

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Economics 2150A-001  
Professor Peter Streufert  
Midterm 1

Directions

(1) Please write your name on this question sheet and hand it in with your scantron sheet. Please don't take this question sheet out of the examination room.

(2) The proctors are not allowed to answer any questions about the questions on this examination. This will make the examination as fair as possible. If you find a question hard to interpret, you may write me a note at the top of this question sheet (please don't write extra material on the scantron sheet).

Good luck!!

1. Suppose that a consumer has utility function  $U(x, y)$  with  $MU_x = 5y^2x$  and  $MU_y = 2x^2y$ .

What is the marginal rate of substitution?

- A)  $10y^3x^3$
- B)  $2x/5y$
- C)  $5y/2x$
- D)  $5y^2x^2$

2. Which of the following is False?

- A) Rightward shift in demand + unchanged supply curve = higher equilibrium price and larger equilibrium quantity
- B) Rightward shift in demand + rightward shift in supply curve = lower equilibrium price and smaller equilibrium quantity
- C) Leftward shift in supply + unchanged demand curve = higher equilibrium price and smaller equilibrium quantity
- D) Leftward shift in demand + unchanged supply curve = lower equilibrium price and smaller equilibrium quantity
- E) Rightward shift in supply + unchanged demand curve = lower equilibrium price and larger equilibrium quantity

3. Suppose the price of  $X$  is \$15 per unit, the price of  $Y$  is \$12 per unit, the consumer's income is \$100, and the consumer's level of satisfaction is measured by  $XY + Y$ . The consumer's constraint is
- $X + Y \leq 100$
  - $\max XY$
  - $15X + 12Y \leq 100$
  - $\max XY + Y$
4. Factors that could cause a supply curve to shift to the right include all of the following except
- a drop in the price of inputs to the supply process.
  - an increase in the number of firms in the industry.
  - an increase in demand for the product.
  - a technological innovation that makes it cheaper to produce the product.
5. The tangency condition for the optimal choice for a consumer is given by
- $MRS_{x,y} = P_y/P_x$
  - $MU_x/MU_y = 1$
  - $MRS_{x,y} = P_x/P_y$
  - $MU_x/MU_y = P_y/P_x$
6. Suppose the price of  $A$  is \$20 per unit, the price of  $B$  is \$10 per unit, and the consumer's income is \$1000 per month. Which of the following baskets is not on the consumer's budget line?
- $A = 40, B = 10$
  - $A = 5, B = 90$
  - $A = 2.5, B = 95$
  - $A = 30, B = 40$
7. Suppose the price of  $A$  is \$20, the price of  $B$  is \$10, and that the consumer is currently spending all available income. At the consumer's current consumption basket the marginal utility of  $A$  is 6 and the marginal utility of  $B$  is 4.
- The consumer is currently maximizing utility.
  - The consumer could increase utility by consuming more of good  $A$  and less of good  $B$ .
  - The consumer could increase utility by consuming more of good  $B$  and less of good  $A$ .
  - Nothing can be said about the consumer's utility because we do not know the consumer's income or utility function.

8. Consider the utility function  $U = 5x^2 + 3y$ . The indifference curves for this utility function
- A) will have a diminishing marginal rate of substitution of  $x$  for  $y$  as  $x$  increases.
  - B) will have a constant marginal rate of substitution of  $x$  for  $y$  as  $x$  increases.
  - C) will have an increasing marginal rate of substitution of  $x$  for  $y$  as  $x$  increases.
  - D) will be straight lines.
9. Which of the following utility functions is an example of preferences for perfect complements?
- A)  $U(x, y) = y\sqrt{x}$
  - B)  $U(x, y) = \min\{2x, y\}$
  - C)  $U(x, y) = 3x + 5y$
  - D)  $U(x, y) = 2x^2 + 4y$
10. If a consumer purchases two goods, food (measured along the  $x$  axis) and housing (measured along the  $y$  axis), then what happens to the slope of the consumer's budget constraint if the price of food rises?
- A) The new budget constraint shifts inward but is parallel to the original budget constraint.
  - B) The new budget constraint pivots inward (towards the origin) along the  $x$  axis. The new slope is steeper than the original slope.
  - C) The new budget constraint pivots inward (towards the origin) along the  $x$  axis. The new slope is flatter than the original slope.
  - D) The new budget constraint pivots outward (away from the origin) along the  $x$  axis. The new slope is flatter than the original slope.
11. If we were to build a model measuring the supply of corn, which of the following could be an example of an exogenous variable in the model?
- A) The price of corn.
  - B) The quantity supplied of corn.
  - C) The quantity of rain.
  - D) The demand for corn.

12. Suppose that  $MRS_{x,y} = 10$ .
- A) The consumer is willing to substitute 10 units of  $x$  for 1 unit of  $y$  to leave utility unchanged.
  - B) The consumer is willing to substitute 10 units of  $y$  for 1 unit of  $x$  to leave utility unchanged.
  - C) Regardless of prices, the consumer will consume only  $y$ .
  - D) Regardless of prices, the consumer will consume only  $x$ .
13. Comparative statics
- A) examines how exogenous variables change as endogenous factors change.
  - B) examines how endogenous variables change as exogenous factors change.
  - C) presents a comparison of two separate markets at a single point in time.
  - D) is often rendered useless because exogenous variables can never be expected to remain constant for long.
14. Of the following choices, which good should have the most inelastic price elasticity of demand?
- A) Gasoline to a car owner.
  - B) Cigarettes to a smoker.
  - C) Insulin to an insulin-dependent diabetic.
  - D) Apples to a vegetarian.
15. Suppose the marginal rate of substitution of  $x$  for  $y$  is constant for all levels of  $x$  and  $y$ . Goods  $x$  and  $y$  are
- A) perfect substitutes.
  - B) perfect complements.
  - C) normal goods.
  - D) inferior goods.
16. Suppose the marginal rate of substitution of  $x$  for  $y$  is given by
- $$MRS_{x,y} = 5y/7x$$
- A) The indifference curves will be bowed away from the origin.
  - B) The indifference curves will be bowed in towards the origin.
  - C) The indifference curves will be straight lines.
  - D) It is not possible to tell the shape of the indifference curves with only this information.

17. An income elasticity of demand for milk of 0.1 could mean that
- A) as income rises by 10 percent, quantity demanded rises by 1 percent.
  - B) as income rises by 100 percent, quantity demanded rises by 1 percent.
  - C) as income rises by 20 percent, quantity demanded rises by 10 percent.
  - D) as income rises by 50 percent, quantity demanded rises by 25 percent.
18. If a consumer purchases two goods, food (measured along the  $x$  axis) and housing (measured along the  $y$  axis), and if the price of food is \$3 per unit and the price of housing is \$600 per unit, then what is the slope of the consumer's budget constraint if the consumer has an income of \$400?
- A)  $-3/600$ .
  - B)  $-3/400$
  - C)  $-400/600$
  - D)  $-400/3$
19. Suppose that demand and supply in the market for brazil nuts is linear, with a historic market price of \$.50 per pound and 10 million pounds sold. In 2004, a news item raised health fears about the nuts. That year, the market price fell to \$.45 per pound and only 9 million pounds traded. An estimate for the equation of brazil nuts would be:
- A) This information only relates to demand, and so cannot be used to generate a supply equation.
  - B)  $Q^s = 30 + 40P$
  - C)  $Q^s = 20P$
  - D)  $Q^s = -10+40P$
20. Suppose that the market for computers is initially in equilibrium. Further suppose that there is an decrease in the price of computer software. Which of the following accurately describes the new equilibrium in the computer market?
- A) The equilibrium price will rise; the equilibrium quantity will fall.
  - B) The equilibrium price will rise; the equilibrium quantity will rise.
  - C) The equilibrium price will fall; the equilibrium quantity will fall.
  - D) The equilibrium price will fall; the equilibrium quantity will rise.
21. A good example of marginal reasoning would be
- A) the addition to total sales from spending an additional dollar on advertising.
  - B) the sales resulting from total spending on advertising.
  - C) the decision to shut down production.
  - D) the decision to maximize profits rather than sales.

22. The “equal bang for the buck” idea means that the consumer is equating
- A) the marginal utilities of all of the goods purchased.
  - B) the prices of all the goods purchased.
  - C) the marginal utilities of the last dollar spent on each good purchased.
  - D) the ratios of the last dollar spent on each good purchased.
23. Which of the following explanations supports the statement that long-run supply curves are likely to be more elastic than short-run supply curves?
- A) Firms are able to adjust fixed inputs in the long-run but not in the short-run.
  - B) Firms are able to adjust variable inputs in the short-run.
  - C) Firms prefer to hire workers rather than capital.
  - D) Firms have more flexibility in the short-run.
24. Identify the truthfulness of the following statements.
- I. Ordinal utility gives us information about which basket the consumer prefers and quantitative information about the intensity of the preference.
  - II. Cardinal utility gives us information about which basket the consumer prefers but not about the intensity of those preferences.
- A) Both I and II are true.
  - B) Both I and II are false.
  - C) I is true; II is false.
  - D) I is false; II is true.
25. If demand is inelastic, an increase in price
- A) will increase total revenue
  - B) will decrease total revenue
  - C) will have an indeterminate effect on total revenue
  - D) will decrease total profit
26. Suppose that Ralph's utility function is  $xy - \delta x$ . Ralph's marginal utility  $MU_x$  for good  $x$
- A) decreases as  $x$  increases.
  - B) is constant as  $x$  increases.
  - C) increases as  $x$  increases.
  - D) sometimes decreases and sometimes increases as  $x$  increases.

27. Suppose that we illustrate demand and supply with quantity on the horizontal axis and price on the vertical axis. Which of the following statements is *false*?
- A) The equilibrium remains unchanged unless an exogenous variable changes.
  - B) The equilibrium is represented as the intersection of supply and demand curves.
  - C) When a shift in demand or supply occurs, a comparative statics analysis compares the old and the new equilibrium points.
  - D) A change in price will cause a shift in the demand curve.
28. Which of the following represents an example of positive analysis?
- A) How will the equilibrium price of corn be affected by a government subsidy?
  - B) What is the best way to assist low-income families with affordable housing?
  - C) Would taxes on emissions be the best way to reduce pollution?
  - D) How can the government best design a tax cut?
29. Consider the demand curve  $Q^d = 500P^{-2}$ . If the price is 1, the elasticity of demand is
- A) -0.50
  - B) -2
  - C) 500
  - D) -500
30. Suppose that demand is linear,  $Q^d = 100 - 12P$ . At  $P = 5$  and  $Q = 40$ , price elasticity of demand is:
- A) -2/3
  - B) -2
  - C) -12
  - D) -3/2
31. Marginal utility is
- A) the slope of the total utility function.
  - B) the slope of a ray from the origin to the total utility function.
  - C) always less than average utility.
  - D) always greater than average utility.

32. Suppose that we illustrate demand and supply with quantity on the horizontal axis and price on the vertical axis. Let demand be a function of price and income,  $Q^d(P, I)$ . Which of the following statements is *true*?
- A) A change in income will cause a shift in the supply curve.
  - B) A change in income level is represented by a movement along the demand curve.
  - C) Income is not represented on one of the axes, and so is treated as an exogenous variable in the graphical analysis.
  - D) Price and income together must change in order to create a shift in the demand curve.
33. Indifference curves have a negative slope when
- A) the consumer likes good  $X$  but dislikes good  $Y$ .
  - B) the consumer likes good  $Y$  but dislikes good  $X$ .
  - C) the consumer likes both good  $X$  and good  $Y$ .
  - D) the consumer dislikes both goods.
34. To identify a demand curve we must observe
- A) many years of data
  - B) shifts in the demand curve
  - C) shifts in the supply curve
  - D) many different markets simultaneously
35. In general, economics is the study of
- A) the allocation of scarce wants to unlimited resources.
  - B) the allocation scarce resources to unlimited wants.
  - C) the allocation of resources between the government and the private sector.
  - D) the allocation of workers between firms.
36. Which of the following statements regarding exogenous and endogenous variables is correct?
- A) The set of exogenous variables in any economic model should take into account the rich detail of the world and so should be limitless.
  - B) Endogenous variables will always be determined within the model.
  - C) Exogenous variables change as a result of changes in endogenous variables.
  - D) The only variables that are relevant to the market equilibrium are the endogenous variables, as they are determined within the model.

37. The cross-price elasticity of the price of Ford Escorts on the demand for Nissan Sentras is 0.078. Meanwhile, the cross-price elasticity of the price of Ford Escorts on the demand for BMW 735i 's is 0.000. This means that
- A) Sentras and 735i's are complements.
  - B) Sentras and 735i's are substitutes.
  - C) Escorts and Sentras are complements but Escorts and 735i's are complements.
  - D) Escorts and Sentras are substitutes but Escorts and 735i's are not.
38. Suppose that the supply of apples can be represented by the following equation:  $Q^s = 2P + 500$ . Further suppose that the demand for apples can be represented by the following equation:  $Q^d = 900 - 3P$ . Which of the following is the equilibrium price in the market for apples?
- A) 10
  - B) 50
  - C) 80
  - D) 100
39. If a consumer is unable to compare two baskets, then this consumer's preferences violate which of the following key assumptions?
- A) Completeness.
  - B) Transitivity.
  - C) More is better.
  - D) Both completeness and transitivity.
40. Which of the following is *not* a factor held constant when deriving a supply curve for ski boots?
- A) The price of ski lift tickets.
  - B) The price of ski boots.
  - C) The wages of workers who make ski boots.
  - D) The price of skis.

**Answer Key - vere**

1. C
2. B
3. C
4. C
5. C
6. A
7. C
8. C
9. B
10. B
11. C
12. B
13. B
14. C
15. A
16. B
17. A
18. A
19. C
20. B
21. A
22. C
23. A
24. B
25. A
26. B
27. D
28. A
29. B
30. D
31. A
32. C
33. C
34. C
35. B
36. B
37. D
38. C
39. A
40. B

**#11. C or A**

**#33. C or D**