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 (fill in the small circles). 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 EC101DD 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. (The question booklets of EC101DD students will be available in the Principles Center within a few days.) Students in EC101EE 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 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 120 minutes 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. the value of the nation’s currency rises when it begins to trade.
   b. governments choose to trade the products that are most beneficial to the nation.
   c. the gains of the winners exceed the losses of the losers.
   d. everyone in an economy gains from trade.

Scenario BST. Suppose farmers begin to treat cows with the hormone BST, which causes the cows to produce a lot more milk. Moreover, many people believe that milk from BST-treated cows can cause cancer.

[You may draw in the space below to help you answer. The drawing will NOT be graded.]

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

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

4. See Scenario BST. The equilibrium quantity of milk
   a. will not change.
   b. could increase or decrease.
   c. will decrease.
   d. will increase.

5. Economists use models, because
   a. the omission of unimportant details makes analysis easier.
   b. computers are able to process even unimportant details.
   c. exceptions to the model prove that people are irrational.
   d. every economic situation is essentially the same, so specific details are unnecessary.

6. In competitive economies, many workers are often paid more than would be required to make them willing to do their jobs, because
   a. a fair wage maximizes profits.
   b. good workers receive economic rents when firms compete with each other for labor.
   c. firms cannot receive economic rents under competition.
   d. firms will not pay economic rents to workers under competition.

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 Carlos 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>$2.00</td>
<td>$1.10</td>
<td>$0.75</td>
</tr>
<tr>
<td>Barb</td>
<td>$1.50</td>
<td>$1.00</td>
<td>$0.80</td>
</tr>
<tr>
<td>Carlos</td>
<td>$0.80</td>
<td>$0.30</td>
<td>$0</td>
</tr>
</tbody>
</table>

7. See Table STX. If the market price of an orange is $1.20, consumer surplus will be
   a. $0.70.
   b. $1.40.
   c. $5.00.
   d. $1.10.

8. See Table STX. The market quantity of oranges demanded is exactly 4 if the price of an orange $P$ satisfies
   a. $0.80 < P < $1.00.
   b. $0.80 < P < $1.50.
   c. $0.75 < P < $0.80.
   d. $1.00 < P < $1.50.

9. Which of the following does NOT affect a consumer's demand curve for iPhones?
   a. iPhone size
   b. expectations about future smartphone prices
   c. the consumer’s income
   d. fixed costs of smartphone production
10. **See Figure BMC.** If the price of lamps is $2, the factory will obtain about $____ of producer surplus. 
   *Choose the closest value.*
   a. 8.50
   b. 0.00
   c. 2.25
   d. 4.25

11. **See Figure BMC.** How many lamps will the factory produce when the price of lamps is $5?
   a. 8
   b. 0
   c. 7
   d. MORE information needed

12. **See Figure BMC.** The variable cost of producing 5 lamps is about $____. *Choose the closest value.*
   a. 2.50
   b. 5.75
   c. 8.25
   d. more than 50.00

13. Patent and copyright laws often lead to
   a. government-created monopolies.
   b. natural monopolies.
   c. antitrust regulation.
   d. monopolistic competition.

14. The demand for gasoline is more elastic in the long run than in the short run, because when gasoline prices rise,
   a. high gasoline prices are unfair to the poor.
   b. most drivers will continue to prefer big cars.
   c. people who drive to work stop wasting gasoline.
   d. some people will eventually replace old cars with more fuel-efficient ones.

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

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

17. **See Figure TXA.** The total reduction in consumer surplus as a result of the tax is
   a. 0.
   b. 120.
   c. 150.
   d. 240.

18. Which of the following is NOT an example of rent-seeking by members of the EC101DD/EE Team?
   a. Kewei prepares his discussion section carefully, because he hopes to get good course evaluations.
   b. Franco tells his students to tell the dean that he is an excellent teacher.
   c. Matteo gives an excellent bottle of Italian wine to the graduate director, because he wants his fellowship to be renewed.
   d. Michael gives easy tests so that students will tell him he’s a nice guy.
Figure QMB. Suppose each firm in a perfectly competitive market has the following cost curves:

![Cost Curves](image)

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

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

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

22. 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. $18.00
   b. $14.00
   c. $8.40
   d. $16.00

23. Policy makers should not focus entirely on maximizing social surplus, because
   a. surplus may be distributed unfairly.
   b. there is often too much surplus.
   c. surplus is not related to consumer value.
   d. maximizing surplus is inefficient.

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

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

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

![Market Graph](image)

26. **See Figure EXT.** If 6 units of rubber are produced and consumed, then
   a. social surplus is maximized.
   b. the market is in equilibrium.
   c. there are unexploited social gains of trade.
   d. rubber must have positive externalities.

27. **See Figure EXT.** In order to reach the social optimum, the government could
   a. impose a tax of $3 per unit.
   b. impose a tax of $8 per unit.
   c. apply a price ceiling of $8 per unit.
   d. impose a tax of $2 per unit.
28. A for-profit private firm that owned an art museum in Boston would not be able to operate it efficiently, because
   a. viewing works of art in a museum is usually rivalrous.
   b. it isn’t possible to exclude people from the museum.
   c. the firm would have to exclude some people who would benefit from the museum.
   d. a for-profit firm would want to set an admission price that is inefficiently low.

29. Nondiscriminating monopolies usually
   a. ignore cost when deciding how much to sell.
   b. produce the quantity at which average cost is minimized.
   c. charge a price that is higher than marginal cost.
   d. sell to consumers at prices above their willingness to pay.

Scenario MRZ. Suppose Firm XYZ produces in a perfectly competitive market and has the following marginal costs: for each unit from 1 to 100, \( MC = \$20 \), and for each unit from 101 to 1000, \( MC = \$30 \). XYZ has no fixed costs.

30. 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. 0, \$0
   c. 100, \$500
   d. UNDEFINED, because price doesn’t equal marginal cost

31. See Scenario MRZ. If the market price is \$15\) then Firm XYZ will
   a. continue to produce until price equals marginal cost.
   b. produce 100 units and raise its price to \$20\).
   c. produce zero.
   d. NONE of the above

32. See Scenario MRZ. Suppose that a change in safety regulations creates a fixed cost of \$20\). If the market price is \$25\), then XYZ’s profit will be
   a. \$500
   b. \$4980
   c. \$480
   d. \$0

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

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

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

35. 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 enter this industry.
   d. Other firms will exit this industry.

36. See Figure XOR. In long-run equilibrium, Axon would produce approximately _____ units.
   a. 25
   b. 20
   c. 10
   d. 0

37. Clean rivers are public goods, partly because
   a. government regulations apply to all rivers.
   b. only governments have the technology to keep rivers clean.
   c. people can enjoy clean rivers without paying for them.
   d. they promote public health.
Figure RMN. This graph represents the Scruam Electronics, a profit-maximizing nondiscriminating monopoly. \([AC\) represents average total cost.\]

38. See Figure RMN. What price will Scruam charge?
   a. $45
   b. $10
   c. $23
   d. $30

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

40. See Figure RMN. How many units would Scruam produce if Scruam could price-discriminate perfectly?
   a. 50
   b. 46
   c. 35
   d. 40

41. Suppose the price of chicken increases by 1%, and the quantity supplied rises by 2% as a result. Then the price elasticity of supply is _____.
   a. 2
   b. 0
   c. 1/2
   d. –1/2

42. The free-rider problem refers to the fact that
   a. it is hard to make people pay for something that they can use without paying.
   b. public transportation always runs large deficits.
   c. the marginal cost of allowing an additional consumer to enjoy a pure public good is zero.
   d. airline employees have a legal right to fly without purchasing a ticket.

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

Table MCB. The table below describes what happens when two fast-food chains, McAuful and Burger Pickle run positive or negative advertisements (“ads”). \([Positive\ ads\ say\ good\ things\ about\ the\ advertiser\ herself;\ negative\ ads\ say\ bad\ things\ about\ her\ competitor.\) The payoffs \((McAuful,\ Burger\ Pickle)\) displayed in each cell represent the percentage increase or decrease in profits for each chain.

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

44. See Table MCB. For Burger Pickle, using positive ads is
   a. a dominant strategy.
   b. a dominated strategy.
   c. not a strategy.
   d. a mixed strategy.

45. See Table MCB. In Nash equilibrium,
   a. both chains will use negative ads.
   b. McAuful will use positive ads and Burger Pickle will use negative ads.
   c. Burger Pickle will use positive ads and the McAuful will run negative ads.
   d. both chains will use positive ads.

46. See Table MCB. What is true about this game?
   a. The managers of the firms are irrational.
   b. All consumers prefer Burger Pickle.
   c. These firms would be more profitable if they had the same owner.
   d. The Nash equilibrium is Pareto efficient.
47. Lionel Messi is an extremely talented soccer (football) player with a salary of more than $600,000 per week! What is true about Messi?
   a. Most of his income is an economic rent to his talent.
   b. His behavior is a good example of rent seeking.
   c. Most of his income can be explained by his hard work.
   d. NONE of the above

**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 10 units from the low-price firm, and 0 from the high-price firm. If \( P_A = P_B \), consumers buy 5 from each firm. The payoffs are the profits of each firm.

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

49. **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.

50. **See Scenario RTB.** If \( P_A = $20 \), which of the following prices is a best response for B?
   a. $80
   b. $20
   c. $18
   d. ALL of the above

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

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

53. Which of the following can best be provided efficiently by private firms without government assistance?
   a. a high literacy rate
   b. home cleaning services
   c. control of contagious diseases
   d. clean streets

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

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

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

56. **See Figure LFR.** In a subgame-perfect equilibrium, Thea gets ____ and Arthur gets ____.
   a. 8; 3
   b. 3; 4
   c. 5; 6
   d. 9; 2

57. Capital formation is difficult in poor countries, because
   a. they lack advanced technologies.
   b. they cannot reduce their already low level of consumption.
   c. they cannot increase their money supply without creating inflation.
   d. most poor countries are undemocratic.
58. Which of the following is NOT a social cost of bicycle theft?
   a. the inconvenience of having to leave bicycles in a safe place
   b. the cost of bicycle locks used by bicycle owners
   c. the value of stolen bicycles
   d. the cost of the thief’s time

59. Removing binding rent controls is likely to
   a. reduce the quality of rented apartments.
   b. decrease racial discrimination by landlords.
   c. cause the demand curve to shift to the left.
   d. increase illegal payment to landlords.

60. Suppose the data show that people who drink wine are more likely to get cancer than other people are. Then it would be correct to conclude that
   a. chemicals in wine cause cancer.
   b. most cancer patients were wine drinkers.
   c. avoiding wine would reduce the chance of getting cancer.
   d. NONE of the above