INSTRUCTIONS: Take out your pencils and your BU ID card.

**ON YOUR QUESTION BOOKLET:**
PRINT your name and Student ID Number [exactly as they appear on your BU ID Card], and then your Discussion Section Number (e.g. D5). Sign on the signature line.

**ON YOUR GRADESCOPE BUBBLE SHEET:**
In the boxes at the top-left of the bubble sheet:
- PRINT your NAME and Student ID, exactly as they appear on your BU ID Card.
  Include the ‘U’ in your ID.
- Print your discussion SECTION number (D1 - D9, E0 - E6) and Today’s Date in the boxes below.
- In the box at the top right, bubble your exam VERSION.
- Print your lecture section, (EC101DD or EC101EE) in the “Other” box.
  Print neatly. 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 Bubble Sheet with the instructor or teaching fellow. Students in EC101 DD must give the TF both the Question Booklet and the Bubble Sheet after they have completed the exam. Students in EC101 EE should keep their Question Booklet and turn in only their Bubble Sheets. All students must show their BU Student IDs to the TF before 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 other answers can be justified by unusual assumptions.) On the Question Booklet, CIRCLE the answer that you chose. Then BUBBLE the answer on the Bubble Sheet.

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

***DO NOT sit near your friends during the exam.
***DO NOT write down your answers in large letters that others can see.
***YOU MAY NOT USE A CALCULATOR, CELL PHONE OR LAPTOP.

You have 2 hours to complete the exam. Good luck!

**DO NOT OPEN THIS BOOKLET OR TURN IT OVER**
[until told to do so]
1. International trade raises the economic well-being of a nation in the sense that
   a. governments choose to trade the products that are most beneficial to the nation.
   b. the gains of the winners exceed the losses of the losers.
   c. the value of the nation’s currency rises when it begins to trade.
   d. everyone in an economy gains from trade.

*Figure TXA.* Suppose the government enacts an excise tax in this perfectly-competitive market as shown below.

2. See Figure TXA. What proportion of the tax is paid by consumers and producers?
   a. Consumers pay the entire tax.
   b. Consumers and producers each pay 50 percent of the tax.
   c. It depends on who sends the tax to the government.
   d. Producers pay the entire tax.

3. See Figure TXA. The loss of social surplus caused by the tax is
   a. 160.
   b. 90.
   c. 0.
   d. 40.

4. See Figure TXA. The total reduction in consumer surplus as a result of the tax is
   a. 0.
   b. 240.
   c. 120.
   d. 40.

*Figure QMB.* Suppose each firm in a perfectly competitive market has the following cost curves:

5. See Figure QMB. Each firm has a fixed cost of approximately
   a. 0.
   b. $9.
   c. $6.
   d. *MORE* information is needed.

6. See Figure QMB. Each firm will remain open in the short run
   a. only if the MC is less than $6.
   b. only if the price is at least $6.
   c. at any price greater than zero.
   d. only if the AVC is at least $6.

7. See Figure QMB. If the price is $6, then in long-run equilibrium, each firm will
   a. produce 3 units.
   b. earn profits of $9 per period.
   c. shut down.
   d. continue to expand.

8. Suppose the price elasticity of demand for widgets is –1. At a price of $20, a store sells 200 widgets per month. The store owner decides that she wants to sell 220 widgets per month. What price should she set?
   a. $19.00
   b. $8.40
   c. $18.00
   d. $14.00

9. Meat in a supermarket is
   a. rivalrous but nonexcludable.
   b. excludable and rivalrous.
   c. excludable but nonrivalrous.
   d. a public good.
10. Patents and copyrights often lead to
   a. monopolistic competition.
   b. legal monopolies.
   c. perfect competition.
   d. natural monopolies.

*Figure BMC.* The marginal costs of producing lamps for a factory in a perfectly competitive market. The factory has no fixed costs.

11. *See Figure BMC.* If the price of lamps is $5, the factory will obtain about $_____ of producer surplus. [Choose the closest value.]
   a. 0.00
   b. 8.50
   c. 4.50
   d. 17.00

12. *See Figure BMC.* How many lamps will the factory produce when the price of lamps is $8?
   a. 8
   b. 0
   c. 6
   d. MORE information needed

13. *See Figure BMC.* The variable cost of producing 4 lamps is about $_____. [Choose the closest value.]
   a. 11.50
   b. 16.50
   c. 5.00
   d. more than 50.00

14. When you calculate your opportunity cost of going to college, what portion of your college living expenses should be included?
   a. all of your college living expenses
   b. your college living expenses minus living expenses if you weren’t in college
   c. none of your college living expenses
   d. your college living expenses minus the income you earn while attending college

15. Perfectly discriminating monopolies would
   a. produce the quantity at which average cost is minimized.
   b. sell to consumers at prices equal to their willingness to pay.
   c. ignore cost when deciding how much to sell.
   d. charge price less than marginal cost.

*Scenario MRZ.* Suppose Firm XYZ produces in a perfectly competitive market and has the following marginal costs: for each unit from 1 to 200, MC = $20, and for each unit from 201 to 500, MC = $30. The firm cannot produce more than 500 units. XYZ has no fixed costs.

16. *See Scenario MRZ.* If the market price is $25, then the firm will produce _____ units and get a producer surplus of _____.
   a. 1000, $5000
   b. 200, $1000
   c. 0, $0
   d. UNDEFINED, because price doesn’t equal marginal cost

17. *See Scenario MRZ.* If the market price is $40 then Firm XYZ will
   a. shut down
   b. produce 500 units.
   c. continue to produce until price equals marginal cost.
   d. NONE of the above

18. *See Scenario MRZ.* Suppose that a change in safety regulations creates a fixed cost of $20. If the market price is $40, then XYZ’s profit will be
   a. $0
   b. $6980
   c. $4980
   d. $480

19. Binding rent controls are likely to
   a. increase racial discrimination by landlords.
   b. cause the demand curve to shift to the left.
   c. increase the quality of rented apartments.
   d. decrease illegal payments to landlords.

20. Capital formation is difficult in poor countries, because
   a. their population cannot afford to save very much.
   b. they cannot increase their money supply without creating inflation.
   c. most poor countries are undemocratic.
   d. they lack advanced digital technologies.
**Scenario BST.** Suppose farmers begin to treat cows with the hormone BST, which causes the cows to produce a lot more milk. Moreover, consumers don’t know about BST, and the milk tastes the same to them. *[Hint: Draw the graph on your own paper to help you answer.]*

21. **See Scenario BST.** The supply curve for milk will  
   a. shift left.  
   b. be unaffected.  
   c. shift right.  
   d. rotate.

22. **See Scenario BST.** The demand curve for milk will  
   a. shift right.  
   b. rotate.  
   c. be unaffected.  
   d. shift left.

23. **See Scenario BST.** The equilibrium price of milk  
   a. will not change.  
   b. will increase.  
   c. could increase or decrease.  
   d. will decrease.

**Table STX.** The table below displays the willingness to pay of each consumer for his first three oranges (no one wants to eat more than three). Alex, Barb, and Carlo are the only buyers of oranges.

<table>
<thead>
<tr>
<th></th>
<th>1st Orange</th>
<th>2nd Orange</th>
<th>3rd Orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alex</td>
<td>$4.00</td>
<td>$2.20</td>
<td>$1.50</td>
</tr>
<tr>
<td>Barb</td>
<td>$3.00</td>
<td>$2.00</td>
<td>$1.60</td>
</tr>
<tr>
<td>Carlo</td>
<td>$1.60</td>
<td>$0.60</td>
<td>$0</td>
</tr>
</tbody>
</table>

24. **See Table STX.** If the market price of an orange is $2.10, consumer surplus will be  
   a. $2.90.  
   b. $2.20.  
   c. $10.00.  
   d. $1.40.

25. **See Table STX.** The total quantity of oranges demanded is exactly 2 if the price (P) of an orange satisfies  
   a. $1.55 < P < $1.65.  
   b. $1.65 < P < $2.95.  
   c. $2.25 < P < $2.95.  
   d. $1.65 < P < $1.95.

**Figure EXT.** The following graph represents the market for rubber.

26. **See Figure EXT.** If 4 units of rubber are produced and consumed, then  
   a. social surplus is maximized.  
   b. the market is inefficient.  
   c. the market is in equilibrium.  
   d. rubber must have positive externalities.

27. **See Figure EXT.** In order to reach the social optimum, the government could  
   a. apply a price ceiling of $8 per unit.  
   b. impose a tax of $3 per unit.  
   c. impose a tax of $6 per unit.  
   d. impose a tax of $2 per unit.

28. Suppose bad weather in California decreases the quantity of avocados harvested. The market for avocados is perfectly competitive. What happens to consumer surplus in the market?  
   a. Consumer surplus increases.  
   b. Consumer surplus is not affected by this change in market forces.  
   c. It depends on whether the elasticity of demand for avocados is more or less than 1.  
   d. Consumer surplus decreases.

29. Thieves steal laptop computers from unlocked BU dormitory rooms. Which of the following is **NOT** a social cost of laptop thefts?  
   a. the monetary value of the stolen laptop  
   b. the cost of the thief’s time  
   c. the loss of your documents in the laptop’s disk drive  
   d. the inconvenience of having to lock your dorm-room door
30. See Figure RMN. What price will Scruam charge?
   a. $15.00  
   b. $12.50  
   c. $22.50  
   d. $  5.00

31. See Figure RMN. What price would a regulator set if the regulator wants to maximize social surplus?
   a. $22.50  
   b. $  5.00  
   c. $12.50  
   d. $15.00

32. See Figure RMN. How many units would Scruam produce if Scruam could price-discriminate perfectly?
   a. 100  
   b. 70  
   c. 40  
   d. 80

33. Suppose the price of chicken increases by 4%, and the quantity supplied rises by 1% as a result. Then the price elasticity of supply is ____.
   a. 2  
   b. –1/2  
   c. 1/4  
   d. 1/2

34. Clean streets are public goods, partly because
   a. the condition of streets are regulated by local governments.  
   b. clean streets promote public health.  
   c. people can enjoy clean streets without paying for them.  
   d. only governments have the technology to keep streets clean.

35. Economists use models, because
   a. every economic situation is basically similar, so realistic details are unnecessary.  
   b. computers are able to process very large quantities of data.  
   c. models omit unimportant details and create a framework for analysis.  
   d. exceptions to the model make people seem to be irrational.

36. In competitive economies, many workers are often paid more than would be required to make them willing to do their jobs, because
   a. most workers do not enjoy their jobs.  
   b. competitive firms receive zero economic profits in the long run.  
   c. a fair wage maximizes profits.  
   d. firms compete with each other for labor.

37. Which of the following does NOT affect consumer demand for Samsung smartphones?
   a. the level of unemployment  
   b. expectations about future Samsung prices  
   c. the Chinese government raises the price of yttrium, needed for smartphone production.  
   d. iPhone prices

38. The supply of housing is more price-elastic in the long run than in the short run, because
   a. young people want bigger houses when they have children.  
   b. housing prices face price ceilings.  
   c. new housing takes a long time to construct.  
   d. housing is a big part of most people’s budget.

39. Which of the following is an example of rent-seeking by EC101DD/EE teachers?
   a. Qingyan prepares carefully before she teaches her discussion sections.  
   b. Jiahao reads books on the best way to help students learn.  
   c. Michael gives easy tests so that students give him good evaluations.  
   d. Hong attends Michael’s lectures so he can explain Michael’s errors to students in his discussion sections.

40. Policy makers may not focus on increasing social surplus, because
   a. they may want to consider fairness too.  
   b. social surplus is not related to consumer value.  
   c. social surplus does not reflect damage to the environment.  
   d. they believe social surplus causes inflation.
Scenario RTB. Two firms, A and B, each produce the same product at \( AC = MC = 40 \). They each set prices: \( P_A \) and \( P_B \). Prices can be anywhere between \$20 \) and \$100 \). 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.

41. See Scenario RTB. How much profit does each firm receive if both firms charge \$60 \) per unit?
   a. \$50
   b. 0
   c. \$200
   d. \$100

42. See Scenario RTB. If both firms charge \$60 \) per unit, then
   a. both firms will want to deviate.
   b. neither firm will want to deviate.
   c. only firm A will want to deviate.
   d. only firm B will want to deviate.

43. See Scenario RTB. If Firm A charges \$40 \), which of the following prices is a best response for B?
   a. \$40
   b. \$50
   c. \$60
   d. ALL of the above

44. See Scenario RTB. Which of the following strategy profiles forms a Nash equilibrium?
   a. firm A charges \$100 \) and B charges \$20 \)
   b. firm B charges \$100 \) and A charges \$20 \)
   c. both firms charge \$40 \)
   d. both firms charge \$100 \)

45. The free-rider problem refers to the fact that
   a. airline passengers with enough frequent-flier points can fly free of charge.
   b. it is hard to make people pay for something that they can get without paying.
   c. public transportation always runs large deficits.
   d. the marginal cost of allowing an additional consumer to enjoy a pure public good is zero.

46. A medical survey found that people who drink decaffeinated (decaf) coffee are more likely to get cancer than other people are. This implies that
   a. avoiding decaf coffee would reduce the chance of getting cancer.
   b. caffeine is unlikely to cause cancer.
   c. chemicals in decaf coffee cause cancer.
   d. NONE of the above

47. Jiahao works 20 hours per week at Stop&Shop and earns \$7.50 \) per hour. A new minimum-wage law in Massachusetts increases his wage to \$15.00 \) per hour. Then, Jiahao says to himself, “Great, now I don’t have to work so many hours.” This implies that
   a. his demand curve for leisure is not downward sloping.
   b. he does not want to ‘buy’ more leisure as he becomes richer.
   c. for Jiahao, leisure is an inferior good.
   d. the income effect on his demand for leisure is stronger than the substitution effect.

Figure LFR. In the game tree below, Lily decides whether to buy a ticket for football (F) or the opera (R). Hong looks at Lily’s ticket, and then he decides between football and opera. Payoffs are given as (Lily’s payoff, Hong’s payoff).

48. See Figure LFR. Lily has ______ possible strategies; Hong has ______ possible strategies.
   a. two; four
   b. two; two
   c. four; two
   d. four; four

49. See Figure LFR. Which of the following is true about Lily?
   a. She would rather see football with Hong than see it alone.
   b. She would rather see football than opera, no matter what Hong does.
   c. She would rather see football or opera alone than see either one with Hong.
   d. NONE of the above

50. See Figure LFR. In a subgame-perfect equilibrium, Lily gets ____ and Hong gets ____.
   a. 9; 3
   b. 3; 2
   c. 8; 4
   d. 5; 6
51. Which of the following can best be provided efficiently by private firms without government assistance?
   a. clean rivers
   b. a low crime rate
   c. control of contagious diseases
   d. organic fruit and vegetables

*Figure XOR.* The graph below describes the short-run situation of **Axon Memory Chips**, a profit-maximizing firm in a monopolistically competitive industry.

52. **See Figure XOR.** As described in this figure, Axon will
   a. earn a long-run economic profit.
   b. earn a short-run economic profit.
   c. suffer a short-run loss.
   d. have to shut down.

53. **See Figure XOR.** In the short run, how many units of output will Axon produce?
   a. 30
   b. 10
   c. 0
   d. 15

54. **See Figure XOR.** Which of the following will occur in the long run in this industry?
   a. Axon firm will suffer losses.
   b. Axon will continue to earn economic profits.
   c. Other firms will exit this industry.
   d. Other firms will enter this industry.

55. **See Figure XOR.** Which answer is closest to the number of units that Axon would produce in long-run equilibrium?
   a. 10
   b. 20
   c. 40
   d. 0

56. Cristiano Ronaldo is an extremely talented soccer (football) player with a salary of more than $600,000 per week! What is true about Ronaldo?
   a. Most of his income is an economic rent to his talent.
   b. Most of his income can be explained by his hard work.
   c. His behavior is a good example of rent seeking.
   d. NONE of the above

*Table MCB.* The table below describes what happens when two fast-food chains, **Burger Pickle** and **McAulf** run positive or negative advertisements (“ads”). The payoffs (Burger Pickle, McAulf) displayed in each cell represent the percentage increase or decrease in profits for each chain.

<table>
<thead>
<tr>
<th>Burger Pickle</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>+1, –4</td>
<td>+4, +2</td>
</tr>
<tr>
<td>Negative</td>
<td>–6, –2</td>
<td>–3, +6</td>
</tr>
</tbody>
</table>

*Positive ads say good things about the firm’s own products; negative ads say bad things about competitor’s products.*

57. **See Table MCB.** For Burger Pickle, using positive ads is
   a. a dominant strategy.
   b. a losing strategy.
   c. a dominated strategy.
   d. self-defeating.

58. **See Table MCB.** In Nash equilibrium,
   a. Burger Pickle will use positive ads, and McAulf will use negative ads.
   b. both chains will use positive ads.
   c. Burger Pickle will use negative ads, and McAulf will use positive ads.
   d. both chains will use negative ads.

59. **See Table MCB.** What is true about this game?
   a. The Nash equilibrium is Pareto efficient.
   b. Both firms should go out of business.
   c. All consumers prefer Burger Pickle.
   d. The managers of the firms are irrational.

60. In Cournot competition, firms
   a. compete by choosing the quantities they will produce.
   b. collude to fix prices and earn monopoly profits.
   c. match quantities produced by their competitors.
   d. compete by setting prices.
MULTIPLE CHOICE

1. ANS: B REF: R9
2. ANS: D REF: R6
3. ANS: D REF: R7
4. ANS: A REF: R8
5. ANS: B REF: R21
6. ANS: C REF: R22
7. ANS: A REF: R23
8. ANS: C REF: R24
9. ANS: B REF: R25
10. ANS: B REF: R19
11. ANS: B REF: R16
12. ANS: C REF: R17
13. ANS: A REF: R18
14. ANS: B REF: R20
15. ANS: B REF: R30
16. ANS: B REF: R31
17. ANS: B REF: R32
18. ANS: B REF: R33
19. ANS: A REF: R34
20. ANS: A REF: R35
21. ANS: C REF: R1
22. ANS: C REF: R2
23. ANS: D REF: R3
24. ANS: A REF: R4
25. ANS: C REF: R5
26. ANS: A REF: R27
27. ANS: C REF: R28
28. ANS: D REF: R26
29. ANS: A REF: R29
30. ANS: C REF: R41
31. ANS: D REF: R42
32. ANS: A REF: R43
33. ANS: C REF: R44
34. ANS: C REF: R45
35. ANS: C REF: R10
36. ANS: D REF: R11
37. ANS: C REF: R12
38. ANS: C REF: R13
39. ANS: C REF: R14
40. ANS: A REF: R15
41. ANS: C REF: R51
42. ANS: A REF: R52
43. ANS: D REF: R53
44. ANS: C REF: R54

45. ANS: B REF: R55
46. ANS: D REF: R56
47. ANS: D REF: R50
48. ANS: A REF: R58
49. ANS: C REF: R59
50. ANS: D REF: R60
51. ANS: D REF: R40
52. ANS: B REF: R36
53. ANS: A REF: R37
54. ANS: D REF: R38
55. ANS: B REF: R39
56. ANS: A REF: R57
57. ANS: A REF: R46
58. ANS: A REF: R47
59. ANS: A REF: R48
60. ANS: A REF: R49