Northwestern Economics Tournament

Individual Exam

April 7, 2018

NAME: ________________________________

SCHOOL: ______________________________

TEAM NAME: ___________________________

There are 60 questions in this packet and 1 challenge question that is optional. You have 1 hour to complete the exam. When the moderator calls time, please put your pen down and pass the answer sheet and this packet to the aisles for collection.

No calculators, notes, or any other helping tools may be used during the exam.

Use available space in the packet for scratch work. Should you need more scratch paper, we'll be happy to provide with you more.

Place all answers on the answer sheet. Capital letters only.

Good luck!

1. Which of the following people is academically considered unemployed?
    a. Peter, who has not been able to find work for 4 years and has given up
    b. William, who is a freelancer
    c. Jackie, who has quit her job recently and is currently looking for a new one
    d. Tyler, who is a full-time undergraduate student

2. The point at which the marginal cost (MC) curve intersects the average variable cost (AVC) curve is:
    a. The minimum of AVC
    b. The maximum of AVC
    c. The minimum of MC
    d. The maximum of MC

3. A perfectly competitive firm's average variable cost (AVC) is $5, average fixed cost (AFC) is $1, and total variable cost (TVC) is $20,000. What is this firm's total cost (TC)?
    a. $120,000
    b. $100,000
    c. $25,000
    d. $24,000

4. Which of these is considered a liability on a bank's balance sheet?
    a. Required reserves
    b. Reserve ratio
    c. Loans
    d. Deposits

5. Which of these people suffer the most from a rise in price level?
    a. Property owners
    b. Lenders of adjustable rate mortgage loans
    c. People with fixed money incomes
    d. Debtors with fixed interest rate

6. In 2004, the U.S. had a trade deficit of $603 billion; therefore:
    a. Net exports were positive
    b. Americans consumed more than they produced
    c. $603 billion worth of capital flowed out of America
    d. The government had to make payments to foreign countries of $603 billion

7. Consider a perfectly competitive market with $Q_d = 200 - 5P$ and $Q_s = 5P$. What is consumer surplus in this market?
   a. 2,000
   b. 1,000
   c. 750
   d. 500

8. After Tony made a huge mistake on his math midterm, he decided to shop for yogurt to relieve his stress. Upon discovering that there are now a ton of brands and flavors of yogurt, Tony ran out of the store screaming, "I can't decide!" Tony's behavior violates which axiom of utility preferences?
   a. Completeness
   b. Transitivity
   c. Non-satiation
   d. Does not violate any axiom

9. In the short run, how would an expansionary monetary policy most likely affect the price level and real gross domestic product (GDP)?

	Price Level	Real GDP
a.	Increase	Increase
b.	No change	No change
c.	Decrease	Increase
d.	Increase	Decrease

10. What is the purpose of the FDIC?
    a. To print U.S. currency
    b. To provide deposit insurance to depositors in U.S. banks
    c. To transfer funds to firms that declare bankruptcy
    d. To manage the issuance of government bonds

11. Writing questions for NET can be challenging. According to the concept of diminishing marginal returns, each additional question that I write will:
    a. Require more time than the previous questions
    b. Require less time than the previous questions
    c. Require the same time as the previous questions
    d. None of the above

12. How are public goods defined?
    a. Non-rival but excludable
    b. Non-rival and non-excludable
    c. Rival but non-excludable
    d. Rival and excludable

13. Banks create money when they:
    a. Collect interest on loans
    b. Buy government securities
    c. Loan excess reserves to the public
    d. Foreclose mortgaged property

14. Who introduced the concept of Permanent Income Hypothesis?
    a. Adam Smith
    b. Janet Yellen
    c. Hyman Minsky
    d. Milton Friedman

15. Which of the following terms is used to describe a cost that has been incurred that cannot be changed by present or future decisions?
    a. Differential cost
    b. Opportunity cost
    c. Marginal cost
    d. Sunk cost

16. Which of the following statements is true regarding accounting profit and economic profit?
    a. Economic profit consists of revenue minus implicit and explicit costs
    b. Accounting profit consists of revenue minus implicit and explicit costs
    c. Economic profit consists of revenue minus implicit costs only
    d. Accounting profit consists of revenue minus implicit costs only

17. A decrease in which of the following would cause the aggregate demand curve to shift to the right?
    a. Consumer optimism
    b. Net exports
    c. Income taxes
    d. Charity

18. William has two exams in the morning and only three hours of study time left. He estimates the following schedule showing the extra points he will earn on each exam depending on how he allocates his time.

Additional Hours Spent	1	2	3
American History	10	7	4
Physics	7	5	3

If his goal is to maximize the total points he earns on the two exams, how should he allocate his remaining time?
   a. Only study American History
   b. Only study Physics
   c. Two hours on American History, one hour on Physics
   d. Two hours on Physics, one hour on American History

19. Jean-Baptiste Say, the 18th century French classical liberal economist, is known for "Say's Law of Markets", which claims that:
   a. Free trade leads to economic prosperity
   b. Production is the source of demand
   c. Capital accumulation leads to an increase in interest rates
   d. Technological advances are essential to industrialization

20. Which of the following actions would contribute to the U.S. GDP?
   a. Dave sells his car to the used car salesman
   b. Sal works in Canada and is paid the equivalent of 50,000 USD
   c. Nancy sells computers that were stored in her store's inventory
   d. Sam purchases a book from Barnes & Noble

21. Which of the following statements is **false** about perfectly competitive markets in the long run equilibrium?
   a. If P > AC, the number of firms will increase (i.e. entry)
   b. If P < AC, the number of firms will decrease (i.e. exit)
   c. Firms make normal profits (i.e. zero economic profits)
   d. All of the above statements are true.

22. Normal goods have:
    a. Elastic demand curves
    b. Elastic supply curves
    c. Positive income elasticities
    d. Negative income elasticities

23. Which of the following is *most* likely to increase the equilibrium price of a commodity?
    a. A decrease in the price of a close substitute
    b. An increase in the supply of the commodity
    c. A decrease in income if the good is normal
    d. A decrease in the price of a complementary good

24. If the exchange rate between the U.S. dollar and Japanese yen changed from 100 yen per dollar to 50 yen per dollar and domestic prices in both countries stayed the same, the U.S. dollar would:
    a. Depreciate, making US imports from Japan more expensive
    b. Depreciate, making US imports from Japan cheaper
    c. Appreciate, making US imports from Japan more expensive
    d. Appreciate, making US imports from Japan cheaper

25. Which of these people have never been a Federal Reserve chairman?
    a. Alan Greenspan
    b. Janet Yellen
    c. Paul Volcker
    d. Milton Friedman

26. Which of the following is not part of the U.S. money supply?
    a. Checkable accounts
    b. Demand deposits
    c. Coins
    d. Credit Cards

27. In order to remedy a positive externality, policy makers should:
    a. Tax it
    b. Subsidize it
    c. Do nothing as it is good to have positive externalities
    d. None of the above

28. If decision makers underestimate inflation, the real wage will:
    a. Rise, reducing unemployment
    b. Fall, reducing unemployment
    c. Rise, increasing unemployment
    d. Fall, increasing unemployment

29. If a society is at a point inside its production possibilities frontier, what is it experiencing?
    a. Efficiency
    b. Output maximization
    c. Inefficiency
    d. Equity

30. If the federal government reduces its budget deficit when the economy is close to full employment, which of the following will most likely occur?
    a. Interest rates will decrease
    b. Tax revenues will increase
    c. The value of the dollar will increase
    d. Unemployment will decrease

31. If inflation is 5% and nominal GDP grew by 4% then real GDP grew by:
    a. 4%
    b. -4%
    c. 1%
    d. -1%

32. The Fisher Equation explains the relation between which two metrics?
    a. Aggregate demand and unemployment rate
    b. Government revenue and tax rates
    c. Real interest rate and inflation rate
    d. Public health index and aggregate supply

33. The *Wealth of Nations* by Adam Smith states that productive capacity rests mostly on which factors?
    a. Automation and centralization
    b. Free markets and subsidies
    c. Division of labor and capital accumulation
    d. Education and free trade

34. If the consumer believes that there are few substitutes of one good, then:
    a. The supply would be price elastic
    b. The demand would be price inelastic
    c. The demand would be price elastic
    d. The supply would be price inelastic

35. Consider two goods where the cross-price elasticity of demand is negative; then, the two goods are necessarily:
    a. Inferior
    b. Substitutes
    c. Complements
    d. Normal

36. Suppose required reserve ratio is 20 percent. If the Federal Reserve buys $300 billion worth of government securities from the public, what is the maximum increase in money supply?
    a. $1500 billion
    b. $1600 billion
    c. $1700 billion
    d. $1800 billion

37. Which of the following is most likely to cause an increase in the long run aggregate supply curve?
    a. Increase in government spending
    b. Increase in taxes
    c. Increase in aggregate demand
    d. Increase in literacy levels

38. The demand for MacBooks is given by Q=A-BP. The absolute value of the price elasticity of demand for MacBooks is:
    a. B
    b. 1/B
    c. B(A-BP)/P
    d. BP/(A-BP)

39. If there are implicit costs of production, then:
    a. Accounting profit will be greater than economic profit
    b. Economic profit and accounting profit will be equal
    c. Economic profit will be greater than accounting profit
    d. Accounting profit will always be zero

40. Over the long run, the rate at which real wages grow is approximate equal to the rate of:
    a. Growth of labor productivity
    b. Unemployment
    c. Inflation
    d. Consumer price index

41. If the nominal interest rate is 15% and the expected inflation rate is 5%, what is the real interest rate?
    a. 20%
    b. 10%
    c. 3%
    d. 5%

42. The marginal rate of substitution (MRS) is the rate at which a consumer can give up some amount of one good in exchange for another good while maintaining the same level of utility. Mary's MRS of A and B is constant and equal to 4. The price of A is 3 and the price of B is 1. To maximize utility, she should buy:
    a. Only A
    b. Only B
    c. Some combination of the two
    d. None of the above

43. Which theory states that when there is a deflation of prices, employment will be increased?
    a. Fisher hypothesis
    b. Kalecki effect
    c. Rational expectation
    d. Pigou effect

44. Which of the following will cause the U.S. dollar to depreciate relative to the Euro?
    a. Decrease in the price level in the U.S.
    b. Increase in household income in Europe
    c. Increase in household income in the U.S.
    d. Increase in interest rates in the U.S.

45. When a firm doubles its inputs and finds that its output has more than doubled, this is known as:
    a. Economics of scale
    b. Constant returns to scale
    c. Diseconomies of scale

d. None of the above

46. What type of unemployment is also called Keynesian unemployment?
    a. Nominal unemployment
    b. Disguised unemployment
    c. Frictional unemployment
    d. Cyclical unemployment

47. If the consumer price index were 131 in 1999 and 125 in 1998, then what was the inflation during 1999?
    a. 6.2%
    b. 4.8%
    c. 5.4%
    d. 0.0%

48. Suppose that Anna's income elasticity of demand for yogurt is zero. Which of the following statements is true?
    a. An increase in her income will increase her consumption of yogurt
    b. No matter what her income is, she will always purchase the same quantity of yogurt over a given time period.
    c. No matter what the price of yogurt is, she will spend the same amount of money on it
    d. None of the above

49. In a closed economy with only lump sum taxation, if the marginal propensity to consume (MPC) is 0.6, a $40 billion increase in government spending could cause a maximum increase in the output of:
    a. $200 billion
    b. $40 billion
    c. $100 billion
    d. $60 billion

50. What is a veblen good?
    a. A good for which demand increases as the price increases
    b. A good that often gets sold as a bundle with other goods
    c. A good for which supply decreases as the price increases
    d. A good targeted at poorer households

51. The demand and supply of cigarettes is given by $Q_d = 20 - 2P$ and $Q_s = -10 + 3P$. An excise tax of $t = \$2$ is imposed on consumers. What is the difference in price in the market with the tax compared to the equilibrium price?
    a. \$0.20
    b. \$0.40
    c. \$0.60
    d. \$0.80

52. The theory of rational expectations:
    a. Assumes that consumers and businesses anticipate rising prices when the government pursues expansionary fiscal policy
    b. Implies that fiscal policy will be effective even during stagflation
    c. Supports the notion of a Phillips tradeoff
    d. Was developed by Keynes as a remedy for the Great Depression

53. The economist, Paul Krugman, won the Nobel Prize in Economic Sciences partly for his contributions to New Trade Theory. Which of the following statements does the New Trade Theory suggest?
    a. Network effects and economies of scale are critical factors in determining international trade patterns
    b. The time at which a firm enters a market has trivial effect on its production capabilities
    c. Monopolistic competition is an unrealistic type of imperfect competition and rarely observed in international markets
    d. The classical trade theory underestimates the significance of comparative advantage

54. All else equal, potential GDP will fall if:
    a. Unemployment rate increases
    b. More immigration is allowed
    c. Minimum wage is raised
    d. Retirement age is lowered

55. The marginal rate of technical substitution (MRTS) is the rate at which the quantity of capital can be reduced for every one-unit increase in the quantity of labor, holding the quantity of output constant. On one isoquant curve, how would the marginal rate of technical substitution change as the labor increases?
    a. Increase
    b. Decrease
    c. Constant

d. Uncertain

56. Which of the following monetary policies would lessen the effectiveness of expansionary fiscal policy?
    a. Decreasing value of the domestic currency
    b. Lowering the income tax rate
    c. Selling treasury securities to commercial banks
    d. Lowering the discount rate

57. Wakanda and Asgard can produce either cat suits or hammers. In Wakanda, the opportunity cost of 1 cat suit is 3 hammers. In Asgard, the opportunity cost of 1 cat suit is 8 hammers. Which of the following would **not** be acceptable terms of trade for Wakanda and Asgard?
    a. 1 cat suit in exchange for 5 hammers
    b. 1 cat suit in exchange for 4 hammers
    c. 1 cat suit in exchange for 1 hammer
    d. 1 cat suit in exchange for 3 hammers

58. Automatic stabilizers in the economy serve an important role in:
    a. Increasing the length of the business cycle
    b. Balancing the budget
    c. Lessening the impact of a recession
    d. Increasing budget surplus in a recession

59. Firms with the following market structures maximize profits by producing where marginal cost equals marginal revenue.

    I. Perfect competition
    II. Oligopoly
    III. Monopoly
    IV. Monopolistic Competition

    a. I and II only
    b. I and III only
    c. I, III, and IV only
    d. I, II, III, and IV

60. Which of the following is true for first-degree price discrimination?
    a. It does not reach the efficient quantity
    b. It does not generate any deadweight loss
    c. All surplus goes to consumer surplus
    d. It is easy for companies to carry out the first-degree price discrimination

Challenge Question (3 Bonus Points)

This question is completely optional and meant as a fun exercise on game theory and profit maximization. Please try it if you have some extra time left (and for a chance at some bonus points). Question courtesy of Professor Ogawa.

Andy and Bonnie are two sellers of Lemonade. Each first decides how many cups to make, then the price is determined by the demand: $P = 12 - \frac{Q_A+Q_B}{10}$. For example, if Andy makes $Q_A = 70$ and Bonnie makes $Q_B = 10$, then the price is $12 - \frac{70+10}{10} = \$4$ per cup. Also, Andy has no costs, thus profit is simply price times quantity. In the example, his profit is $70 \times (\$4 - 0) = \$280$. Bonnie, however, has a cost of $3.00 per cup, thus her profit is only $10 \times (\$4 - \$3) = \$10$.

(a) **(1 point)** If Bonnie decides to make 60 cups of lemonade, how many should Andy make in response? (This is Andy's profit-maximizing quantity).

(b) **(1 point)** If Andy decides to make Q_A cups of lemonade, how many should Bonnie make in response? Find Q_B as a function of Q_A (This is called Bonnie's "Best Response" function).

(c) **(1 point)** Is there any situation in which both Andy and Bonnie choose the profit-maximizing quantity, given the quantity chosen by the other person? In other words, is it possible for both of them to simultaneously best respond to each other? If so, find the quantities and the final price. (This is called the "Nash Equilibrium").

ANSWER DOCUMENT

NAME: ____________________________________

SCHOOL: __________________________________

TEAM NAME:_______________________________

1.	16.	31.	46.
2.	17.	32.	47.
3.	18.	33.	48.
4.	19.	34.	49.
5.	20.	35.	50.
6.	21.	36.	51.
7.	22.	37.	52.
8.	23.	38.	53.
9.	24.	39.	54.
10.	25.	40.	55.
11.	26.	41.	56.
12.	27.	42.	57.
13.	28.	43.	58.
14.	29.	44.	59.
15.	30.	45.	60.

Challenge Question (Optional): Write your solution to the challenge question below. BOX your answers.

(a)

(b)

(c)

NET 2018 Individual Exam Answer Key

1. C	16. A	31. D	46. D
2. A	17. C	32. C	47. B
3. D	18. C	33. C	48. B
4. D	19. B	34. B	49. C
5. C	20. D	35. C	50. A
6. B	21. D	36. A	51. B
7. B	22. C	37. D	52. A
8. A	23. D	38. D	53. A
9. A	24. A	39. A	54. D
10. B	25. D	40. A	55. B
11. A	26. D	41. B	56. C
12. B	27. B	42. B	57. C
13. C	28. B	43. D	58. C
14. D	29. C	44. C	59. C
15. D	30. A	45. A	60. B

Challenge Question Answers (no partial credit)

(a) $Q_A = 30$

(b) $Q_B = 45 - Q_A/2$

(c) $Q_A = 50,\ Q_B = 20,\ P = 5$