Easy entry and exit
d. All of the above
Answer: d
Explanation: A perfectly competitive market is characterized by many buyers and sellers, homogeneous products, and easy entry and exit.

6. If the cross-price elasticity of demand between two goods is negative, what can be said about the goods?
a. They are complements
b. They are substitutes
c. They are both inferior goods
d. There is no relationship between the goods
Answer: a
Explanation: The cross-price elasticity of demand measures the responsiveness of the quantity demanded of one good to a change in the price of another good.

7. If a country can produce a good at a lower opportunity cost than another country, what is true according to the principle of comparative advantage?
a. The first country should not produce the good at all
b. The second country should produce the good exclusively
c. The first country should specialize in producing the good
d. The second country should specialize in producing the good
Answer: c
Explanation: The principle of comparative advantage states that a country should specialize in producing the goods in which it has a lower opportunity cost compared to another country and trade with that country. Opportunity cost is the cost of giving up the production of one good in order to produce another good.

8. If the price elasticity of demand for a good is greater than 1, which of the following is true?
a. The good has an inelastic demand
b. The good has a unit elastic demand
c. The good has an elastic demand
d. The good has a perfectly elastic demand
Answer: c
Explanation: When the price elasticity of demand for a good is greater than 1, it means that the percentage change in quantity demanded is greater than the percentage change in price. This indicates that the demand for the good is relatively sensitive to changes in price, or in other words, the good has an elastic demand.

9. Which of the following is an example of a price floor?
a. A minimum wage law
b. A tax on cigarettes
c. A subsidy for farmers
d. A limit on the number of taxi licenses
Answer: a

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Explanation: In the case of a minimum wage law, the government sets a minimum hourly wage that an employer must pay to their employees. This sets a price floor on labor, ensuring that workers receive a certain minimum wage for their work.

10. If a firm has a monopoly in a market, what can be said about the demand curve it faces?
a. It is perfectly elastic
b. It is perfectly inelastic
c. It is downward sloping
d. It is upward sloping
Answer: c
Explanation: If a firm has a monopoly in a market, it is the only supplier of a particular product or service, and there are no close substitutes available for consumers. Therefore, the demand curve the monopolist faces will be the market demand curve, which is downward sloping.

11. Which of the following is a characteristic of a monopolistic competition market?
a. Homogeneous products
b. A large number of buyers and sellers
c. Easy entry and exit
d. Product differentiation
Answer: d
Explanation: Monopolistic competition is a market structure where there are many firms producing differentiated products that are close substitutes for each other. The key characteristic of monopolistic competition is that firms have some degree of market power, which means they have the ability to influence the price of their product.

12. Which of the following is an example of a negative externality?
a. Education that benefits the individual and society
b. Vaccination that reduces the spread of disease
c. Pollution from a factory that harms the environment
d. A road that reduces traffic congestion
Answer: c
Explanation: Pollution from a factory is a classic example of a negative externality because it harms the environment and can have negative health impacts on nearby communities, but the factory does not bear the full cost of the pollution it creates.
13. Which of the following is true in a perfectly competitive market in the long run?
a. Firms earn economic profits
b. Firms earn zero economic profits
c. Firms earn losses
d. Firms exit the market
Answer: b
Explanation: In the short run, some firms may be able to earn economic profits by charging a price higher than their average total cost. However, in the long run, new firms will enter the market attracted by the high profits, increasing supply and driving down the market price. Likewise, some firms may exit the market due to losses. In the long run, this results in the market reaching a state of equilibrium where firms earn zero economic profits.

14. If the price of a good increases and the quantity demanded of the good also increases, what can be said about the elasticity of demand for the good?
a. It is perfectly elastic
b. It is elastic
c. It is inelastic
d. It is unit elastic
Answer: b
Explanation: In this scenario, if the price of a good increases and the quantity demanded of the good also increases, it suggests that the demand for the good is elastic. This is because the increase in price should have resulted in a decrease in quantity demanded if the demand was inelastic.

15. Which of the following is an example of a public good?
a. A toll road
b. A movie theater
c. National defense
d. A restaurant
Answer: c
Explanation: National defense is an example of a public good because it is difficult or impossible to exclude anyone from benefiting from it once it is provided, and it can be consumed by many individuals at the same time without diminishing its benefits to others.

16. If a firm's marginal cost is greater than its marginal revenue, what should the firm do to maximize profits?
a. Increase production
b. Decrease production
c. Maintain its current level of production
d. Shut down
Answer: d
Explanation: In this case, the firm should stop producing and shut down in the short run to avoid further losses. By shutting down, the firm will incur a loss equal to its fixed costs but will avoid incurring additional losses equal to its variable costs.

17. If the price of a good decreases and the quantity supplied of the good also decreases, what can be said about the elasticity of supply for the good?
a. It is perfectly elastic
b. It is elastic
c. It is inelastic
d. It is unit elastic
Answer: c
Explanation: In this scenario, if the price of a good decreases and the quantity supplied of the good also decreases, it suggests that the supply of the good is inelastic. This is because the decrease in price should have resulted in an increase in quantity supplied if the supply was elastic.

18. Which of the following is an example of a private good?
a. A park
b. Education

c. Healthcare
d. Clothing
Answer: d
Explanation: Clothing is an example of a private good because it is both excludable and rivalrous in consumption. If you purchase a piece of clothing, you have exclusive access to it, and others cannot use it without your permission.

19. Which of the following is an example of a natural monopoly?
a. A water company
b. A grocery store
c. A movie theater
d. A restaurant
Answer: a
Explanation: A water company is an example of a natural monopoly because it is expensive to build and maintain the infrastructure needed to provide water to a community, such as pipes, treatment plants, and reservoirs. Due to these high fixed costs, it may not be feasible for multiple firms to enter the market and compete with the existing water company.

20. Which of the following is a characteristic of a market failure?
a. Resources are allocated efficiently
b. There is no deadweight loss
c. There is a lack of competition
d. There is a surplus of goods
Answer: c
Explanation: A lack of competition is a characteristic of a market failure because it can lead to a monopoly or oligopoly, where a single or a few firms have market power and can charge higher prices than would occur in a competitive market.

21. Which of the following is an example of a variable cost for a firm?
a. Rent
b. Insurance
c. Utilities
d. Wages
Answer: d
Explanation: Wages are an example of a variable cost because as a firm produces more goods or services, it typically needs to hire more workers, leading to an increase in wages paid.

22. Which of the following is an example of a fixed cost for a firm?
a. Materials
b. Advertising
c. Rent
d. Wages
Answer: c
Explanation: Rent is a classic example of a fixed cost because a company typically pays the same amount of rent each month regardless of how much it produces or sells.

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23. If the price of a good is greater than its marginal cost, what can be said about the firm's profits?
a. The firm is earning economic profits
b. The firm is earning normal profits
c. The firm is earning losses
d. There is not enough information to determine the firm's profits
Answer: a
Explanation: When the price of a good is greater than its marginal cost, the firm is earning a positive economic profit. This is because the firm is selling its product for more than it costs to produce each additional unit, which means it is making a profit on each unit sold. In other words, the firm is generating more revenue than the costs it incurs to produce each additional unit, resulting in a net positive profit.

24. Which of the following is an example of a price ceiling?
a. A minimum wage law
b. A tax on cigarettes
c. A subsidy for farmers
d. A rent control law
Answer: d
Explanation: Rent control is an example of a price ceiling because it sets a legal limit on how much landlords can charge for rent.

25. Which of the following is true in a market with perfect competition?
a. Firms earn economic profits in the long run
b. Firms have market power
c. Firms produce differentiated products
d. There are no barriers
Answer: d
Explanation: In a market with perfect competition, there are no barriers to entry or exit. This means that any firm can enter the market if they wish to do so, and existing firms can leave the market if they are not making a profit. Furthermore, there are many buyers and sellers in the market, and all firms sell identical products.

26. Which of the following is an example of a monopoly?
a. A local grocery store
b. A fast food chain
c. A cable television provider
d. A farmers' market
Answer: c
Explanation: A cable television provider is an example of a monopoly because in many areas, there is only one cable provider available to consumers, which gives the provider significant market power.

27. Which of the following is a characteristic of a market with monopolistic competition?
a. A large number of firms
b. Identical products
c. High barriers to entry

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d. No product differentiation
Answer: a
Explanation: Monopolistic competition is a market structure in which there are many small firms that produce similar, but not identical, products. Each firm has some degree of control over the price of its product, but this control is limited by the existence of close substitutes produced by other firms. This market structure is characterized by a large number of firms, low barriers to entry, and product differentiation.

28. Which of the following is a determinant of the price elasticity of demand?
a. Availability of substitutes
b. Income of consumers
c. Cost of production
d. Market structure
Answer: a
Explanation: The price elasticity of demand is a measure of the responsiveness of the quantity demanded of a product to a change in its price. The availability of substitutes is one of the key determinants of the price elasticity of demand. If there are many substitutes available for a product, consumers can easily switch to a different product if the price of the original product increases. This means that the demand for the original product is more elastic, or responsive to changes in price.

29. Which of the following is an example of a positive externality?
a. Pollution from a factory
b. Traffic congestion
c. Education that benefits society
d. Overfishing in the ocean
Answer: c
Explanation: A positive externality is a benefit that is enjoyed by a third party as a result of an economic transaction. In the case of education, there are many positive externalities. For example, an educated workforce can lead to higher productivity and economic growth, which benefits society as a whole. Additionally, educated individuals are more likely to make informed decisions and participate in civic life, which can also benefit society.

30. Which of the following is an example of a common resource?
a. A private beach
b. A public park
c. A lake with fish
d. A toll road
Answer: c
Explanation: A lake with fish is an example of a common resource because anyone can fish in the lake, but as more fish are caught, there are fewer fish left for others to catch.

31. Which of the following is a characteristic of a market with a monopoly?
a. High barriers to entry
b. A large number of firms
c. Identical products

d. No market power
Answer: a
Explanation: A monopoly is a market structure in which there is only one seller of a product with no close substitutes. Since there is no competition, the monopolist has market power, which means they can control the price of the product. In order to maintain this position, monopolists often engage in practices that create high barriers to entry, making it difficult for other firms to enter the market and compete with them.

32. Which of the following is an example of a non-excludable good?
a. A public park
b. A movie theater
c. A toll road
d. A private beach
Answer: a
Explanation: A public park is an example of a non-excludable good because anyone can access and use the park, even if they have not paid for it. It is difficult to exclude people from using the park without constructing physical barriers around it or enforcing strict access controls.

33. Which of the following is a characteristic of a market with an oligopoly?
a. A large number of firms
b. Identical products
c. Low barriers to entry
d. Interdependence among firms
Answer: d
Explanation: One of the defining characteristics of an oligopoly is that the firms in the market are interdependent. This means that the actions of one firm can have a significant impact on the profits and market share of the other firms. In an oligopoly, firms must take into account the actions and reactions of their competitors when making decisions about pricing, production, and other business strategies.

34. Which of the following is a characteristic of a command economy?
a. The government owns all resources
b. The government sets prices
c. Markets determine resource allocation
d. Firms have complete control over production
Answer: b
Explanation: In a command economy, the government controls all aspects of the economy, including resource allocation, production, and distribution of goods and services. The government makes all economic decisions and sets prices for goods and services. The goal of a command economy is to provide goods and services to the population at prices that are deemed affordable or fair by the government.

35. Which of the following is an example of a monopsony?
a. A single firm that is the only seller of a product
b. A single buyer that is the only purchaser of a product
c. A large number of buyers and sellers
d. A market with no barriers to entry or exit

Answer: b
Explanation: A monopsony is a market structure in which there is only one buyer of a particular product or service. This gives the monopsonist a significant amount of market power, as they are the only buyer that suppliers can sell to. This can result in the monopsonist being able to dictate the price they are willing to pay, which can lead to lower prices for the product or service being sold.

36. Which of the following is an example of a common resource?
a. A park
b. Education
c. Healthcare
d. Fish in the ocean
Answer: d
Explanation: Fish in the ocean are a good example of a common resource because they are non-excludable, in that it is difficult to prevent individuals from fishing in the ocean, but they are rivalrous, in that the more fish that are caught, the fewer fish are left for others to catch.

37. Which of the following is an example of a regressive tax?
a. Income tax
b. Sales tax
c. Property tax
d. Estate tax
Answer: b
Explanation: A regressive tax is a tax that takes a larger percentage of income from low-income earners than from high-income earners. Sales tax is an example of a regressive tax because it is a flat percentage tax on consumption, which means that low-income earners, who spend a higher percentage of their income on consumption, pay a higher percentage of their income in sales tax compared to high-income earners.

38. Which of the following is an example of a progressive tax?
a. Income tax
b. Sales tax
c. Property tax
d. Excise tax
Answer: a
Explanation: Income tax is considered progressive because the tax rate increases as the taxable income increases. In other words, people with higher incomes pay a higher percentage of their income in taxes than people with lower incomes.

39. Which of the following is an example of a trade-off?
a. Producing more of one good without giving up any of another good
b. Producing more of one good by sacrificing some of another good
c. Producing more of one good without affecting the production of another good
d. Producing less of one good without affecting the production of another good
Answer: b
Explanation: A trade-off refers to the situation where a decision to increase the production of one good or service involves sacrificing some of the production of another good or service.

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40. Which of the following is an example of a quota?
a. A price floor on minimum wage
b. A limit on the number of cars imported into the country
c. A subsidy for farmers
d. A rent control law
Answer: b
Explanation: A quota is a type of trade barrier that sets a physical limit on the quantity of a good that can be imported into a country.

41. Which of the following is a characteristic of a perfectly elastic demand curve?
a. The quantity demanded is infinitely responsive to changes in price
b. The quantity demanded is not responsive to changes in price
c. The price and quantity demanded are inversely related
d. The price and quantity demanded are directly related
Answer: a
Explanation: The characteristic of a perfectly elastic demand curve is that the quantity demanded is infinitely responsive to changes in price. This means that if the price of a good or service increases even a little bit, consumers will stop buying it altogether, and if the price decreases even a little bit, consumers will buy an infinite amount of it.

42. Which of the following is an example of a production function?
a. The relationship between the price of a good and the quantity demanded of the good
b. The relationship between the price of a good and the quantity supplied of the good
c. The relationship between the inputs used in producing a good and the output of the good
d. The relationship between the income of consumers and their demand for a good
Answer: c
Explanation: The production function is a concept in economics that describes the relationship between the inputs used in the production of a good or service and the output that is produced.

43. Which of the following is an example of a market that has economies of scale?
a. A small grocery store
b. A large manufacturing plant
c. A hair salon
d. A farmer's market
Answer: b
Explanation: A large manufacturing plant is a good example of a market that has economies of scale because it can take advantage of mass production techniques to reduce its average cost per unit.

44. Which of the following is an example of a market failure caused by information asymmetry?
a. A price floor on minimum wage
b. A tax on cigarettes
c. A subsidy for renewable energy
d. A used car that has hidden mechanical problems
Answer: d

Explanation: Information asymmetry occurs when one party in a transaction has more or better information than the other party. In this case, the seller of the car has more information about the condition of the car than the buyer.

45. Which of the following is an example of a public good?
a. A private beach
b. National defense
c. A private school
d. A private swimming pool
Answer: b
Explanation: National defense is an example of a public good because it is difficult to exclude individuals from the benefits of national defense, and the consumption of national defense by one person does not reduce the amount available for others.

46. Which of the following is a characteristic of a natural monopoly?
a. A large number of buyers and sellers
b. No barriers to entry or exit
c. One firm that can produce at a lower cost than any other firm
d. Many firms that produce identical products
Answer: c
Explanation: A natural monopoly occurs when one firm can produce output at a lower cost than any potential competitor, giving the firm a significant cost advantage. As a result, the firm can supply the entire market at a lower cost than any potential competitor, leading to a situation where it is more efficient for the market to be served by a single firm rather than multiple firms.

47. Which of the following is an example of a factor market?
a. A farmer's market where consumers purchase fruits and vegetables
b. A grocery store where consumers purchase groceries
c. A stock exchange where investors purchase shares of stock
d. A labor market where firms hire workers
Answer: d
Explanation: In factor markets, the factors of production, such as labor, capital, and land, are bought and sold. In this case, the labor market is where firms purchase the factor of production, labor, from workers.

48. Which of the following is an example of a market where firms engage in monopolistic competition?
a. The market for apples
b. The market for gasoline
c. The market for restaurants
d. The market for steel
Answer: c
Explanation: Monopolistic competition occurs in a market where firms sell products that are differentiated, but not perfect substitutes. The market for restaurants is a good example because each restaurant may offer a different atmosphere, menu, and quality of service, which distinguishes it from its competitors.

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49. Which of the following best describes the effect of a subsidy on a market?
a. It increases the quantity demanded and decreases the quantity supplied.
b. It decreases the price and increases the quantity demanded.
c. It increases the price and decreases the quantity supplied.
d. It increases the price and quantity supplied.
Answer: d
Explanation: A subsidy is a payment made by the government to producers, which effectively lowers their cost of production. This means that producers are able to supply more of the goods at a lower cost, which results in an increase in the quantity supplied.

50. If a firm in a perfectly competitive market is earning economic profit, what is likely to happen in the long run?
a. New firms will enter the market, increasing supply and reducing price.
b. Existing firms will exit the market, reducing supply and increasing price.
c. Firms will collude and form a cartel to increase price and reduce output.
d. Firms will continue to earn economic profit in the long run.
Answer: a
Explanation: As new firms enter, the market supply increases, leading to a decrease in the market price. This process continues until the economic profit of all firms is reduced to zero, which is the long-run equilibrium in a perfectly competitive market.

51. Which of the following is true about the income elasticity of demand for luxury goods?
a. It is negative, indicating that as income increases, the quantity demanded decreases.
b. It is greater than 1, indicating that as income increases, the quantity demanded increases.
c. It is between 0 and 1, indicating that as income increases, the quantity demanded increases at a decreasing rate.
d. It is less than 1, indicating that as income increases, the quantity demanded increases at an increasing rate.
Answer: b
Explanation: If YED is greater than 1, it means that the good is a luxury good. Luxury goods are those goods that people demand more of as their income rises, because these goods are not essential for survival but provide enjoyment, comfort, or prestige. Therefore, as income increases, people have more disposable income to spend on luxury goods, resulting in an increase in demand.

52. Which of the following is a characteristic of a market with high barriers to entry?
a. Firms can easily enter and exit the market.
b. The market has a large number of buyers and sellers.
c. Firms can differentiate their products from those of their competitors.
d. Firms face significant obstacles to entering the market.
Answer: d
Explanation: High barriers to entry refer to the factors that make it difficult for new firms to enter a market and compete with existing firms. These barriers may include high start-up costs, government regulations, patents, or access to key resources.

53. In a perfectly competitive market, which of the following is true?
a. Firms earn economic profit in the long run.

b. Firms face downward-sloping demand curves.
c. Firms have no control over the price of their product.
d. Firms produce at a level where marginal cost equals marginal revenue.
Answer: d
Explanation: In a perfectly competitive market, there are many firms producing homogeneous products, and no single firm has the ability to influence the market price. Firms must accept the market price and produce at a level where marginal cost equals the market price, which is also equal to marginal revenue.

54. In a production process, if marginal product is increasing, what is happening to the total product?
a. Total product is also increasing.
b. Total product is decreasing.
c. Total product is staying constant.
d. Total product is increasing at a decreasing rate.
Answer: a
Explanation: Marginal product is the additional output produced by adding one more unit of input to the production process. Total product, on the other hand, is the total output produced by all units of input used in the production process. If marginal product is increasing, it means that each additional unit of input is contributing more to the production process than the previous unit. This leads to an increase in total product.

55. The Lorenz curve is a graphical representation of:
a. the relationship between price and quantity demanded.
b. the relationship between income and savings.
c. the distribution of income within a society.
d. the relationship between supply and demand.
Answer: c
Explanation: The Lorenz curve is a graphical representation of the distribution of income within a society. It plots the cumulative share of total income received by a given percentage of the population, starting with the poorest and moving to the richest.

56. A country's Lorenz curve shows that the top 20% of the population holds 60% of the country's income. Which of the following is true?
a. The country has a perfectly equal distribution of income.
b. The Gini coefficient for the country is 0.6.
c. The country has a highly unequal distribution of income.
d. The bottom 20% of the population holds 40% of the country's income.
Answer: c
Explanation: In this case, the top 20% of the population holds 60% of the country's income, which means that a relatively small percentage of the population holds a large share of the income, indicating a highly unequal distribution of income.

57. Marginal cost is defined as:
a. the change in total cost resulting from a one-unit change in quantity produced.
b. the additional cost of producing one unit of a good.
c. the cost of producing the last unit of a good.
d. the total cost divided by the quantity produced.

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Answer: b
Explanation: Marginal cost is the cost incurred by a firm to produce an additional unit of output. It is calculated by taking the change in total cost and dividing it by the change in quantity produced. In other words, marginal cost is the cost of producing one more unit of output.

58. Which of the following is true about the relationship between marginal cost and average variable cost?
a. Marginal cost is always greater than average variable cost.
b. Marginal cost is always less than average variable cost.
c. Marginal cost equals average variable cost at the minimum point of the average variable cost curve.
d. There is no relationship between marginal cost and average variable cost.
Answer: c
Explanation: Average variable cost (AVC) is the total variable cost divided by the quantity produced, while marginal cost (MC) is the additional cost of producing one more unit of a good or service. When AVC is decreasing, MC is less than AVC. When AVC is increasing, MC is greater than AVC. The two curves intersect at the minimum point of the AVC curve, where MC equals AVC. This point is also known as the shutdown point for a firm in the short run, since if the price falls below the minimum point of the AVC curve, the firm will no longer be able to cover its variable costs and will shut down production.

59. A firm has a marginal revenue product of $50 and a wage rate of $40 per hour. Which of the following is true?
a. The firm should hire more workers to increase its profits.
b. The firm should decrease its output to increase its profits.
c. The firm is earning economic profit.
d. The firm is operating at a loss.
Answer: a
Explanation: The marginal revenue product (MRP) of labor is the additional revenue generated by hiring one additional unit of labor. In this case, the MRP is $50, which means that the firm can increase its revenue by $50 by hiring one more worker. The wage rate is $40 per hour, so the firm will hire the additional worker if the worker's marginal cost is less than $40. Therefore, hiring more workers would increase the firm's profits, assuming that the firm is not already employing the optimal amount of labor.

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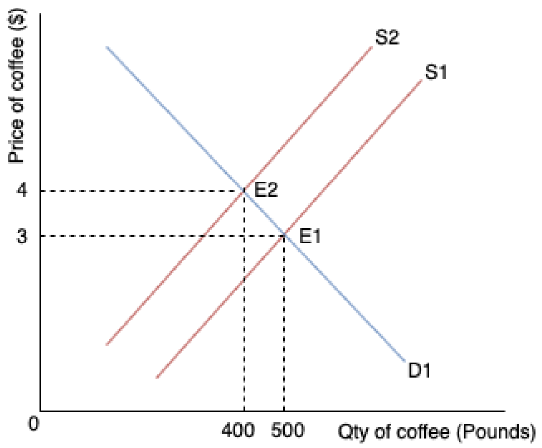
60. A firm has a marginal cost of $20 and is currently producing 100 units of output. The firm's average total cost is $30. Which of the following is true?
a. The firm should increase production to lower its average total cost.
b. The firm should decrease production to lower its average total cost.
c. The firm is earning economic profit.
d. The firm is operating at a loss.
Answer: b
Explanation: When the firm's marginal cost is below its average total cost, it is possible to decrease average total cost by increasing production. However, in this scenario, the marginal cost is higher than the average total cost, indicating that the firm is experiencing diminishing returns to scale. To lower the average total cost, the firm should decrease production, which will decrease the marginal cost and average total cost.

SECTION II – Free Responses

3 Questions

1. Suppose the market for coffee in a small town is initially in equilibrium with a price of $3 per pound and a quantity of 500 pounds per week. Then, a drought hits the region and causes the supply of coffee to decrease. Answer the following questions:

(a) Illustrate the impact of the drought on the market for coffee using a supply and demand diagram.



The drought decreases the supply of coffee, shifting the supply curve to the left from S1 to S2. The new equilibrium point is at E2, where the price has increased to $4 per pound and the quantity has decreased to 400 pounds per week.

(b) What happens to the equilibrium price and quantity of coffee as a result of the drought? Explain.
The equilibrium price of coffee increases from $3 to $4 per pound, and the equilibrium quantity of coffee decreases from 500 to 400 pounds per week. This is because the decrease in supply causes a shortage of coffee, which drives up the price until the quantity demanded equals the new quantity supplied.

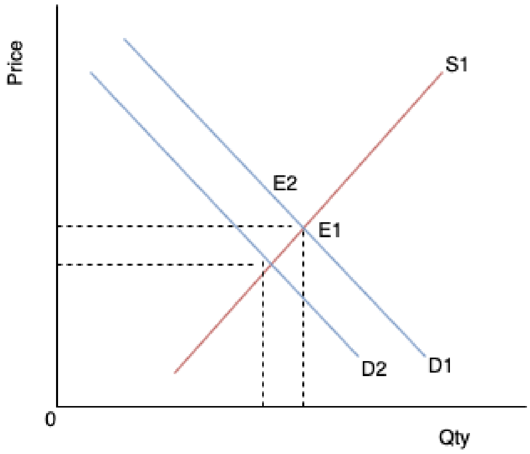
(c) Suppose the government imposes a price ceiling of $2 per pound of coffee. Explain the impact of this price ceiling on the market for coffee.
A price ceiling is a government-imposed maximum price that can be charged for a good or service. The price ceiling of $2 per pound creates a maximum legal price for coffee that is below the equilibrium price of $4 per pound. As a result, the quantity demanded of coffee increases to 450 pounds per week, while the quantity supplied decreases to 350 pounds per week. The impact of a price ceiling depends on the specific market conditions, but generally, it can have both positive and negative effects. As the price ceiling is set below the equilibrium price, it will create a shortage of coffee. This is because the quantity demanded will exceed the quantity supplied at the lower price. This can lead to long lines, rationing, and black markets. There might also be reduced quality. In order to maintain profitability, suppliers may reduce the quality of the goods or services they provide. This is because they can no longer charge a higher price to cover the costs of providing a higher quality product.

(d) Will the price ceiling result in a shortage or a surplus of coffee? Explain.
The price ceiling will result in a shortage of coffee because the quantity demanded exceeds the quantity supplied at the price ceiling of $2 per pound. Specifically, the shortage is equal to 450 pounds per week (quantity demanded) minus 350 pounds per week (quantity supplied), or 100 pounds per week.

(e) Explain how a black market for coffee might arise in response to the price ceiling.
A black market for coffee might arise in response to the price ceiling because the price ceiling creates an incentive for suppliers to sell coffee illegally at a higher price. Consumers may also be willing to pay a higher price for coffee on the black market if they cannot find it at the price ceiling. This could lead to a situation where the quantity of coffee supplied and demanded on the black market is higher than the quantity exchanged legally at the price ceiling, resulting in an even larger shortage of coffee.

2. Suppose a factory in a small town emits pollution into the air as a byproduct of its production process. The pollution creates negative externalities for the town's residents, who experience health problems as a result. Answer the following questions:

(a) Illustrate the impact of the factory's pollution on the market for the factory's product using a supply and demand diagram.



The negative externalities of the factory's pollution decrease the marginal benefit of the product for consumers, shifting the demand curve to the left from D1 to D2. The supply curve remains unchanged at S1. The new equilibrium point is at E2, where the price has decreased and the quantity has decreased as well.

(b) What happens to the equilibrium price and quantity of the factory's product as a result of the negative externalities? Explain.
The equilibrium price of the factory's product decreases from $10 to $7 per unit, and the equilibrium quantity of the factory's product decreases from 15 to 10 units per day. This is because the negative externalities decrease the demand for the product, which reduces both the price and quantity exchanged in the market.

(c) Suppose the government imposes a per-unit tax on the factory to internalize the negative externalities. Explain the impact of this tax on the market for the factory's product.

The government-imposed per-unit tax on the factory creates an additional cost for the factory, shifting the supply curve to the left from S1 to S2. The demand curve remains unchanged at D1. The new equilibrium point is at E3, where the price has increased to $8 per unit, and the quantity has decreased to 8 units per day. The per-unit tax internalizes the negative externalities created by the factory by making the producer bear some of the cost of the pollution. This encourages the producer to reduce their pollution output, as it will now cost them more to produce each unit of the product. The tax also reduces the quantity of the product produced and consumed, which can reduce the overall level of pollution generated by the factory.

(d) What is the incidence of the tax, and how do you know? Explain.

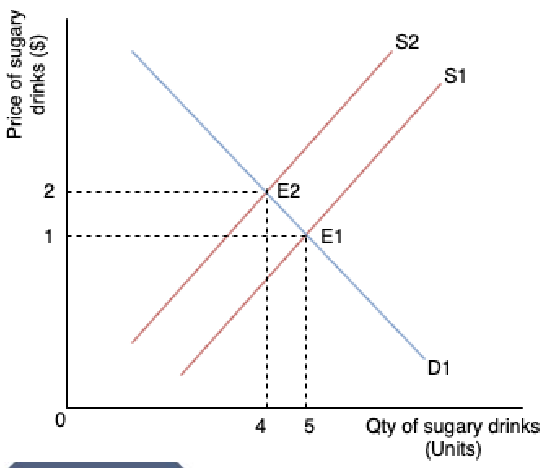
The incidence of the tax falls on both the producers and the consumers, but the degree of incidence depends on the relative elasticity of demand and supply. In this case, the demand for the factory's product is more elastic than the supply, which means that consumers bear a larger share of the tax burden than producers. This can be seen in the smaller decrease in quantity demanded compared to the decrease in quantity supplied.

(e) Explain why a per-unit tax is preferable to a lump-sum tax for internalizing negative externalities.

A per-unit tax is preferable to a lump-sum tax for internalizing negative externalities because it creates a direct incentive for the producer to reduce the negative externality. A per-unit tax forces the producer to internalize the cost of the negative externality by increasing the cost of production. A lump-sum tax, on the other hand, does not provide a direct incentive for the producer to reduce the negative externality and may be more difficult to enforce. Additionally, a per-unit tax can be adjusted to reflect the severity of the negative externality, while a lump-sum tax cannot.

3. Suppose the government decides to impose a tax on sugary drinks to reduce consumption and raise revenue. Answer the following questions:

(a) Illustrate the impact of the tax on the market for sugary drinks using a supply and demand diagram.



The tax on sugary drinks increases the cost of production for sellers, shifting the supply curve to the left from S1 to S2. The demand curve remains unchanged at D1. The new equilibrium point is at E2, where the price has increased to $2 per unit, and the quantity has decreased to 4 units per day.

(b) What is the price elasticity of demand for sugary drinks, and how do you know?
The price elasticity of demand for sugary drinks is elastic because the percentage change in quantity demanded is greater than the percentage change in price. This can be seen by calculating the elasticity using the formula:
Price Elasticity of Demand = (% change in quantity demanded) / (% change in price)
In this case, the quantity demanded decreased by 50% when the price increased by 100%, so the elasticity is:
Price Elasticity of Demand = (-50%) / (100%) = -0.5
Since the elasticity is greater than 1, demand is elastic.

(c) What is the price elasticity of supply for sugary drinks, and how do you know?
The price elasticity of supply for sugary drinks is inelastic because the percentage change in quantity supplied is less than the percentage change in price. This can be seen by calculating the elasticity using the formula:
Price Elasticity of Supply = (% change in quantity supplied) / (% change in price)
In this case, the quantity supplied decreased by 25% when the price increased by 100%, so the elasticity is:
Price Elasticity of Supply = (-25%) / (100%) = -0.25
Since the elasticity is less than 1, supply is inelastic.

(d) Suppose the government wants to maximize revenue from the tax. Should they set a high or low tax rate, and why?
To maximize revenue from the tax, the government should set a high tax rate because sugary drinks have an inelastic supply and a relatively elastic demand. This means that consumers are less responsive to changes in price, so a higher tax rate will generate more revenue for the government. The optimal tax rate is the one that maximizes the area of the rectangle formed by the tax revenue and the quantity exchanged in the market.

(e) How does the price elasticity of demand for sugary drinks affect the incidence of the tax? Explain.
The incidence of the tax falls on both the producers and the consumers, but the degree of incidence depends on the relative elasticity of demand and supply. In this case, the demand for sugary drinks is more elastic than the supply, which means that consumers bear a larger share of the tax burden than producers. This can be seen in the larger decrease in quantity demanded compared to the decrease in quantity supplied. In other words, consumers are more likely to switch to substitutes or reduce their consumption in response to the tax, while producers are less likely to reduce their production.

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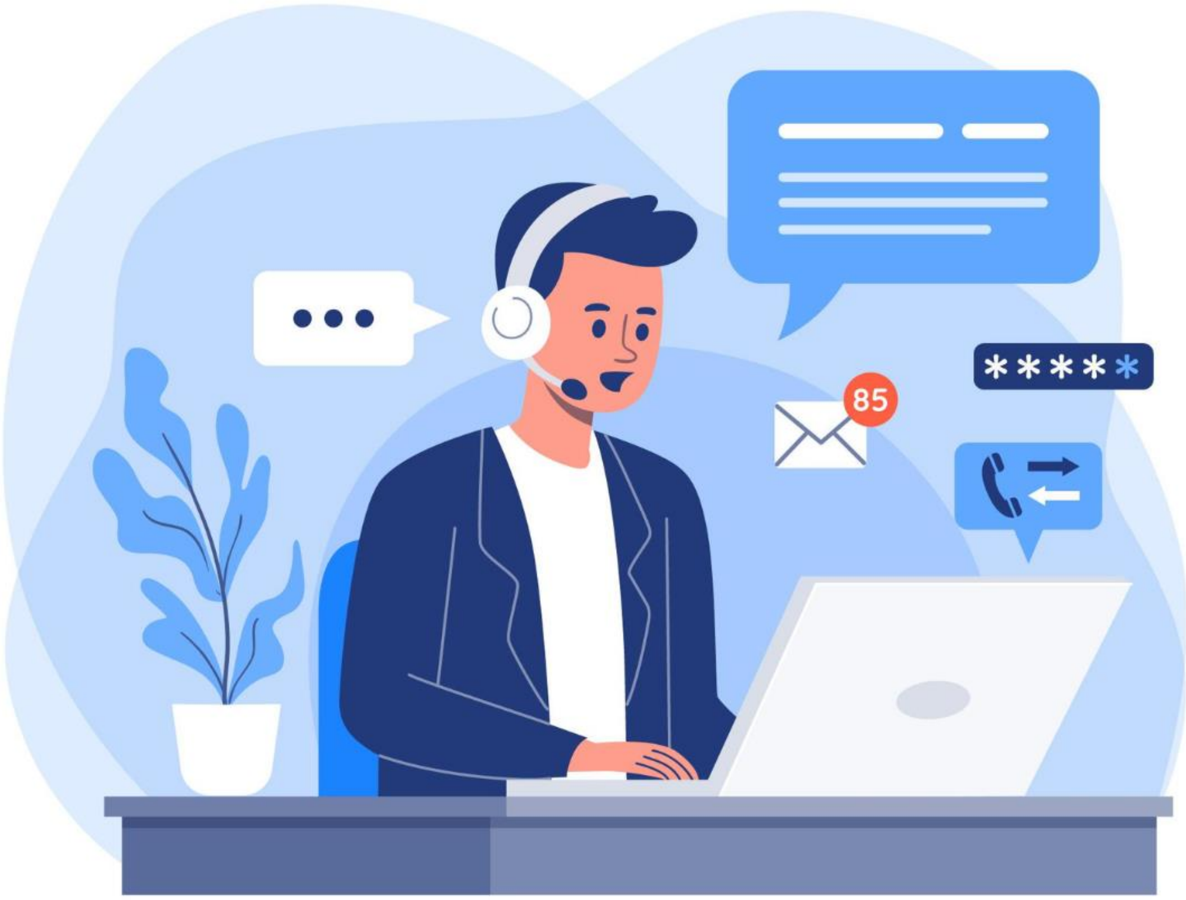

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