EC101 EE Final Exam December 15, 2015 Version 04

Name (last, first): ________________________________

Student ID: 000000-____-____-____-____-____-____
Discussion Section: ______

Signature____________________________________

EC101 EE Final F15

INSTRUCTIONS (***Read Carefully***):

ON YOUR QUESTION BOOKLET:
Fill in your name, Student ID, Discussion Section Number (e.g. D5) and your signature.

ON YOUR SCANTRON:
Enter the Course Number (EC101 DD or EE) and date on the lines at the top-left. In the boxes below, enter your Student ID, your DISCUSSION SECTION number (D1 - D9, E0 - E9), your NAME and your EXAM VERSION into the Scantron computer sheet. Be sure that you “bubble” all entries. I will subtract up to 5 points as punishment for errors in these data!

DURING THE EXAM:
Students who wish to leave the room for any reason must leave the Question Booklet and Scantron sheet with the instructor or teaching fellow. Students in EC101EE (Dec 15) MUST turn in both the Question Booklet and the Scantron sheet at the end of the exam and exit from the front of the room. Students in EC101DD (Dec 17) should keep their Question Booklet and turn in only their Scantrons. All students must show their BU Student IDs as they leave the exam room.

MULTIPLE-CHOICE QUESTIONS:
Choose the BEST answer for each of the multiple-choice questions. (Only ONE answer is allowed, even when more than one of the answers is technically correct.) On the Question Booklet, CIRCLE the letter that you chose, so that you have a record of your answers. Then BUBBLE it on the Scantron sheet for grading.

Never cross out an answer on your Scantron. Use a pencil to bubble your answers, and keep a good eraser with you. If you bubble the wrong answer on the Scantron, erase your mark COMPLETELY, and then bubble the correct answer.

***YOU MAY NOT USE A CALCULATOR, CELL PHONE OR LAPTOP.

***However, INTERNATIONAL STUDENTS may use electronic translators or dictionaries.

You have 2 hours (120 minutes) to complete 60 questions. Good luck!

DO NOT OPEN THIS BOOKLET OR TURN IT OVER [until told to do so]

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Scenario BSE. Suppose mad-cow disease kills many milk cows in Britain. Moreover, many British people believe that mad-cow disease could be transmitted to consumers who drink milk. [You may draw in the space below to help you answer. The drawing will NOT be graded.]

1. See Scenario BSE. The supply curve for milk will
   a. rotate.
   b. shift left.
   c. be unaffected.
   d. shift right.

2. See Scenario BSE. The demand curve for milk will
   a. rotate.
   b. shift right.
   c. shift left.
   d. be unaffected.

3. See Scenario BSE. The equilibrium price of milk
   a. will not change.
   b. will increase.
   c. could increase or decrease.
   d. will decrease.

4. Ginger left her job as a home decorator where she earned $60,000/year in order to attend the BU School of Hospitality Administration (SHA). To attend SHA she pays $40,000/year tuition. She continues to rent the same apartment, for which she pays $15,000/year. What is her yearly economic cost of attending SHA?
   a. $40,000
   b. $115,000
   c. $100,000
   d. $55,000

Figure SDA. The supply and demand for milk is graphed below.

5. See Figure SDA. At a price of $15, there would be a
   a. shortage of 400 units.
   b. surplus of 400 units.
   c. surplus of 200 units.
   d. surplus of 600 units.

6. See Figure SDA. When the price increases from $25 to $30, the price elasticity of supply is approximately
   a. 2.75
   b. 1.25
   c. 5.0
   d. 0.5

7. See Figure SDA. Suppose a health scare cuts consumer demand in half. The new equilibrium price of milk would be approximately ___. [Hint: Draw on the graph in Figure SDA.]
   a. 30
   b. 15
   c. 18
   d. 25

8. Which of the following is not included in the opportunity cost of being a full-time student?
   a. the cost of food
   b. the cost of tuition
   c. the cost of books
   d. the salary the student would have earned from a regular job

9. Which of the following is not a determinant of demand for a particular good?
   a. the prices of the inputs used to produce the good
   b. tastes
   c. income
   d. the prices of related goods
**Table TRX.** The time required for baking cakes and pies in Maine and Vermont is shown in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Cake</th>
<th>Pie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Vermont</td>
<td>30</td>
<td>15</td>
</tr>
</tbody>
</table>

10. **See Table TRX.** The opportunity cost of 1 cake in Vermont is
   a. 1 1/2 pies.
   b. 2 pies.
   c. 1 pie.
   d. 1/2 pie.

11. **See Table TRX.** If Maine and Vermont trade with each other based on comparative advantage, Maine will export
   a. both goods and Vermont will export neither good.
   b. cakes and Vermont will export pies.
   c. neither good and Vermont will export both goods.
   d. pies and Vermont will export cakes.

12. Private firms will not produce nonexcludable goods, because
   a. people can consume the goods without paying for them.
   b. demand for nonexcludable goods is inelastic.
   c. production costs are high.
   d. **ALL** of the above

13. Suppose your roommate is very messy. Being messy is worth $25 to her because it makes her life easier, but the mess makes you feel $50 worse off. One efficient solution would be for you to
   a. pay your roommate $60 to stop being messy.
   b. pay your roommate $30 to stop being messy.
   c. offer to clean up her mess if she pays you $30.
   d. pay $60 to a cleaning company to clean up her mess.

14. Many soccer stars earn millions of dollars per year. Suppose that FIFA proposes a salary maximum of $100,000 for soccer players. This would be economically inefficient because
   a. tax collections from soccer players would be reduced.
   b. great soccer players deserve what they earn.
   c. the savings would go into the pockets of team owners.
   d. great soccer players might play with teams that create less social value.

15. As compared with barter, selling and buying
   a. makes it easier to find trading partners.
   b. requires the use of a widely accepted medium of exchange.
   c. yields more useful information about market value.
   d. **ALL** of the above

**Table EXR.** Artists in a small town produce statues that residents can buy and display outside their houses. The neighbors enjoy seeing the statues. Each statue has the costs and benefits listed here.

<table>
<thead>
<tr>
<th>Statue Number</th>
<th>Private Benefit</th>
<th>Private Cost</th>
<th>External Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$22</td>
<td>$6</td>
<td>$5</td>
</tr>
<tr>
<td>2</td>
<td>$20</td>
<td>$9</td>
<td>$5</td>
</tr>
<tr>
<td>3</td>
<td>$18</td>
<td>$12</td>
<td>$5</td>
</tr>
<tr>
<td>4</td>
<td>$16</td>
<td>$15</td>
<td>$5</td>
</tr>
<tr>
<td>5</td>
<td>$14</td>
<td>$18</td>
<td>$5</td>
</tr>
<tr>
<td>6</td>
<td>$12</td>
<td>$21</td>
<td>$5</td>
</tr>
</tbody>
</table>

16. **See Table EXR.** The social benefit of the 4th statue would be
   a. $25.
   b. $5.
   c. $11.
   d. $21.

17. **See Table EXR.** The market-equilibrium quantity of statues produced is
   a. 6.
   b. 3.
   c. 4.
   d. 5.

18. **See Table EXR.** What amount of subsidy per statue would move the market from the equilibrium level of output to the socially optimal level of output?
   a. $3
   b. $10
   c. $5
   d. $2

19. Which of the following statements is **not** correct about a competitive market in equilibrium?
   a. Consumer surplus will be equal to producer surplus.
   b. The price determines which buyers and which sellers participate in the market.
   c. Those sellers whose costs are less than the price choose to produce and sell the good.
   d. Consumers who buy have a higher willingness to pay than consumers who don’t buy.
Figure CCV. Suppose that a firm in a competitive market has the following cost curves, and assume that competing firms do not enter or exit the market.

20. See Figure CCV. If the market price is exactly $8 then the firm should
   a. stay in business in the short run, but not in the long run.
   b. shut down immediately.
   c. stay in business until fixed costs become avoidable, and then shut down.
   d. stay in business in the long run.

21. See Figure CCV. The firm’s short-run supply curve is the same as
   a. its average total cost curve at prices above $4.50 and is on the vertical axis at lower prices.
   b. its marginal cost curve at prices above $4.50 and is on the vertical axis at lower prices.
   c. its marginal cost curve.
   d. its average total cost curve at prices above $6.30 and is on the vertical axis at lower prices.

22. See Figure CCV. The firm should shut down immediately if the market price is
   a. above $4.50 but less than $6.30.
   b. above $8.
   c. less than $4.50.
   d. above $6.30 but less than $8.

23. A good reason for government intervention in a market with externalities would be to
   a. make certain all benefits are received by market participants.
   b. reduce production when externalities are positive.
   c. take account of the welfare of people other than the buyer and the seller.
   d. increase production when externalities are negative.

Figure TXM. Suppose the government enacts an excise tax in this market as shown below.

24. See Figure TXM. Consumers effectively pay a larger portion of the tax than producers do, because in the relevant price range
   a. supply is more elastic than demand.
   b. demand is more elastic than supply.
   c. the demand curve is elastic.
   d. the supply curve is inelastic.

25. See Figure TXM. The loss of social surplus caused by the tax is
   a. 30.
   b. 0.
   c. 20.
   d. 60.

26. See Figure TXM. The total reduction in consumer surplus as a result of the tax is
   a. 60.
   b. 120.
   c. 10.
   d. 0.

27. A firm can obtain market power by
   a. reducing the part of its fixed cost that is not sunk.
   b. lowering the price of its product.
   c. increasing its use of fuel and electricity.
   d. differentiating its product from those of other producers.

28. Suppose a thief breaks your car window and steals $100 that you left on the driver’s seat. You decide to be more careful in the future. Which of the following does not represent a loss of social surplus?
   a. the broken car window
   b. your future theft-prevention efforts
   c. the stolen $100
   d. the thief’s labor
**Figure PAD.** Apple and Samsung each has to decide how many television advertisements to run. Each one decides between few ads and many ads without knowing what the other one will do. The profit for each firm is given in the table as *Profit for Apple, Profit for Samsung.*

<table>
<thead>
<tr>
<th></th>
<th>Few</th>
<th>Many</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>1, 1</td>
<td>−2, 2</td>
</tr>
<tr>
<td></td>
<td>2, −2</td>
<td>−3, −3</td>
</tr>
</tbody>
</table>

29. **See Figure PAD.** Each company would prefer
   a. to run many ads whatever the other company does.
   b. to run few ads whatever the other company does.
   c. to adopt an advertising strategy that is the same as the other company’s.
   d. to adopt the advertising strategy that is the opposite of the other company’s.

30. **See Figure PAD.** Which strategy profile maximizes the combined profits of the two companies?
   a. ⟨Few, Few⟩
   b. ⟨Few, Many⟩
   c. ⟨Many, Many⟩
   d. ⟨Many, Few⟩

31. **See Figure PAD.** Which of the following strategy profiles is not Pareto efficient?
   a. ⟨Many, Many⟩
   b. ⟨Few, Few⟩
   c. ⟨Few, Many⟩
   d. ⟨Many, Few⟩

32. A reduction in a monopolist's fixed costs would
   a. have an effect that depends on the elasticity of demand.
   b. decrease the profit-maximizing price and increase the profit-maximizing quantity produced.
   c. increase the profit-maximizing price and decrease the profit-maximizing quantity produced.
   d. not affect the profit-maximizing price or quantity.

33. Which of the following could be the cross-price elasticity of demand for two goods that are complements?
   a. −1.3
   b. 0.2
   c. 1.4
   d. 0

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**Figure NDR.** This graph represents the Cheetam company, a profit-maximizing nondiscriminating monopoly. [AC represents average total cost.]

34. **See Figure NDR.** What price will Cheetam charge?
   a. 45
   b. 30
   c. 10
   d. 23

35. **See Figure NDR.** Cheetam’s profits will be approximately
   a. −500.
   b. 0.
   c. 3000.
   d. 1400.

36. **See Figure NDR.** What price would a monopoly regulator set if the regulator wants to maximize social surplus?
   a. 45
   b. 10
   c. 23
   d. 30

37. An international student spends $80 for a ticket to game six of the baseball World Series. But after an hour, she decides that baseball is extremely boring. If she is economically rational, she should
   a. leave and do something more fun.
   b. stay there, because the $80 is a sunk cost.
   c. stay there, because she will lose consumer surplus if she leaves.
   d. stay there, because $80 was an avoidable cost.

38. A perfectly inelastic supply curve is
   a. horizontal.
   b. vertical.
   c. diagonal.
   d. *NONE* of the above
Figure MNC. The graph below describes the short-run situation of the Pod Company, a typical profit-maximizing firm in a monopolistically competitive industry.

39. See Figure MNC. As described in this figure, Pod will
   a. have to shut down.
   b. earn a short-run economic profit.
   c. suffer a short-run loss.
   d. earn a long-run economic profit.

40. See Figure MNC. In the short run, how many units of output will Pod produce?
   a. 0
   b. 30
   c. 15
   d. 20

41. See Figure MNC. In long-run equilibrium, Pod would produce approximately ____ units.
   a. 0
   b. 40
   c. 50
   d. 20

42. A key determinant of the price elasticity of supply is
   a. the slope of the demand curve.
   b. the ability of sellers to change the price of the good they produce.
   c. how responsive buyers are to changes in sellers’ prices.
   d. the ability of sellers to change the amount of the good they produce.

43. When the demand for a good increases and the supply of the good remains unchanged, consumer surplus
   a. may increase, decrease, or remain unchanged.
   b. increases.
   c. decreases.
   d. is unchanged.

44. Which of the following is the best example of a positive externality?
   a. a student that asks good questions in class
   b. a box of chocolates of higher than average quality
   c. cigarettes with a low cost of production
   d. a restaurant that serves excellent food

Scenario OPC. Suppose a nondiscriminating profit-maximizing monopolist has a demand curve that can be expressed as \( P = 180 - 2Q \), so that the monopolist’s marginal revenue curve would be given by \( MR = 180 - 4Q \). The monopolist has constant marginal costs and average total costs of $20.

45. See Scenario OPC. The monopolist will produce an output level of
   a. 80 units.
   b. 40 units.
   c. 20 units.
   d. 10 units.

46. See Scenario OPC. The monopolist will earn profits of
   a. $800.
   b. $1,600.
   c. $6,400.
   d. $3,200.

47. See Scenario OPC. Suppose now that the monopolist could price-discriminate perfectly. Her output level then would be
   a. 40.
   b. 80.
   c. 60.
   d. 90.
**Scenario ONK.** Two firms, \( A \) and \( B \), each produce the same product at \( AC = MC = 12 \). They each set prices: \( P_A \) and \( P_B \). If \( P_A \neq P_B \), consumers buy 20 units from the low-price firm, and 0 from the high-price firm. If \( P_A = P_B \), consumers buy 10 from each firm. The payoffs are the profits of each firm.

48. **See Scenario ONK.** Which of the following strategy profiles forms a Nash equilibrium?
   a. firm \( A \) charges $62 and \( B \) charges $12
   b. firm \( B \) charges $62 and \( A \) charges $12
   c. both firms charge $12
   d. both firms charge $62

49. **See Scenario ONK.** If both firms charge $52 per unit, then
   a. both firms will want to deviate.
   b. only firm \( A \) will want to deviate.
   c. neither firm will want to deviate.
   d. only firm \( B \) will want to deviate.

50. **See Scenario ONK.** If \( P_A = 12 \), then what price is a best response for \( B' \)?
   a. $62
   b. $32
   c. $12
   d. **ALL** of the above

**Scenario RCG.** Michael has exactly 220 students in EC101 BB. He asks each student to close his eyes and raise either his left hand or his right hand, without knowing what other students are doing. If Michael sees an unequal number of right hands and left hands raised, he asks all students in the **minority** to pay $10 each, and he uses the total amount collected to make equal payments to all students in the **majority**. If the same number of students have raised their left hands and right hands, no one pays or receives anything.

51. **See Scenario RCG.** Suppose a student believes that among the other students, 119 will raise their left hands and 100 will raise their right hands. Then the student’s best response is
   a. to raise his left hand.
   b. to raise his right hand.
   c. to raise either his left or his right hand.
   d. **MORE** information needed

52. **See Scenario RCG.** If 110 students raise their left hands and 110 students raise their right hands, then which students will want to deviate?
   a. all students
   b. no students
   c. half of the students
   d. **MORE** information needed

53. **See Scenario RCG.** How many pure-strategy Nash equilibria does this game have?
   a. 1
   b. 2
   c. 3
   d. 0

54. In Cournot competition, the firms
   a. compete by choosing the quantities they will produce.
   b. collude to fix prices and earn monopoly profits.
   c. match price cuts by rivals but not price increases.
   d. compete by choosing their prices.

**Figure LFR.** In the game tree below, Arthur decides whether to buy a ticket for football (F) or the opera (R). Thea looks at his ticket, and then she decides between football and opera. Payoffs are given as \( \text{Arthur’s payoff, Thea’s payoff} \).

55. **See Figure LFR.** Which of the following is true about Arthur?
   a. He would rather see football with Thea than see it alone.
   b. He would rather see football than opera, no matter what Thea does.
   c. He would rather see football and opera alone than see either one with Thea.
   d. **NONE** of the above

56. **See Figure LFR.** Thea has ______ possible strategies; Arthur has ______ possible strategies.
   a. four; two
   b. four; four
   c. two; four
   d. two; two

57. **See Figure LFR.** In a subgame-perfect equilibrium, Arthur gets ____ and Thea gets ____.
   a. 8; 1
   b. 4; 5
   c. 7; 2
   d. 4; 1
Figure REQ. Firm A and firm B produce exactly the same product. They each set the quantity produced, but they accept the market price for their output. Market demand is given by $Q_d = 70 - P$. For each firm, $AC = MC = 10$.

58. See Figure REQ. In order to maximize social surplus, firm A and firm B, together, should produce a total of ___ units.
   a. 70
   b. 60
   c. 0
   d. 25

59. See Figure REQ. If firm B plans to produce 10 units, firm A’s best response would be to produce ___ units.
   a. 0
   b. 70
   c. 60
   d. 25

60. See Figure REQ. In Nash equilibrium, each firm produces ___ units.
   a. 35
   b. 30
   c. 20
   d. 10