Economics 101
Spring 2008
Professor Wallace

Economics 101 Final Exam

May 12, 2008

Instructions

Do not open the exam until you are instructed to begin. You will need a #2 lead pencil. If you do not have one you will need to borrow one from Professor Wallace or one of the TAs. Before you may began the exam everyone must take the following steps.
(1) Use the #2 lead pencil to fill in your name on the answer sheet.
(2) Fill in your student number on the answer sheet.
(3) Fill in your TA Code in column A of the space allotted for "Special Codes" on the answer sheet.
    a. If your TA is Megan Ritz your TA Code is 1
    b. If your TA is Hugette Sun your TA Code is 2.
    c. If your TA is Hanquing Wang your TA Code is 3.
    d. If your TA is Rui Wang your TA code is 4.
(4) Fill in your Exam Code in column B of the space allotted for "Special Codes" on the answer sheet
    a. If your exam is green then your Exam Code is 1.
    b. If your exam is white then your Exam Code is 2.

The exam consists of 74 multiple-choice questions.[*] All questions are equally weighted and there is a single best answer for each question. The exam is scheduled to end at 12:05 pm. You are encouraged to hold onto the hard copy of your exam so that you can check your answers. An answer key for this exam will be made available sometime later this evening, but the tests will not be handed back until next week. In keeping with the previously stated policy, we will not accept early email request for exam scores.

---

[*] The exam will be graded and scored on the basis of 75 points.

1. Which of the following will have the effects of shifting a country's production possibility frontier towards the origin, other things being equal?
    a. The country experiences a mild recession
    b. The country's population starts decreasing
    c. The country has discovered new oilfields
    d. There is a breakthrough in computer technology

2. Along the production possibility frontier, trade-off exists because
    a. Buyers will want to buy less when price goes up, but producers will want to sell more
    b. At some levels, unemployment or inefficiency exists
    c. The economy has only a limited quantity of resources to allocate between competing uses
    d. Even on the frontier itself, not all production levels are efficient

3. Suppose the production possibility frontier is bowed-shaped, bread is on the x-axis, milk is on the y-axis. Then opportunity cost of producing one more unit of bread:
    a. Decreases as the amount of milk produced increases
    b. Increases as the amount of milk produced increases
    c. Remain constant along the curve
    d. Either of the above can happen

4. A newspaper story recently reported that the price of new cars has decreased, and the quantity of new cars sold has dropped. The price and quantity changes were probably caused by:
    a. a decrease in buyers' incomes.
    b. an increase in buyers' incomes.
    c. an increase in production costs.
    d. a decrease in production costs.
    e. none of the above

5. The price elasticity of demand measures
    a. how often the price of a good changes.
    b. the slope of a budget line.
    c. how sensitive the quantity demanded is to changes in demand.
    d. the responsiveness of the quantity demanded to changes in price.

6. A local sugar company tested the effect of a price reduction for sugar. It lowered prices from $2 to $1 per bag and found that its revenue was twice as much as before. This implies:
    a. the demand for sugar is inelastic in this price range.
    b. the demand curve sugar shifted to the right.
    c. the supply curve of sugar shifted to the left.
    d. the demand for sugar is elastic in this price range.
   e. the demand for sugar is exactly unit-elastic in this price range.

7. A fall in the price of sugar from $10.50 to $9.50 per pound increases the quantity demanded from 188 to 212 pounds. The price elasticity of demand (using arc elasticity) is
    a. 0.8
    b. 1.0
    c. 1.2
    d. 8.0
    e. 0.2

8. The cross-price elasticity of demand between good 1 and good 2 is -0.5. Goods 1 and 2 are most likely _____.
    a. Substitutes.
    b. Complements.
    c. Inferior goods.
    d. Normal goods.

9. A 10 percent increase in the price of gasoline decreases the demand for cars by 30 percent. Thus the cross-price elasticity of demand between cars and gasoline is
    a. -1/3
    b. 1/3
    c. -3
    d. 3

10. If the price elasticity of demand for BMWs is 10, and their price changes by 10%, what do you expect will happen to demand?
    a. The quantity demanded will change by 100%.
    b. The quantity demanded will change by 10%.
    c. The quantity demanded will not change.
    d. The quantity demanded will change by 1%.

11. For which of the following pairs of goods is the cross-price elasticity of demand positive?
    a. Tennis balls and tennis rackets
    b. Videotapes and laundry detergent
    c. Airline trips and textbooks
    d. Beef and chicken

12. A tax is levied on bacon producers. Neither supply nor demand is perfectly elastic or inelastic. Which of the following statements is FALSE?
    a. The price received by producers is lower than before.
    b. The price paid by consumers remains the same.
    c. The price received by producers remains the same if the demand for bacon is perfectly inelastic.
    d. The price that bacon producers receive remains the same if the supply of bacon is perfectly elastic.
    e. The equilibrium quantity of bacon bought is not increased.

13. A consumer purchases only two goods, X and Y. To draw his budget constraint, we need to know:
    a.   the price of good X.
    b.   the price of good Y.
    c.   his income.
    d.   all of the above.

14. Jeff consumes only goods X and Y. Jeff's income is $200 a month, the price of X is $6, and the price of Y is $4. The equation of Jeff's budget constraint is:
    a. $6Y + 4X = 200$
    b. $Y = 2/3\ X + 50$
    c. $Y = -2/3\ X + 50$
    d. $6X + 4Y = 200$
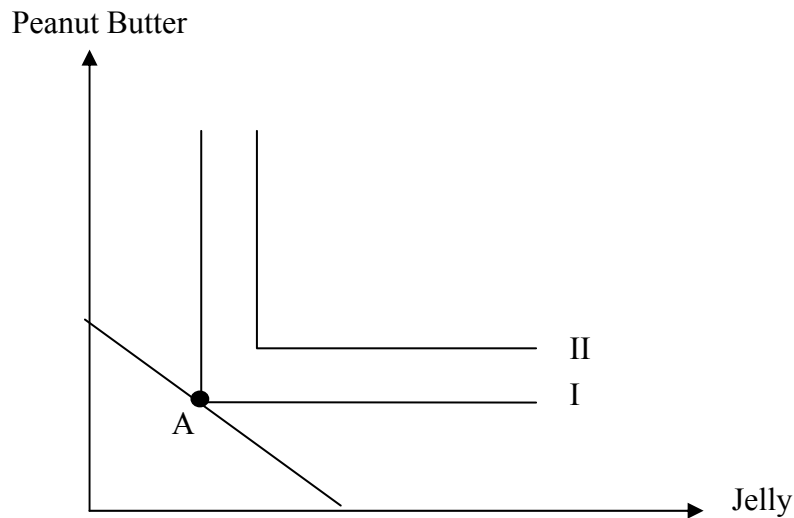
Peanut Butter

15. The above graph shows Melissa's indifference curves over peanut butter and jelly. Given her income and the initial prices, she optimally chooses to consume at point A. If the price of jelly increases, it follows that the new optimal consumption of peanut butter must
    a.   increase.
    b.   decrease.
    c.   stay the same.
    d.   Anything may happen.
    e.   Consumption will go to zero

16. The marginal rate of substitution is always equal to the slope of the
   a. demand curve.
   b. budget constraint.
   c. supply curve.
   d. indifference curve.

17. Peter spends all of his income on goods X and Y and is purchasing the optimal consumption bundle. If the $MU_X/MU_Y = 3$ and the price of X is equal to $12, then the price of Y is equal to:
   a. $4
   b. $6
   c. $12
   d. $3
   e. $36
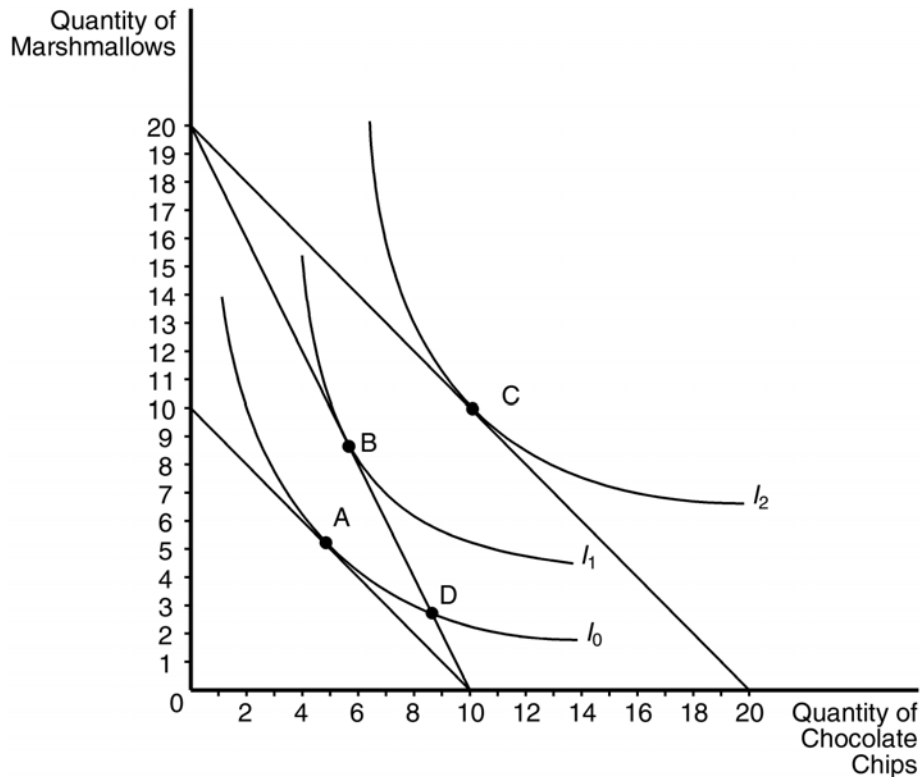
18. Assume that the consumer depicted in the figure above has an income of $100 and currently optimizes at point A. When the price of marshmallows decreases to $5, the optimizing consumer will choose to purchase how many units of marshmallows?
   a. 3
   b. 10
   c. 9
   d. 4
   e. 6

19. Jonathan spends all of his income on two goods: potatoes and carrots. His income is $100, the price of potatoes is $5 and the price of carrots is $2. If the price of each good doubles and Jonathan's income doubles, which of the following statements is correct?
   a. Jonathan's budget line will be unaffected.
   b. Jonathan's budget line will shift out.
   c. Jonathan's budget line will shift in.
   d. Jonathan's budget line will be flatter.
   e. Jonathan's budget line will be steeper.

The table shows the maximum amounts of coffee and salmon that Brazil and Alaska can produce if they just produce one good and nothing of the other.

	Coffee	Salmon
Brazil	50	20
Alaska	10	10

20. Suppose that two units of coffee trade for 1 units of salmon in the world market. After specialization and trade, Brazil consumes 8 units of salmon. This means that Alaska consumes
   a. 8 units of salmon and 4 units of coffee.
   b. 2 units of salmon and 16 units of coffee.
   c. 10 units of salmon and 0 units of coffee.
   d. 0 units of salmon and 10 units of coffee.
   e. None of the above.

21. In the long run, all factors of production are
   a. variable.
   b. fixed.
   c. materials.
   d. rented.

22. Total Physical Product is
   a. the change in total product resulting from an extra unit of labor, holding other factors constant.
   b. the ratio of output to the number of workers used to produce that output.
   c. the amount of output that can be produced by a given amount of labor.
   d. equal to the marginal product of labor when the average product is increasing.

23. The Marginal Physical Product of Labor is
   a. the change in total product resulting from an extra unit of labor, holding other factors constant.
   b. the ratio of output to the number of workers used to produce that output.
   c. the amount of output that can be produced by a given amount of labor.
   d. equal to the marginal product of labor when the average product is increasing.

24. Which of the following statements best summarizes the law of diminishing marginal returns?
    a. In the short run, as more labor is hired, output diminishes.
    b. In the short run, as more labor is hired, output increases at a diminishing rate.
    c. In the short run, the amount of labor a firm will hire diminishes as output increases.
    d. As more labor is hired, the length of time that defines the short run diminishes.

25. An isoquant represents levels of capital and labor that
    a. have constant marginal productivity.
    b. yield the same level of output.
    c. incur the same total cost.
    d. All of the above.

26. Say that when a firm doubles all of its inputs, it triples the amount of output it produces. Then this firm
    a. is experiencing increasing returns to scale.
    b. is experiencing diminishing returns to scale.
    c. is experiencing constant returns to scale.
    d. is experiencing diseconomies of scale.

27. A firm's marginal cost can always be thought of as the change in total cost if
    a. the firm produces one more unit of output.
    b. the firm buys one more unit of capital.
    c. the firm's average cost increases by $1.
    d. the firm moves to the next highest isoquant.

28. Which of the following statements best explains why long-run average cost is never greater than short-run average cost?
    a. In the long run, tangency of the isocost and isoquant is attainable. This is not necessarily true in the short run.
    b. In the long run, diseconomies of scale might not occur, but in the short run diminishing marginal returns do.
    c. In the long run, the cost of capital declines because the firm is able to pay down some of its debts.
    d. In the long run, the average cost curve need not be U-shaped, but in the short run it is.

29. A special license is required to operate a taxi in many cities. The number of licenses is restricted. More drivers want licenses than are issued. This describes a non-perfectly competitive market because
   a. taxi services are very different.
   b. firms cannot freely enter and exit the market.
   c. transaction costs are high.
   d. the government generates revenue from the licenses.

30. If a firm makes zero economic profit, then the firm
   a. has total revenues greater than its economic costs.
   b. must shut down.
   c. can be earning positive accounting profits.
   d. must have no fixed costs.

31. If a competitive firm maximizes short-run profits by producing some positive quantity of output, which of the following must be true at that level of output?
   a. $p = MC$.
   b. $MR = MC$.
   c. $p \geq AVC$.
   d. All of the above.

32. A firm will shut down in the short run if
   a. total fixed costs are too high.
   b. total revenue from operating would not cover all costs.
   c. total revenue from operating would not cover variable costs.
   d. total revenue from operating would not cover fixed costs.

33. The perfectly competitive firm's supply curve is equal to
   a. its marginal cost curve.
   b. the portion of its marginal cost curve that lies above AC.
   c. the portion of its marginal cost curve that lies above AVC.
   d. the portion of its marginal cost curve that lies above AFC.

34. If a competitive firm is in short-run equilibrium, then
   a. profits equal zero.
   b. economic profits will be positive.
   c. economic profits will be negative.
   d. All of the above are possible in the short-run.

35. In the long run, profits will equal zero in a competitive market because of
   a. constant returns to scale.
   b. identical products being produced by all firms.
   c. the availability of information.
   d. free entry and exit.

36. For a monopoly, marginal revenue is less than price because
    a. the firm is a price taker.
    b. the firm must lower price if it wishes to sell more output.
    c. the firm can sell all of its output at any price.
    d. the demand for the firm's output is perfectly elastic.

Use the following information to answer the next 3 questions. Assume Wallace's Widgets has a monopoly in the widget market in Madison. The market demand curve is $Q_d = 120 - P$. Wallace's Widgets faces Total and Marginal Costs given by:
$$TC = 25 + 60Q + Q^2$$
$$MC = 60 + 2Q$$

37. If Wallace's Widgets is a single price monopolist (meaning he can not price discriminate), what will profits be?
    a. 1575
    b. 1150
    c. 725
    d. 425
    e. None of the above.

38. What is the deadweight loss associated with this monopoly outcome?
    a. 75/2
    b. 50/2
    c. 25/2
    d. 0
    e. None of the above

39. If Wallace's Widgets can perfectly price discriminate, how much will be produced?
    a. 0
    b. 15
    c. 20
    d. 25
    e. None of the above

40. Perfect competition and monopolistic competition are similar in that both market structures include
    a. price-taking behavior by firms.
    b. a homogeneous product.
    c. no barriers to entry.
    d. very few firms.

41. Perfect competition and monopolistic competition are similar in that firms in both types of market structure will
    a. act as price takers.
    b. produce a level of output where price equals marginal cost.
    c. earn zero profit in the long run.
    d. act as price setters.

42. Oligopoly differs from monopolistic competition in that an oligopoly includes
    a. product differentiation.
    b. barriers to entry.
    c. no barriers to entry.
    d. downward-sloping demand curves facing the firm.

43. Monopolistic competition and monopoly have all of the following in common EXCEPT
    a. $P > MC$.
    b. Firms are price setters.
    c. Barriers to entry.
    d. $MR = MC$.

44. Regardless of market structure, all firms
    a. consider the actions of rivals.
    b. maximize profit by setting marginal revenue equal to marginal cost.
    c. produce a differentiated product.
    d. have the ability to set price.

45. Collusion is more likely to occur when
    a. there is fear of punishment for not colluding.
    b. there is a known finite time horizon.
    c. there are large gains to be made by cheating on an agreement.
    d. the game lasts only one period.

46. If a cartel is unable to monitor its members and punish those firms that violate the agreement, then
    a. the member firms will each act as price setters.
    b. the cartel will prosper in the long run.
    c. the market will become a monopoly.
    d. the cartel will fail.

47. In class we discussed a model of going to college as a signaling mechanism. Which of the following best describes that model?
    a. College makes people more productive so they will make higher wages
    b. College costs money so people with college degrees deserve to make more
    c. College doesn't increase productivity but people go in order to prove that they are high ability
    d. College is a mechanism for helping low ability workers become high ability workers.

48. Jenny likes to skydive. She knows it's risky, so she buys extra health insurance. The insurance company doesn't know that she skydives. This is an example of
    a. Moral Hazard
    b. Adverse Selection
    c. Asymmetric Information
    d. b and c

49. Moral hazard is best defined as:
    a. You are more likely to behave immorally if you aren't likely to get caught.
    b. You are more likely to buy insurance if you know you are likely to need it
    c. If you know you are insured, you're more likely to take risks
    d. If you engage in risky behavior you'll have to pay higher prices for insurance.

50. Suppose Jim is risk neutral. If he is offered a choice between a lottery ticket that has a 50% chance of winning $100 (and a 50% chance of winning nothing) or $50 for sure, which one will Jim choose?
    a. The lottery ticket
    b. The $50 for sure
    c. He's indifferent between the two
    d. It depends on his preferences and income

51. A progressive tax is best defined as a tax where:
    a. High-income people pay more money in taxes than low-income people
    b. High income people pay a higher average tax rate than low-income people
    c. High income people pay a lower average tax rate than low-income people
    d. High income people pay less money in taxes than low income people

52. Frank's hot dog factory makes hot dogs and sells them at $2 apiece. Frank currently has 2 workers and produces 200 hot dogs a day. If Frank hired one more worker, he could make 240 hot dogs a day. Frank should hire one more worker if the wage is :
    a. $160 a day or less
    b. not more than $40 a day
    c. $80 a day or less
    d. He should hire the worker at any wage.

53. When marginal social cost of a good exceeds its marginal private costs
    a. Too many units will be produced by the market
    b. The market price will be too high
    c. Too few resources will be allocated to its production
    d. Government should subsidize the production of the good

Use the following information to answer the next 3 questions:
- Firm A puts out 200 units of pollution, and its marginal cost of reducing pollution is 0.5.
- Firm B puts out 400 units of pollution, and its marginal cost of reducing pollution is 1.
- Firm C puts out 200 units of pollution, and its marginal cost of reducing pollution is 0.75. The government determines that in order to reach the social optimum, we need to reduce pollution by 50%.

54. Suppose the government decides to use emissions standards (with all firms reducing effluent levels by 50%) to reduce pollution. What will be the cost to firms of cleaning up?
    a. 325
    b. 125
    c. 200
    d. Not enough information

55. If the government wants to set a per-unit fee for pollution instead, what level should the fee be?
    a. 1 or more
    b. more than 0.5 and less than 0.75
    c. less than 0.5
    d. more than 0.75 and less than 1
    e. Not enough information

56. Suppose the government is going to auction off 400 permits, each permit allowing a firm to pollute 1 unit. What price would you expect to see, and which firm would buy permits?
    a. Slightly more than .5, Firm B & C will buy permits
    b. Slightly more than .75, Firm B will buy permits
    c. 1, Firm B will buy permits
    d. Slightly more than .75, Firms A & C will buy permit

57. A public good is one that is
    a. rival and excludable
    b. nonrival and excludable
    c. rival and nonexcludable
    d. nonrival and nonexcludable

58. Which of the following goods is NOT an example of a nonrival good?
   a. Television shows
   b. Fireworks
   c. An interstate with lots of traffic
   d. National defense

Suppose that Sue and Joe are only the residents of the city of Madison. They need to determine the number of firefighters Madison should have. Fire workers satisfy the characteristics of a pure public good. The marginal benefit that each person receives (in dollar terms) is given by the following table.

# of Firefighters	Marginal benefit for Sue	Marginal benefit for Joe
1	11	6
2	10	5
3	9	4
4	8	3

59. What is the marginal benefit of the second firefighter to Sue and Joe taken as a whole?
   a. 10
   b. 5
   c. 7.5
   d. 15

60. Suppose that the wage of a firefighter is $12. What is the socially optimal number of firefighters?
   a. 1
   b. 2
   c. 3
   d. 4

Use the following information to answer the next 3 questions. Jessica's utility function under certainty takes the form: $u = 3\sqrt{x}$, where x is her wealth level. Suppose Jessica is faced with the following gamble: with probability 0.2, x=0, with probability 0.8, x=100.

61. What is the certainty equivalence of this gamble for Jessica?
   a. 36
   b. 49
   c. 64
   d. 81

62. How much will Jessica's utility increase with a fair insurance policy?
    a. $3\sqrt{80} - 24$
    b. $3\sqrt{90} - 27$
    c. $30 - 3\sqrt{72}$
    d. $25 - \sqrt{60}$

63. Suppose firm A is a monopoly in insurance industry, and can perfectly price discriminate between consumers. What is the maximal profit it can extract from Jessica?
    a. 11
    b. 16
    c. 19
    d. 25

# of Machines	# of Cookies
1	10
2	18
3	23
4	25

64. The table above shows the production for Cara's Cookie Co., depending on the number of machines in the factory. Cara has one machine right now. If cookies sell for $4 apiece and machines cost $15, what's the profit-maximizing number of machines?]
    a. 1
    b. 2
    c. 3
    d. 4

65. A good with a negative externality will be — by an unregulated market. Public goods are typically — due to there being a —.
    a. undersupplied; oversupplied; negative externality
    b. oversupplied; oversupplied; free rider problem
    c. oversupplied; undersupplied; negative externality
    d. oversupplied; undersupplied; free rider problem

66. Which of the following is a regressive tax?
    a. Sales tax
    b. Income tax
    c. Payroll tax
    d. (a) and (c)

67. Cable television is a good that is best described as :
    a. rival and excludable
    b. rival and nonexcludable
    c. nonrival and excludable
    d. nonrival and nonexcludable

68. The excess burden of a tax is:
    a. the deadweight loss
    b. the amount that consumers' prices go up due to the tax
    c. the burden of a tax above and beyond what it was before
    d. the burden of a tax minus the revenue the tax generates

69. Rashim would like to sell his existing computer to upgrade to a more powerful one by advertising on the bulletin board in the student center. He decides against it because the used computers listed on the board are underpriced. This is a situation involving
    a. Adverse selection
    b. Moral hazard
    c. Screening
    d. Signaling

70. Insurance companies use people's gender, age, past accident history etc. to determine car insurance premium. In economics, this is called
    a. Adverse selection
    b. Moral Hazard
    c. Screening
    d. Signaling

71. Consider a used car market. The buyers value a high quality car at $5000 and a low quality car $2000. The seller of a high quality car values it at $4000. The seller of a low quality car values it at $1000. Suppose the share of low quality cars that might potentially be sold is 0.5. Everyone is risk neutral. Which of the following statement is true:
    a. All cars will be sold
    b. Only high quality cars will be sold
    c. Only low quality cars will be sold
    d. No car will be sold

72. Which of the following is not an example of public good?
    a. Street light
    b. A public tennis court
    c. Basic science research
    d. Control of an infectious disease

73. Assume George is risk-neutral, he faces two gambles:
    - A With probability 0.3 he gets $100, with probability 0.7, he gets $200
    - With probability 0.4 he gets $50, with probability 0.6, he gets $300
      a. A
      b. B
      c. He is indifferent between these two gambles
      d. It cannot be determined

74. Michelle plans to buy a car. She has 2 options for payment. She can choose to pay $20000 now or she can choose to pay $10000 now and $11500 after 2 years. Suppose interest rate is constant and equals 10%. Which of these two is the better option?
      a. Pay $20000 now
      b. Pay $10000 now and $11500 two years later
      c. Michelle should be indifferent between these 2 options
      d. It cannot be determined from available information