Economics 101 Name

Fall 2013 TA Name

November 26, 2013, 2:30pm – 3:45pm Discussion Section Number

Second Midterm Student ID Number

**Version 1**

**READ THESE INSTRUCTIONS CAREFULLY.**

**DO NOT BEGIN WORKING UNTIL THE PROCTOR TELLS YOU TO DO SO**

You have 75 minutes to complete this exam. The exam consists of 30 multiple choice questions worth 3.3 points each for a total of 99 points. You will receive one point if you accurately and completely provide your name, ID number, discussion section number, version number, and TA name on the scantron sheet AND this exam booklet. Thus, the total number of points on the exam is 100. Answer all questions on the scantron sheet with a #2 pencil. There are 16 printed pages in this exam, including this cover sheet and extra work sheets.

**WARNING: NO COMMUNICATION OR CALCULATING DEVICES, OR FORMULA SHEETS ARE ALLOWED. NO CONSULTATION AND CONVERSATION WITH OTHERS ARE ALLOWED WHILE YOU ARE TAKING EXAM OR IN THE EXAM ROOM. PLAGIARISM IS A SERIOUS ACADEMIC MISCONDUCT AND PUNISHABLE TO THE FULLEST EXTENT.**

**PICK ONLY ONE BEST ANSWER FOR EACH QUESTION.**

**How to fill in the scantron sheet and other information:**

1. Print your last name, first name, and middle initial in the spaces marked "Last Name," "First Name," and "MI." Fill in the corresponding bubbles below.
2. Print your student ID number in the space marked "Identification Number." Fill in the bubbles.
3. Write the number of the discussion section you have registered under "Special Codes" spaces ABC, and fill in the bubbles. You can find the discussion numbers below on this page.
4. Write the version number of your exam booklet under "Special Codes" space D, and fill in the bubble. The version number is on the top of this page.

* **If you believe there is an error on the exam or you do not understand something, make a note on your exam booklet and the issue will be addressed AFTER the examination is complete. No questions regarding the exam can be addressed while the exam is being administered.**
* **When you are finished, please get up quietly and bring your scantron sheet and this exam booklet to the place indicated by the proctors.**

**Discussion Sections (Sorted by Time):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sec. #** | **Time (FRIDAY)** | **Place** | **TA** |
| 330 | 8:50a – 9:40a | STERLING 1333 | Xun Gong (Grace) |
| 332 | 8:50a – 9:40a | STERLING 1327 | Kittichai Saelee (Golf) |
| 346 | 8:50a – 9:40a | INGRAHAM 120 | Zhihao Xu |
| 347 | 8:50a – 9:40a | INGRAHAM 224 | Adam Smith |
| 342 | 9:55a – 10:45a | VAN HISE 391 | Xun Gong (Grace) |
| 345 | 9:55a – 10:45a | VAN HISE 399 | Kittichai Saelee (Golf) |
| 336 | 11:00a – 11:50a | VAN HISE 574 | Zhihao Xu |
| 343 | 11:00a – 11:50a | VAN HISE 591 | Kittichai Saelee (Golf) |
| 338 | 12:05p – 12:55p | INGRAHAM 224 | Kittichai Saelee (Golf) |
| 339 | 12:05p – 12:55p | INGRAHAM 114 | Xun Gong (Grace) |
| 341 | 12:05p – 12:55p | STERLING 2329 | Adam Smith |
| 333 | 1:20p – 2:10p | WITTE HALL 138 | Xun Gong (Grace) |
| 334 | 1:20p – 2:10p | SELLERY HALL 49 (RESIDENTIAL) | Kanit Kuevibulvanich (Kenneth) |
| 335 | 1:20p – 2:10p | STERLING 2333 | Adam Smith |
| 337 | 2:25p – 3:15p | WITTE HALL 138 (RESIDENTIAL) | Kanit Kuevibulvanich (Kenneth) |
| 340 | 2:25p – 3:15p | CHADBOURNE 126 | Adam Smith |
| 331 | 3:30p – 4:20p | SOCIAL SCIENCE 6224 | Zhihao Xu |

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I, , agree to neither give nor receive any help on this exam from others. I understand that the use of a calculator or communication device on this exam is academic misconduct. I also understand that providing answers to questions on this exam to other students is academic misconduct as is taking or receiving answers to questions on this exam from other students. Thus, I will cover my answers and not expose my answers to other students. It is important to me to be a person of integrity and that means ALL ANSWERS on this exam are my answers. Any violation of these guidelines will result in a penalty of at least receiving a zero on this exam.

Signed

**MULTIPLE CHOICES QUESTIONS (30 QUESTIONS WORTH 3.3 POINTS EACH)**

**Use the following figure to answer the next question.**



1. From the above figure, when income increases as depicted by the change in budget lines from BL1 to BL2, the income elasticity of demand for good X is and income elasticity of demand for good Y is .
   1. zero; positive
   2. positive; zero
   3. positive; negative
   4. negative; positive

**Use the following information to answer the next THREE (3) questions.**

Gnarnia is a **small, open economy** that produces ice-cream cones. Let *P* and *Q* be the dollar price per unit and quantity of ice-cream cones, respectively. The domestic demand and domestic supply of ice-cream cones are given by the following equations

Domestic demand: *P* = 140 – *Q*

Domestic supply: *P* = *Q*

You are also told that the world price for ice-cream cones is $90.

1. Given the above information, what is the amount of ice-cream cones imported into or exported out of Gnarnia?
   1. 50 units of ice-cream cones are imported into Gnarnia.
   2. 40 units of ice-cream cones are imported into Gnarnia.
   3. 50 units of ice-cream cones are exported out of Gnarnia.
   4. 40 units of ice-cream cones are exported out of Gnarnia.
2. Suppose the government of Gnarnia would like to promote the export of ice-cream cones by providing a subsidy of $30 per unit of ice-cream cones exported. Given this information and holding everything else constant, which of the following statements is **true**? (Hint: The export subsidy raises the price domestic producers will get when they export the good into the world market.)
   1. With this subsidy 100 units of ice-cream cones will be exported. The government expenditure on this subsidy will be $3,000.
   2. With this subsidy 40 units of ice-cream cones will be exported. The government expenditure on this subsidy will be $1,200.
   3. With this subsidy 20 units of ice-cream cones will be imported. The government revenue from this subsidy program will be $600.
   4. The program will not be effective as there will be no exports of the good once the government implements this subsidy program. The government expenditure on this subsidy program will therefore equal to $0.
3. Return to the **initial** situation (before there was the subsidy program described in the last question). Suppose now that the new government of Gnarnia fears that her domestic population does not enjoy enough ice-cream cones. Thus, the government decides to ban exporting in this market. Given this information, which of the following statements is **true**?
   1. Once the government bans exports this means that there will be no exports and thus, there can be no deadweight loss due to the implementation of this new government policy.
   2. The initial situation did not result in any exports, so the banning of exports will not have any effect on this economy.
   3. The economy reverts to the domestic market equilibrium and this leads to a deadweight loss of $2500 as a result of the government banning exports of ice cream.
   4. The economy reverts to the domestic market equilibrium and this results in a deadweight loss of $400 as a result of the government banning exports of ice cream.
4. In each of the following statements assume that the laws of demand and supply hold. Which of the following statements are **true**?
   * 1. If the absolute value of the price elasticity of demand is 2, then an increase in the price of that good by 1% will result in an increase in the quantity demanded of that good by 2%.
     2. If the cross-price elasticity of demand between goods X and Y is 1.5, then goods X and Y are substitutes.
     3. If an increase in income of 1% results in an increase in the quantity demanded of the good by 2%, then the income elasticity of demand is 200.
     4. If the price elasticity of supply is 2, then an increase in the price of that good by 1% will result in an increase in the quantity supplied of that good by 2%.
5. Statements (I), (II), (III) and (IV) are true.
6. Statements (II) and (III) are true.
7. Statements (I) and (IV) are true.
8. Statements (II) and (IV) are true.
9. John Doe’s preferences reveal that good X and good Y are perfect substitutes. John also always maximizes his utility given his income. To him, 3 burritos (good X) are as good as 1 pizza (good Y). Suppose the prices of burritos and pizzas are initially equal to $1 per unit. Then the price of burritos decreases by half while the price of pizzas remains the same. Holding everything else constant, what is the cross-price elasticity of demand given these two price scenarios? (Hint: you might find it helpful to assume some initial level of income that stays fixed throughout your analysis of this problem.)
   1. The cross-price elasticity of demand is 0.
   2. The cross-price elasticity of demand is 1.
   3. It is impossible to determine the cross-price elasticity of demand from the above information as the optimal consumption bundle after the price change could be any amount of pizza and burritos that satisfies the budget constraint.
   4. The cross-price elasticity of demand is infinity.

**Use the following table to answer the next THREE (3) questions.**

New Holland calculates inflation by looking at a basket of goods consisting of milk and honey. The Minister for Statistics, Shane Watson, dislikes the number 100: thus, the scale factor used in this table for calculating the CPI is 50 with the base year set as year 2000.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Price of Milk | Price of Honey | Cost of Market Basket | Consumer Price Index  (Base Year = 2000, Scale Factor = 50) |
| 2000 | $2.00 | $2.00 | $200 | 50 |
| 2001 | $2.00 | $3.00 |  | 62.5 |
| 2002 | $2.00 | $4.00 |  | 75 |

1. Given the above information, what was the cost of the market basket in 2002?
   1. $6
   2. $300
   3. $150
   4. $250
2. Suppose Minister Watson changes his policy so that the scale factor is now set at 100. Given this information and holding everything else constant, what was the rate of inflation between 2000 and 2002?
   1. 50%
   2. 33.33%
   3. 25%
   4. 100%
3. Between 2000 and 2002, the real price of milk and the real price of honey .
   1. increased; increased
   2. increased; decreased
   3. decreased; increased
   4. decreased; decreased
4. Alice consumes only two goods, *X* and *Y*. Her marginal rate of substitution between good *X* (measured on the horizontal axis) and good *Y* (measured on the vertical axis) is given by the following equation:

Marginal rate of substitution between good *X* and good *Y*: MRS*xy* = *Y*/*X*.

The price of good *X* is $6 per unit, while the price of good *Y* is $15 per unit. She has figured out that her optimal consumption of *X* is 10 units. She is now considering buying 4 units of *Y*. Is this optimal for Alice?

* 1. Yes, buying 10 units of *X* and 4 units of *Y* is optimal for her.
  2. No, she should buy more than 4 units of *Y*.
  3. No, she should buy less than 4 units of *Y*.
  4. There is insufficient information to answer this question.

1. Worf enjoys playing paintball at the Madison Paintball Range (MPR) – the only paintball range in Madison. Suppose it costs $50 for the entry fee to MPR and this fee includes the equipment rental per visit. Furthermore, suppose a packet of paintballs costs $5. Each time Worf visits MPR he always buys 5 packets of paintballs. He allocates $300 of his monthly income to playing paintball and he always maximizes his utility from playing paintball given his income constraint and the costs associated with playing paintball. If MPR reduces its entry fee from $50 to $25, which of the following statements is **true**?
   1. Worf’s total monthly expenditure on paintballing will increase.
   2. Worf’s total monthly expenditure on paintballing will decrease.
   3. Given this price change, Worf will visit MPR less often each month.
   4. Given this price change, Worf will visit MPR more often each month.
2. Which of the following statements is **true**?
   1. If a firm is operating under increasing returns to scale, this implies that the average total cost is increasing as output increases.
   2. In a perfectly competitive market, each firm produces the profit maximizing level of output where marginal cost is equal to market price.
   3. At a given level of output if you know that the average total cost is greater than the marginal cost, then it must be the case that the average total cost is increasing as output increases.
   4. Suppose there are 99 factors of production used in the production of good X. Firms that produce good X are considered to be operating in the long run if they can freely adjust 98 of these factors of production.

**Use the following table to answer the next question.**

|  |  |  |  |
| --- | --- | --- | --- |
| Bundle | Price of *X* (*Px*) | Price of *Y* (*Py*) | Optimal Consumption Bundle (*X*, *Y*) |
| **R** | $5 | $5 | R = (1, 5) |
| **S** | $2.5 | $5 | S = (8, 2) |

1. A consumer buys two goods, *X* and *Y*, with the income of $30. The above table summarizes the two optimal consumption bundles this consumer chooses when facing different prices of good *X* and good *Y* (*Px* and *Py*, respectively). Consider a third consumption bundle **T** in which 9 units of *X* and 3 units of *Y* are chosen, namely, **T** = (9, 3). Assuming the consumer is rational and has “bowl-shaped” indifference curves, what is the consumer’s ranking of bundle **T** in comparison to bundle **R**?
   1. The consumer prefers bundle **T** to bundle **R**.
   2. The consumer prefers bundle **R** to bundle **T**.
   3. The consumer is indifferent between bundle **R** and bundle **T**.
   4. Given the above information, this consumer’s preferences are not consistent.
2. Which of the following statements is **true** when the market structure is a monopoly?
   1. There are many buyers and sellers in this market.
   2. There are barriers to entry in this market.
   3. The products sold in this market by different firms are indistinguishable.
   4. Each firm in the market always earns positive economic profit.
3. Which of the following statements is **true**?
   1. A linear supply curve through the origin has increasing price elasticity of supply as the quantity supplied of the good increases.
   2. A linear demand curve has constant price elasticity of demand at any quantity of the good demanded.
   3. On a linear demand curve, if a decrease in price results in an increase in total revenue, then demand is price elastic at that quantity of the good.
   4. The seller should maximize the firm’s total revenue by selling that quantity where the price elasticity of supply is unit elastic.
4. Suppose the chocolate market is initially in equilibrium. This market is characterized by the following equations for the market demand curve and market supply curve:

Market demand: *P =* 1000 – *Q*

Market supply: *P* = 2*Q*

Suppose the government imposes an excise tax on chocolate of $T per unit of chocolate. Given this information, what is the fraction of the tax revenue that represents consumer tax incidence?

* 1. The economic incidence of the tax on consumers is zero and so the fraction of the tax revenue paid by consumers will be 0.
  2. The fraction of the tax revenue that consumers pay will be 1/3.
  3. The fraction of the tax revenue that consumers pay will be 2/3.
  4. The fraction of the tax revenue that consumers pay will be 1.

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**QUESTIONS CONTINUE AFTER THIS PAGE, PLEASE TURN OVER!**

1. Suppose a firm is in the short run with only one variable input. As this firm increases the quantity produced using more of that variable input, the average variable cost increases. Given this information, this firm is experiencing .
   1. increasing returns to scale
   2. decreasing returns to scale
   3. diminishing marginal returns
   4. increasing marginal returns

**Use the following table to answer the next THREE (3) questions.**

**Assume this table represents the cost information for a perfectly competitive firm.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Quantity (Unit) | Marginal Cost ($/unit) | Fixed Cost ($) | Total Cost ($) | Average Variable Cost ($/unit) | Average Total Cost ($/unit) |
| 0 | ---- | 10 |  | ---- | ---- |
| 1 | 36 |  |  |  |  |
| 2 | 26 |  |  | 31 | 36 |
| 3 | 18 |  |  | 26.67 | 30 |
| 4 | 30 |  |  | 27.5 |  |
| 5 | 40 |  |  |  | 32 |
| 6 | 56 |  |  |  |  |

1. What is the firm’s average total cost (ATC) when the firm is producing 6 units?
   1. ATC = $36 per unit
   2. ATC = $46 per unit
   3. ATC = $110 per unit
   4. ATC = $216 per unit
2. What is the level of maximum profit that a firm with this cost structure earns if the market price is $40?
   1. $10
   2. $40
   3. $50
   4. $190
3. Holding everything else constant, what would happen to a firm with this cost structure in the short run if the market price drops from $40 to $18?
   1. The firm will decrease its production from 4 units to 3 units.
   2. The firm will incur a loss of $36 from its operation, but the firm will continue to produce in the short run.
   3. The firm will shut down in the short run when the price drops to $18.
   4. The firm will exit the industry in the short run since the industry is not sufficiently profitable for this firm to be willing to continue to produce.
4. Which of the following statements are **true**?
   * 1. When calculating the price elasticity of demand for a given demand curve using the arc elasticity of demand formula, your results will change if the prices are measured in “thousands of dollars” instead of “dollars.”
     2. In perfectly competitive markets it is assumed that firms will earn zero economic profits.
     3. When the government levies an excise tax on producers, producers can push the entire economic burden of the tax onto consumers of the taxed good.
     4. If the market demand curve is linear, then a monopolist will always operate in the inelastic portion of that market demand curve since the monopolist knows that consumers can only purchase this good from the monopolist.
5. Statements (I), (II), (III), (IV) are true.
6. Statements (II) and (IV) are true.
7. Statement (I) is true.
8. None of the statements (I), (II), (III) and (IV) are true.
9. A profit-maximizing monopolist produces a positive quantity *Q\** > 0. At *Q\** the monopolist also finds that the following conditions occur:

ATC > P for this monopolist

P > AVC for this monopolist

AVC > MR for this monopolist

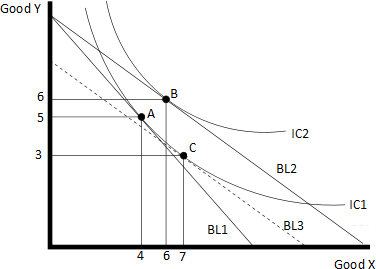
MR = MC for this monopolist

Given this information, this monopolist should in the short run. Assuming that there are no changes to the above information, this monopolist will in the long run.

1. produce at *Q\** and suffer losses that are less than their total fixed cost of production; exit the industry
2. produce at *Q\**and earn positive economic profit; continue to produce at *Q\**
3. shut down and suffer losses that are equal to their total fixed cost of production; exit the industry
4. shut down and earn zero economic profit; exit the industry

**Use the following information and figure to answer the next THREE (3) questions.**

Consider the following figure illustrating the effect of a price change on the consumption of the two goods, *X* and *Y*. The prices of both good *X* and good *Y* are initially $4. When the consumer faces the initial budget line, BL1, the consumer chooses to consume bundle A in order to maximize the consumer’s satisfaction. Then, suppose the price of good *X* falls to $2 and given this price change the consumer’s new budget line is BL2. Given this new budget line the consumer chooses bundle B as the consumption bundle that maximizes the consumer’s satisfaction. The hypothetical budget line is depicted by BL3 with the corresponding hypothetical consumer optimization bundle marked as bundle C.



1. What is the equation of the budget line BL1?
   1. 4*X* + 4*Y* = 36
   2. 2*X* + 4*Y* = 36
   3. 5*X* + 4*Y* = 41
   4. 3*X* + 7*Y* = 56
2. As the price of good *X* falls, the substitution effect results in a(n) in the consumption of good *X* and the income effect results in a(n) in the consumption of good *X*. Thus, good *X* is a(n) good.
   1. increase; increase; normal
   2. increase; decrease; inferior
   3. decrease; increase; inferior
   4. decrease; decrease; normal
3. Assume that the demand curve for good X is linear. If P is the price of good X and Q is the quantity of good X demanded, then which of the following equations represents the demand curve for good X based on the above figure?
   1. *P* = 20/3 – (2/3)*Q*
   2. *P* = (2/3)*Q –* 2/3
   3. *P* = 8 – *Q*
   4. *P* = *Q* – 2

**Use the following information and figure to answer the next TWO (2) questions.**

The figure below shows the cost structure in terms of marginal cost (MC) and average total cost (ATC) for a representative firm in a perfectly competitive industry. Assume this industry is a constant cost industry and that each firm, both existing and entrant firms, in the market faces this identical cost structure. The horizontal axis represents quantity produced by each firm (*q*) and the vertical axis shows dollar-valued MC and ATC per unit produced by each firm. New and existing firms are allowed to freely enter or freely exit this perfectly competitive industry in the long run.



1. In this perfectly competitive industry, if the market price of this product is $30, each profit-maximizing firm will produce units and earn an economic profit of in the short run.
   1. 2; $20
   2. 15; $150
   3. 16; $320
   4. 10; $0
2. Suppose that all firms face the identical cost structure depicted above. Initially there are ten firms operating in this perfectly competitive industry. You also know that the market demand curve for this industry is given by the equation

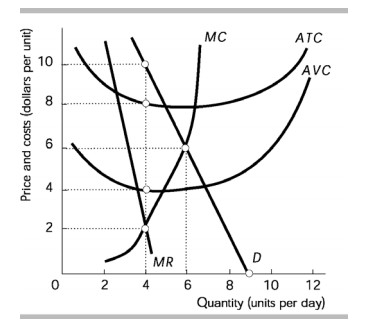
Market demand: *P* = 210 – *Q*

Given this information and holding everything else constant, how many firms will there be in this industry when the industry is at the long-run market equilibrium?

* 1. 10 firms
  2. 15 firms
  3. 20 firms
  4. 25 firms

**Use the following information and figure to answer the next THREE (3) questions.**

The following figure illustrates the cost structure (ATC, AVC and MC) of a monopolist facing the market demand curve, D, and the marginal revenue curve, MR.



1. Given this information and the above figure, what is the value of the monopolist’s profits when this monopolist maximizes his profit? Assume that the monopolist sells his product at only one price (i.e., no price discrimination).
   1. $0
   2. $8
   3. $24
   4. $32
2. Suppose we compare this monopolist’s price to what the price for this good would be if this market were perfectly competitive. Assume that the monopolist sells his product at only one price. How much larger is the monopolist’s price for each unit of the good the monopolist sells than the price you would see if this market were perfectly competitive?
   1. $8/unit
   2. $6/unit
   3. $4/unit
   4. $2/unit
3. Assume this monopolist is producing that level of output that maximizes the monopoly’s profit. Furthermore, suppose that this monopolist sells their product at a single price (i.e. no price discrimination). What is the approximate value of the deadweight loss given the above figure?
   1. $0
   2. $4
   3. $8
   4. $16

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**- END OF THIS EXAM -**

**HAPPY THANKSGIVING!**

**HAVE A WONDERFUL BREAK AND SAFE JOURNEY!**

**ANSWER**

* 1. B
  2. D
  3. A
  4. D
  5. D
  6. A
  7. B
  8. A
  9. C
  10. A
  11. D
  12. B
  13. A
  14. B
  15. C
  16. B
  17. C
  18. A
  19. B
  20. C
  21. D
  22. A
  23. A
  24. B
  25. C
  26. B
  27. C
  28. B
  29. C
  30. C