University of Central Florida (UCF) ECO2023 Principles of Microeconomics Final Practice Exam (Sample)

Study Guide

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Questions

1. In a perfectly competitive market with the supply function P=20+0.3Q and demand function P=80-0.1Q, what is the equilibrium price?

   A. P=$75

   B. P=$65

   C. P=$50

   D. P=$85

2. In a market made up of two consumers, whose demand functions are P=20-2Q, what is the market demand function?

   A. P=20-2Q

   B. P=20-Q

   C. P=10-2Q

   D. P=40-4Q

3. Which characteristic is true of the short run for both perfectly competitive firms and monopolists?

   A. Firms can vary all inputs

   B. Firms cannot change the level of all inputs

   C. Firms earn above-normal profits only

   D. Firms face no restrictions on pricing

4. Surplus occurs when the price of a good is sustained at what level?

   A. Below the equilibrium price

   B. At the equilibrium price

   C. Above the equilibrium price

   D. At half the equilibrium price

5. What effect does a more broadly defined product have on the price elasticity of demand?

   A. It increases the number of substitutes.

   B. It decreases the price elasticity of demand.

   C. It has no effect on substitutes.

   D. It makes demand perfectly inelastic.

6. Which of the following statements is true about price elastic demand?

A. The price elasticity is greater than one.

B. The price elasticity is less than one.

C. The quantity demanded does not respond to price changes.

D. The demand curve is vertical.

7. When average variable costs are minimized, firms in perfect competition are achieving:

A. Efficient production

B. Total loss

C. Maximum revenue

D. Price discrimination

8. What is the equation for the budget constraint of a consumer with an income of $200, where the price of good X is $4, and the price of good Y is $8?

A. Y=50-2X

B. Y=25-0.5X

C. Y=200-4X

D. Y=100-8X

9. Which of the following is true about a monopolist's demand curve?

A. It is perfectly elastic

B. It slopes downward

C. It is independent of price

D. It reflects perfect competition conditions

10. If a 4 percent increase in the price of good X causes a 12 percent increase in the quantity demanded of good Y, what does that imply?

A. Goods X and Y are complements

B. The cross-price elasticity of demand is negative

C. Goods X and Y are substitutes

D. The cross-price elasticity of demand is zero

Answers

1. B
2. B
3. B
4. C
5. B
6. A
7. A
8. B
9. B
10. C

Explanations

1. In a perfectly competitive market with the supply function P=20+0.3Q and demand function P=80-0.1Q, what is the equilibrium price?

A. P=$75

B. P=$65

C. P=$50

D. P=$85

To find the equilibrium price in a perfectly competitive market, it's essential to set the supply price equal to the demand price and solve for the quantity (Q). The equilibrium occurs where the quantity supplied equals the quantity demanded. Given the supply function \(P = 20 + 0.3Q \) and the demand function \(P = 80 - 0.1Q \), we can set these two equations equal to each other: \[20 + 0.3Q = 80 - 0.1Q \] Next, we will isolate \(Q \). First, combine the terms containing \(Q \): \[0.3Q + 0.1Q = 80 - 20 \] This simplifies to: \[0.4Q = 60 \] Now, divide both sides by 0.4: \[Q = \frac{60}{0.4} = 150 \] Now that we have the equilibrium quantity, we can substitute \(Q = 150 \) back into either the supply or demand function to find the equilibrium price. Using the supply function: \[P = 20 + 0.3(150) \] \[

2. In a market made up of two consumers, whose demand functions are P=20-2Q, what is the market demand function?

A. P=20-2Q

B. P=20-Q

C. P=10-2Q

D. P=40-4Q

To find the market demand function in a situation where there are two consumers with the same demand function, you add the individual demands together. The given demand function for each consumer is P = 20 - 2Q. Since there are two consumers and they have the same demand curve, the total quantity demanded at any given price can be calculated by doubling the individual quantity. Rearranging the individual demand function gives us: Q = (20 - P) / 2. If each consumer buys Q at price P, then for two consumers, the market quantity demand, denoted as Qm, will be: Qm = 2 * Q = 2 * (20 - P) / 2 = 20 - P. Solving for P in terms of Qm yields P = 20 - Qm. However, to better reflect the total quantity market demand, we need to consider Q in units of an aggregate scenario. If we replace Q in the original function P = 20 - 2Q with Qm, we find the market demand function can be rewritten as: P = 20 - 2(Q/2) = 20 - Q. Thus, we have reduced the terms and aggregated the

3. Which characteristic is true of the short run for both perfectly competitive firms and monopolists?

A. Firms can vary all inputs

B. Firms cannot change the level of all inputs

C. Firms earn above-normal profits only

D. Firms face no restrictions on pricing

In the short run, both perfectly competitive firms and monopolists operate under the characteristic that firms cannot change the level of all inputs. This is because the short run is defined as a period during which at least one factor of production is fixed, typically capital. For instance, a firm might be able to vary its labor input (such as hiring more workers) or adjust variable costs, but it cannot change its plant size or other fixed costs. This limitation on changing all inputs impacts how firms respond to market conditions—whether they are facing increased demand or higher costs. For both types of firms, the fixed nature of some inputs means that while they can adjust production levels to some extent, they are constrained by their existing capital and infrastructure. The other characteristics do not apply universally to both perfectly competitive firms and monopolists in the short term. For example, perfectly competitive firms do have constraints regarding prices due to the nature of competition, while monopolists possess significant control over pricing, which is a defining feature of monopolistic market structures. Understanding these distinctions helps clarify why being unable to vary all inputs is a shared trait of both market types in the short run.

4. Surplus occurs when the price of a good is sustained at what level?

A. Below the equilibrium price

B. At the equilibrium price

C. Above the equilibrium price

D. At half the equilibrium price

A surplus occurs when the price of a good is sustained above the equilibrium price. At this elevated price level, the quantity supplied by producers exceeds the quantity demanded by consumers. When the price is too high, consumers tend to purchase less of the product, while producers are incentivized to supply more because of the higher prices. This imbalance leads to excess inventory, which is termed a surplus. The equilibrium price, on the other hand, is the point at which the quantity of the good demanded by consumers equals the quantity supplied by producers, meaning there is neither a surplus nor a shortage. When the price is set below this equilibrium level, the opposite occurs; there is a shortage as demand outstrips supply. Therefore, for a surplus to exist, the price must be sustained at a level that is higher than what would balance out supply and demand, explaining why sustaining a price above the equilibrium leads to surplus conditions in the market.

5. What effect does a more broadly defined product have on the price elasticity of demand?

A. It increases the number of substitutes.

B. It decreases the price elasticity of demand.

C. It has no effect on substitutes.

D. It makes demand perfectly inelastic.

A more broadly defined product typically encompasses a wider range of goods that can fulfill similar needs, leading to a larger pool of substitutes available to consumers. This broader definition of a product means that if the price of that product rises, consumers can easily switch to alternative products that serve a similar function. When considering price elasticity of demand, which measures how sensitive the quantity demanded of a good is to changes in its price, more broadly defined products often have a higher price elasticity. This is because the increased availability of substitutes allows consumers to react more significantly to price changes. Therefore, when a product is defined in a narrower manner, it is often associated with less substitution, causing demand to be less elastic. In this context, the assertion that a more broadly defined product decreases the price elasticity of demand is misleading. Instead, a broader definition generally would lead to an increase in price elasticity, making consumers more responsive to price changes due to the availability of substitutes and alternative choices.

6. Which of the following statements is true about price elastic demand?

A. The price elasticity is greater than one.

B. The price elasticity is less than one.

C. The quantity demanded does not respond to price changes.

D. The demand curve is vertical.

The statement that price elasticity is greater than one accurately describes price elastic demand. When demand is price elastic, it means that consumers are highly responsive to changes in price. Specifically, a price elasticity greater than one indicates that a percentage change in price results in a larger percentage change in the quantity demanded. For instance, if the price of a good increases by 10% and the quantity demanded decreases by 15%, the price elasticity of demand would be calculated as 15% divided by 10%, which equals 1.5, confirming it is price elastic. In contrast, price inelastic demand would have an elasticity value of less than one, indicating that quantity demanded is relatively unresponsive to price changes. Moreover, the notion that quantity demanded does not respond to price changes, as referenced in one of the options, characterizes perfectly inelastic demand, which is different from elastic demand. Finally, a vertical demand curve represents perfectly inelastic demand, where quantity demanded remains constant regardless of price changes, further distinguishing it from price elastic demand.

7. When average variable costs are minimized, firms in perfect competition are achieving:

A. Efficient production

B. Total loss

C. Maximum revenue

D. Price discrimination

When average variable costs are minimized in a perfectly competitive market, firms are achieving efficient production. This occurs because minimizing average variable costs allows firms to produce goods at the lowest possible cost per unit. In perfect competition, firms are price takers and cannot influence market prices; thus, they will strive to optimize their production processes to remain profitable or minimize losses. Efficient production is characterized by the use of resources in such a way that no additional output can be achieved without incurring higher costs. By minimizing average variable costs, firms can maximize their contribution margin, which can lead to higher profits or reduced losses. This efficient allocation of resources is essential in perfectly competitive markets, where firms must respond to market signals and maintain competitiveness in pricing. In contrast, the other options represent circumstances that do not inherently indicate efficient production: total loss would suggest that the firm is not able to cover its costs, maximum revenue does not consider cost efficiencies, and price discrimination doesn't apply in perfect competition as firms must sell at the market price. Therefore, efficient production is the correct interpretation for minimizing average variable costs in this context.

8. What is the equation for the budget constraint of a consumer with an income of $200, where the price of good X is $4, and the price of good Y is $8?

A. Y=50-2X

B. Y=25-0.5X

C. Y=200-4X

D. Y=100-8X

The budget constraint represents the combinations of goods that a consumer can buy given their income and the prices of the goods. In this scenario, the consumer has an income of $200, the price of good X is $4, and the price of good Y is $8. The budget constraint can be formulated using the formula: Income = (Price of X × Quantity of X) + (Price of Y × Quantity of Y) By substituting in the values: $200 = ($4 × X) + ($8 × Y) This can be rearranged to isolate Y on one side: $8Y = $200 - $4X To solve for Y, divide all terms by 8: Y = (200 - 4X) / 8 This simplifies to: Y = 25 - 0.5X This equation shows that for every additional unit of good X consumed, the consumer must give up 0.5 units of good Y to stay within their budget, illustrating the trade-off between the two goods. Thus, this equation effectively captures the consumer's budget constraint based on their income and the prices of goods X and Y, making it the correct choice.

9. Which of the following is true about a monopolist's demand curve?

A. It is perfectly elastic

B. It slopes downward

C. It is independent of price

D. It reflects perfect competition conditions

A monopolist's demand curve slopes downward, reflecting the unique market position held by the monopolist. Unlike firms in perfect competition, which can sell an infinite quantity at the market price, a monopolist faces the market demand curve directly. This means that to sell additional units of the product, the monopolist must lower the price, which results in a downward-sloping demand. This characteristic indicates that as the price decreases, the quantity demanded by consumers increases, demonstrating the inverse relationship between price and quantity demanded that is typical in demand theory. In contrast, a perfectly elastic demand curve reflects a situation where a firm can sell as much as it wants at a particular market price without affecting that price, which does not apply to a monopolist. A demand curve that is independent of price would imply that quantity demanded does not change with price fluctuations, which is not the case for a monopolist. Likewise, a demand curve that reflects perfect competition conditions would not slope downwards because many firms would share the same market price, leading to a horizontal demand curve for each firm. Thus, the nature of a monopolist's demand curve is distinct and fundamentally linked to its price-setting power in the market.

10. If a 4 percent increase in the price of good X causes a 12 percent increase in the quantity demanded of good Y, what does that imply?

A. Goods X and Y are complements

B. The cross-price elasticity of demand is negative

C. Goods X and Y are substitutes

D. The cross-price elasticity of demand is zero

The relationship between goods X and Y, illustrated by the statistics given, indicates that as the price of good X increases, the quantity demanded for good Y also rises significantly. This behavior is characteristic of substitute goods—items that can replace each other in consumption. When the price of one substitute rises, consumers tend to buy more of the other substitute as it becomes relatively more attractive. In this scenario, the percentage increase in quantity demanded for good Y (12 percent) is in the same direction as the price increase of good X (4 percent), which establishes a direct relationship between the two goods. The cross-price elasticity of demand, which measures the responsiveness of the quantity demanded of one good to a change in the price of another good, is positive in this case. Specifically, since it is calculated as the percentage change in quantity demanded of good Y divided by the percentage change in price of good X, it yields a positive value, further confirming that the goods are substitutes. Therefore, determining the relationship through this positive cross-price elasticity clearly shows that goods X and Y are substitutes.