

**Midterm:** March 12, T11, 90minutes

15 Multiple Choice Questions (In this sample, there are 5 extra MCs just for exercises), 3 Essay Questions.

**A. Multiple Choice Questions**

1. Suppose that you can hire a worker in one-hour increments. For working up to 4 hours, the total benefit of the worker (in dollars) is  $B(0) = 0$ ,  $B(1) = 25$ ,  $B(2) = 45$ ,  $B(3) = 60$  and  $B(4) = 70$ . What is the marginal benefit of the second hour of the worker's time?

- A. \$10
- B. \$20
- C. \$25
- D. There is not enough information to answer the question

2. Which of the following statements regarding preferences and indifference curves is true?

- A. When choosing between two consumption bundles, a consumer will always prefer the consumption bundle on the lower indifference curve
- B. A consumer is indifferent between two consumption bundles that are on the same indifference curve
- C. When choosing between two consumption bundles, a consumer will always prefer the consumption bundle that is farthest to the right on an indifference curve
- D. When choosing between two consumption bundles, a consumer will always prefer the consumption bundle that is farthest to the left on an indifference curve

Demand Change	Price Change	Cross-Price Elasticity
Coke	Pepsi	0.70
Hard Liquor	Beer	-0.11
Beef	Chicken	0.02
Cheese	Butter	-0.61

Table 2.2

3. Refer to Table 2.2, which presents hypothetical data on cross-price elasticity of demand estimates. Which goods are the *best* substitutes?

- A. Coke and Pepsi
- B. Hard Liquor and Beer
- C. Beef and Chicken
- D. Cheese and Butter

4. A consumer's budget constraint is determined by

- A. The consumer's income

- B. The consumer's income and preferences
  - C. The consumer's income and the prices of the goods they buy
  - D. The consumer's preferences and the prices of the goods they buy
5. Suppose a consumer purchases pizza and soft drinks. If pizza is measured on the vertical axis and soft drinks are measured on the horizontal axis, then the slope of the budget line is equal to
- A. The price of pizza divided by the price of soft drinks
  - B. The price of soft drinks divided by the price of pizza
  - C. The price of pizza divided by the price of soft drinks times negative one
  - D. The price of soft drinks divided by the price of pizza times negative one
6. Suppose a consumer buys pizza (P) and soft drinks (S). The price of pizza is \$10, the price of soft drinks is \$2 and the consumer's income is \$100. If pizza is measured on the vertical axis and soft drinks are measured on the horizontal axis, then the consumer's budget constraint is given by
- A.  $P = 10 - (1/5)S$
  - B.  $S = 10 - (1/5)P$
  - C.  $P = 100 - 5S$
  - D.  $P = 10 - 5S$
7. According to the No-Overlap Rule,
- A. The area above the indifference curve that runs through the consumer's best bundle does not overlap with the area below the budget line
  - B. The area above the indifference curve that runs through the consumer's best bundle does not overlap with the area above the budget line
  - C. The area above the indifference curve that runs through the consumer's best bundle should overlap with the area below the budget line
  - D. The area above the indifference curve that runs through any bundle other than the consumer's best bundle does not overlap with the area below the budget line

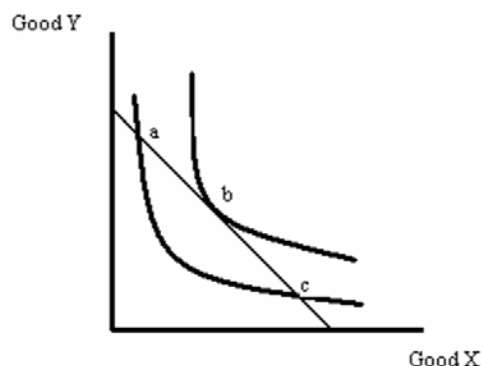


Figure 5.3

8. Refer to Figure 5.3. Which of the following statements is false?
- A. Points a, b and c all represent best choices for the consumer
  - B. Point a violates the No Overlap Rule
  - C. Point b satisfies the tangency requirement
  - D. Point a violates the No Overlap Rule
9. An affordable consumption bundle is an interior choice if
- A. It lies below the budget line
  - B. For each good, there are affordable bundles containing a little bit more of that good and a little bit less of it
  - C. For each good, there are no other affordable bundles containing a little bit more of that good and a little bit less of it
  - D. It exhausts the consumer's income
10. When the price of a good decreases,
- A. The good becomes less expensive relative to other goods and the consumer's purchasing power increases
  - B. The good becomes less expensive relative to other goods and the consumer's purchasing power decreases
  - C. The good becomes more expensive relative to other goods and the consumer's purchasing power increases
  - D. The good becomes more expensive relative to other goods and the consumer's purchasing power decreases
11. A demand curve that shows the relationship between the price of a good and the amount of the good consumed holding the consumer's income fixed and allowing their well-being to vary is called
- A. An uncompensated demand curve
  - B. A compensated demand curve
  - C. A Hicksian demand curve
  - D. A derived demand curve
12. For a normal good, the income and substitution effects work in the \_\_\_\_\_ direction. Therefore, a change in price produces a \_\_\_\_\_ change in uncompensated demand than in compensated demand.
- A. Opposite; smaller
  - B. Opposite; larger
  - C. Same; smaller
  - D. Same; larger

13. When income effects are small,
- There is no difference between the uncompensated demand curve and the uncompensated demand curve
  - The uncompensated demand curve will be relatively far from the compensated demand curve
  - The compensated demand curve will intersect the uncompensated demand curve
  - The uncompensated demand curve lies close to the compensated demand curve

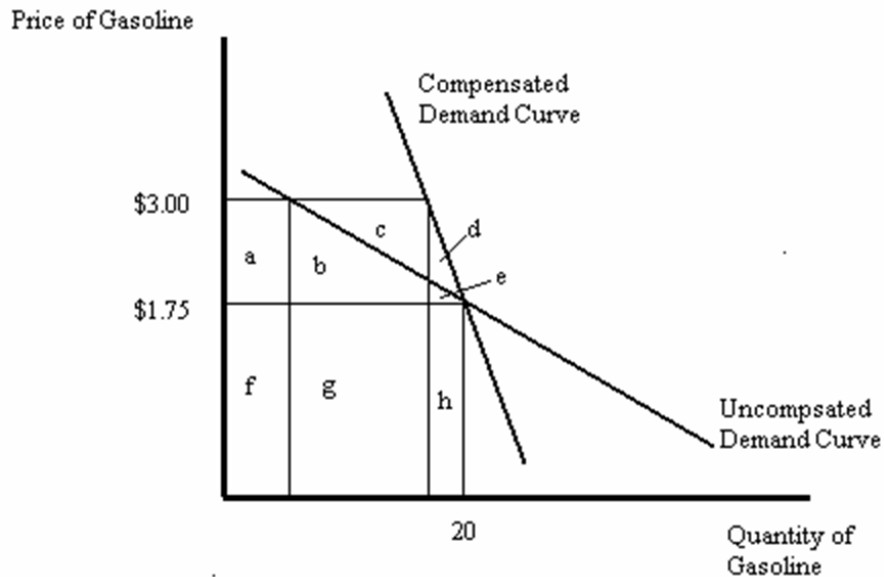


Figure 6.6

14. Refer to Figure 6.6. What area represents the compensation for reduced consumption that results from an increase in the price of gasoline from \$1.75 to \$3.00 per gallon?
- a + b
  - a + b + e
  - c + d + e
  - d + e
15. Refer to Figure 6.6. What area represents the compensation for an increase in the price of gasoline from \$1.75 to \$3.00 per gallon?
- a + b + c + d + e
  - f + g + h
  - a + b + c
  - d + e

16. A firm's \_\_\_\_\_ contains all combinations of inputs and outputs that the firm can achieve using efficient production methods.

- A. Production possibilities set
- B. Efficient production frontier
- C. Production function
- D. Production possibilities curve

17. The long run refers to a period of time over which

- A. The firm can change its level of output
- B. Only one input is fixed
- C. Production technology increases
- D. All inputs are variable

18. Suppose that a firm uses both labor (L) and capital (K) as inputs. The firm's long-run production function is  $Q = F(L, K) = 5\sqrt{L}\sqrt{K}$ . If the firm has 100 units of capital, what is its short-run production function?

- A.  $Q = F(K) = 50\sqrt{K}$
- B.  $Q = F(L) = 500\sqrt{L}$
- C.  $Q = F(L, K) = 50\sqrt{L}\sqrt{K}$
- D.  $Q = F(L) = 50\sqrt{L}$

19. Which of the following formulas measures the rate of substitution for labor with capital?

- A.  $-\Delta L/\Delta K$
- B.  $-\Delta K/\Delta L$
- C.  $\Delta K/\Delta L$
- D.  $\Delta L/\Delta K$

20. Consider the Cobb-Douglas production function  $F(L, K) = AL^\alpha K^\beta$ . Which of the following statements is true?

- A. Increases in  $\alpha$  increase labor's productivity and raise  $MRTS_{LK}$
- B. Decreases in  $\alpha$  increase labor's productivity and raise  $MRTS_{LK}$
- C. Increases in  $\alpha$  increase labor's productivity and lower  $MRTS_{LK}$
- D. Changes in  $\alpha$  will not affect  $MRTS_{LK}$

**B. Essay Questions**

1. Harriet enjoys watching both American Idol and Desperate Housewives on television. Her preferences correspond to the utility function  $U(A,D) = 2A + 4\sqrt{D}$ , where A stands for the number of hours she watches American Idol and D is the number of hours she watches Desperate Housewives.

a. How would Harriet rank the following alternatives: 4 hours of American Idol and 2 hours of Desperate Housewives, 2 hours of American Idol and 4 hours of Desperate Housewives and 3 hours of American Idol and 3 hours of Desperate Housewives?

b. Suppose that one week, Desperate Housewives is not shown, but there is a two-hour American Idol special (instead of the usual one-hour program). Is Harriet better off or worse off? Explain.

c. Would Harriet's preferences change if her utility function was expressed as  $U(A,D) = 2A + 4\sqrt{D}+6$ ? Why or why not?

2. Suppose that high-definition television sets (HDTVs) are normal goods. Would the compensated demand curve for HDTVs be flatter or steeper than the uncompensated demand curve? Explain your answer using a carefully-labeled graph.

3. Consider the Cobb-Douglas production function  $F(L,K) = AL^\alpha K^\beta$ . Suppose that  $\alpha = 2$ ,  $\beta = 3$ , the firm has 3 units of capital and the firm's general productivity level is 20.

a. What is the firm's long-run production function?

b. What is the firm's short-run production function?

c. If the firm employs 10 workers, what are the marginal products of labor and capital?

d. If the firm employs 10 workers, what is the marginal rate of technical substitution for labor with capital?