STUDENT'S NAME: ____________________________________________

STUDENT IDENTIFICATION NUMBER: __________________________

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BEFORE YOU BEGIN PLEASE MAKE SURE THAT YOUR EXAMINATION HAS BEEN DUPLICATED AND CORRELATED CORRECTLY. THIS EXAM IS ALL MULTIPLE CHOICE. THERE SHOULD BE 60 MULTIPLE CHOICE QUESTIONS. EACH QUESTION IS WORTH THE SAME POINTS.

ANSWER ALL THE PROBLEMS ON THE SCANTRON SHEET.

BE SURE TO FILL-IN YOUR NAME (LAST NAME FIRST) AT THE TOP OF THE SCANTRON SHEET. FILL IN YOUR STUDENT IDENTIFICATION NUMBER UNDER "IDENTIFICATION NUMBER" ON THE SCANTRON SHEET. WRITE EITHER YOUR TA'S NAME OR THE DAY AND TIME YOUR SECTION MEETS.

University of Maryland Honor Pledge

The University is committed to Academic Integrity, and has a nationally recognized Honor Code, administered by the Student Honor Council. In an effort to affirm a community of trust, the Student Honor Council proposed and the University Senate approved Honor Pledge. The University of Maryland Honor Pledge reads:

"I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment)."

Please rewrite the exact wording of the pledge, followed by your signature in the space below:

Pledge:

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Your Signature: _______________________________
The next three questions concern the following game. Player 1 plays rows and Player 2 plays columns. The first entry in each cell refers to Player 1’s payoff and the second entry to Player 2’s payoff.

<table>
<thead>
<tr>
<th>Player 1\Player 2</th>
<th>L</th>
<th>M</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>(0,0)</td>
<td>(1,3)</td>
<td>(2,1)</td>
</tr>
<tr>
<td>C</td>
<td>(1,2)</td>
<td>(2,1)</td>
<td>(4,3)</td>
</tr>
<tr>
<td>D</td>
<td>(2,2)</td>
<td>(3,4)</td>
<td>(3,3)</td>
</tr>
</tbody>
</table>

1. In the above game,
   a. Strategy U is dominated.
   b. Strategy M is dominated
   c. Strategy R is dominated
   d. Strategy D is dominated.

2. In the above game,
   a. There are four outcomes following elimination of dominated strategies.
   b. There are two outcomes following elimination of dominated strategies.
   c. There is a unique outcome following elimination of dominated strategies.
   d. There are no dominated strategies.

3. In the above game
   a. The cell when (U,L) is played is a Nash equilibrium outcome.
   b. The cell when (D,M) is played is a Nash equilibrium outcome.
   c. The cell when (C,M) is played is a Nash equilibrium outcome.
   d. The cell when (D,R) is played is a Nash equilibrium outcome.
The next three questions concern the following graph that describes a monopolist’s demand curve (D), marginal revenue curve (MR) and marginal cost curve (MC).

4. The monopoly profit maximizing price is
   a. Impossible to determine.
   b. P₁.
   c. P₂.
   d. P₃.

5. The profit maximizing monopoly profit is represented by the area of the shape
   a. P₁P₃AB
   b. P₁P₃AC
   c. P₂P₃EB
   d. Zero, because firms earn zero economic profits.

6. The deadweight loss due to monopoly (compared to the socially efficient outcome) is represented by the area of the shape
   a. AEF
7. John has a lottery ticket on a lottery that pays $1000 for first prize, $200 for second and $0 for anything else. The probability of first price is 1% (or 1/100), the probability of second prize is 5% (or 5/100). What is the expected value of the lottery ticket? (Ignoring the cost of the ticket.)
   a. $5.
   b. $10.
   c. $15.
   d. $20.

8. When a client comes to rent a car, that client typically has better knowledge about her past driving record than the car rental company. This situation is one of
   a. moral hazard.
   b. adverse selection.
   c. risk neutrality.
   d. risk aversion.

9. Factor markets are different from product markets in an important way, because
   a. equilibrium is the exception, and not the rule, in factor markets.
   b. the demand for a factor of production is a derived demand.
   c. the demand for a factor of production is likely to be upward sloping.
   d. All of the above are correct.

10. When a production function exhibits a diminishing but positive marginal product of labor,
    a. profit always increases as output increases.
    b. profit always decreases as output increases.
    c. output declines as more workers are employed.
    d. output increases but at a decreasing rate as more workers are employed.

11. A competitive firm sells its output for $45 per unit. It employs 30 workers and the marginal product of the 30th worker is 4 units of output per day. It pays its workers a wage of $150 per day.
    a. The firm’s profit would increase if it hired a 31st worker.
    b. For the 30th worker, the value of the marginal product of labor is $600.
    c. For the 30th worker, the marginal revenue product is $600.
    d. All of the above are correct.
The next three questions concern the following graph depicting the average total cost (ATC), average variable cost (AVC) and marginal cost (MC) curves of a competitive firm.

12. If the market price was \( P_1 \), then in the short run the profit maximizing firm would
   a. Produce zero because price is below ATC.
   b. Produce at \( Q_a \) and earn negative profits.
   c. Produce at \( Q_b \) and earn negative profits.
   d. Produce at \( Q_c \) and earn zero profits.

13. If the market price was \( P_2 \), then the profit maximizing firm would
   a. Produce at \( Q_d \) and earn zero profits.
   b. Produce at \( Q_c \) and earn positive profits.
   c. Produce at \( Q_a \) and minimize average variable costs.
   d. Cannot tell with this information.

14. When the market price is below \( P_3 \) but above \( P_0 \),
   a. firms that are in the market will continue to produce in the short run.
   b. in the long run, firms that are in the market will choose to exit.
   c. firms that are not in the market will choose not to enter.
   d. All of the above are correct.
15. At Bert’s Bootery, the total cost of producing twenty pairs of boots is $400. The marginal cost of producing the twenty-first pair of boots is $83. We can conclude that the
   a. average variable cost of 21 pairs of boots is $23.
   b. average total cost of 21 pairs of boots is $23.
   c. average total cost of 21 pairs of boots is $15.09.
   d. average total cost of 21 pairs of boots cannot be calculated from the information given.

16. The practice of selling the same goods to different customers at different prices, but with the same marginal cost is known as
   a. price segregation.
   b. price discrimination
   c. arbitrage.
   d. monopoly pricing.

17. Average fixed costs:
   a. Increase as production increases
   b. Decrease as production increases
   c. Sometimes increase, sometimes decrease as production increases
   d. Remain constant as production decreases

18. To maximize profit, a competitive firm hires workers up to the point of intersection of the
   a. marginal-product curve and the marginal cost curve.
   b. value-of-marginal-product curve and the wage line.
   c. value-of-marginal-product curve and the marginal revenue curve.
   d. total-revenue curve and the wage line.

19. A parallel shift outward in the budget constraint will cause a consumer to buy
   a. less normal goods and more inferior goods.
   b. more normal goods and less inferior goods.
   c. more normal goods and more inferior goods.
   d. less normal goods and less inferior goods.

20. What are the two effects of a change in the price that a consumer experiences?
   a. the income effect and the budget effect.
   b. the complement effect and the preference effect
   c. the income effect and the substitution effect
   d. the price effect and the preference effect.

21. A risk averse individual
   a. always avoids risky investments.
   b. prefers a sure payment of $X for any gamble with expected value $X.
   c. prefers a gamble with expected value $X to a sure payment of $X.
d. would always buy insurance.

22. In a competitive market, the long run supply curve
   a. is less elastic compared to the short run supply curve,
   b. is more elastic compared to the short run supply curve,
   c. is vertical.
   d. first slopes up and then slopes down.

23. Suppose that steel and aluminum are substitutes. In the demand and supply
diagram of the market for steel, the effects of a fall in the price of aluminum is represented by
   a. a movement up the demand curve for steel.
   b. a movement up the supply curve for steel
   c. a shift inward and downward of the demand curve for steel.
   d. a shift outward and upward of the demand curve for steel.

24. Suppose that the autarky price of wheat in a small country is $3 a bushel. The world price is $4 a bushel. If the country opens to free trade
   i) it will import wheat.
   ii) it will export wheat
   iii) wheat farmers’ surplus will rise.
   iv) domestic wheat consumers’ surplus will rise.

   a. i) and iii) only are true.
   b. i) and iv) only are true.
   c. ii) and iv) only are true.
   d. ii) and iii) only are true.

25. In a supply and demand diagram, the effect of granting a $1 per unit subsidy to production of butter can be represented by
   a. a movement down the demand curve.
   b. a movement up the supply curve.
   c. a shift downward and outward of the supply curve.
   d. a shift upward and inward of the supply curve.

26. Comparative advantage reflects
   a. productivity.
   b. relative opportunity cost.
   c. efficiency.
   d. terms of trade advantage.

The following two questions concern the next figure. The game is played by players 1 and 2. The numbers at each node describe who moves at that node. The payoffs list the dollar payment first to player 1 and then to player 2 (that is, player 1’s payoff and player 2’s payoff).
27. The above game is an example of
   a. a prisoner’s dilemma.
   b. a simultaneous move game.
   c. a sequential move game.
   d. a game with no Nash equilibrium.

28. In the above game, the unique outcome that is determined by backward induction
   yields the payoffs
   a. (0, 0)
   b. (1, 99)
   c. (-1, 100)
   d. (2, -1).

29. The “tragedy of the commons” is an example of
   a. a play by Shakespeare.
   b. a problem created by public goods.
   c. a problem created by private goods.
   d. a problem created by common resources.

30. If the price a firm receives for its product is constant regardless of the amount of
   output it produces, which of the following is true:
   (i) The firm is a monopolist
   (ii) The firm is a price taker
   (iii) Marginal revenue equals price.

   a. (i) only
   b. (ii) and (iii) only.
c. (i) and (iii) only.
d. all of the above.

31. A good that is rival but not excludable would be a
   a. public good.
   b. private good.
   c. natural monopoly.
   d. common resource.

32. If the supply of a good is relatively elastic, changing the price causes
   a. a relatively small change in the amount that buyers are willing to buy.
   b. a relatively small change in the amount that sellers are willing to sell.
   c. a relatively large change in the amount that sellers are willing to sell.
   d. no change in the amount sellers are willing to sell.

33. If the current price is at an elastic part of the demand curve, raising price will
   a. reduce total expenditures.
   b. increase total expenditures.
   c. increase marginal costs.
   d. increase consumer surplus.

34. Pens are normal goods and pens and pencils are substitutes. What will happen to
   the equilibrium price of pens if incomes fall, the price of pencils falls and the cost
   of labor at pen factories fall?
   a. The equilibrium price will fall.
   b. The equilibrium price will rise.
   c. The equilibrium price will stay the same.
   d. The effect on the price will be ambiguous.

35. A market analyst announces that Ford will be offering a $3000 rebate to
   purchasers of its sports car, the Ford Mustang next month. As a result, the demand
   curve for Mustangs this month
   a. could shift either left or right.
   b. shifts left.
   c. shifts right.
   d. will be unaffected.

36. If a road is congested, then use of that road by an additional person would lead to
   a
   a. negative externality.
   b. positive externality.
   c. natural monopoly problem.
   d. free-rider problem with rush hour drivers stuck in traffic.
37. Suppose that a paper factory emits a certain amount of air pollution which constitutes a negative externality. If this market is not required to internalize this externality,
   a. the supply curve would adequately reflect the marginal social cost of production.
   b. consumers will be required to pay a higher price for steel than they would have if the externality were internalized.
   c. the market equilibrium would not be the socially optimal quantity.
   d. producers will produce less steel than they otherwise would have if the externality were internalized.

38. When a local grocery store offers discount coupons in the Sunday paper, it is most likely trying to
   a. reduce prices for all customers.
   b. offer their customers a reward for reading the paper.
   c. gain some pricing power over the other grocery stores in town.
   d. price discriminate.

39. When a firm is operating at an efficient scale,
   a. average variable cost is minimized.
   b. average fixed cost is minimized.
   c. average total cost is minimized.
   d. None of the above is correct.

40. A competitive firm’s marginal cost curve is regarded as its supply curve because
   a. the position of the marginal cost curve determines the price for which the firm should sell its product.
   b. among the various cost curves, the marginal cost curve is the only one that slopes upward.
   c. the marginal cost curve determines the quantity of output the firm is willing to supply at any price.
   d. the firm is aware that marginal revenue must exceed marginal cost in order for profit to be maximized.

41. A firm has the following total cost schedule:

<table>
<thead>
<tr>
<th>Total Cost</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>2</td>
</tr>
<tr>
<td>275</td>
<td>3</td>
</tr>
<tr>
<td>325</td>
<td>4</td>
</tr>
</tbody>
</table>

in this range, the firm faces :
   a. Economies of Scale
   b. Diseconomies of Scale
   c. Both Economies of Scale and Diseconomies of Scale
d. Neither Economies of Scale and Diseconomies of Scale

42. The following graph shows supply and demand for blue jeans in Ruritania. Originally, it was illegal to import or export blue jeans, but after the revolution the Ruritanians now have free trade, and can import and export jeans at the world price P*.

![Supply and Demand Graph]

The triangle labeled "A" is part of:
- a. Consumer surplus before the revolution, and producer surplus after
- b. Producer surplus before and after
- c. Producer surplus before, but neither PS nor CS after
- d. Neither PS nor CS before, but part of CS after

43. Generally speaking, when a firm is maximizing profits:
- a. Average Total Cost is equal to Fixed Costs
- b. Marginal Revenue is as high as possible.
- c. Marginal Revenue equals Marginal Cost
- d. Fixed Costs are driven to zero.

The following graph shows supply and demand for widgets.
44. After a per unit tax of $T$ is placed on widgets, the deadweight loss is shown by
   a. $P^*$
   b. $A$, $D$ and $E$
   c. $B$ and $C$
   d. $F$

45. James Bond is in a gunfight with a game theorist. They are both in a hot air balloon. Bond points his gun at the balloon and threatens to shoot unless the game theorist drops her gun. The game theorist knows that the game is represented by the following tree (where her payoffs are first, and Bond's are second):
The Game Theorist knows that James's threat to shoot is credible only if:

a. A is less than –100.
b. A is greater than 500.
c. A is greater than 50.
d. James looks very angry

Countries A and B can produce wine or cheese according to the following table.

<table>
<thead>
<tr>
<th></th>
<th>Labor hours per bottle of wine</th>
<th>Labor hours per kilogram of cheese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Country B</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

A has an endowment of 300 hours of labor whereas B has an endowment of 200 hours of labor. Assume that labor is the only input of production.

46. Looking at the information above, select the correct answer:
   a. Country A has comparative advantage in the production of both goods.
   b. Country B has comparative advantage in the production of both goods.
   c. Country A has both absolute and comparative advantage in the production of wine.
   d. None of the above.

47. Suppose that both countries engage in trade. Then:
   a. Country A will specialize in the production of wine.
   b. Country A will specialize in the production of cheese.
   c. Countries A and B will produce both cheese and wine.
   d. Countries A and B will not trade, since there are no gains from trade.
48. Public goods have the following characteristics:
   a. Excludable and non-rival
   b. Non-excludable and rival
   c. Excludable and rival
   d. Non-excludable and non-rival

The next three questions concern the following consumer choice graph. Consider a consumer who initially chooses to consume an optimal bundle of boots and shoes at point O. The points A, B, C, D and E lie on the indifference curves I₁, I₂, I₃. The two budget constraint lines shown are parallel.

Suppose that the price of boots falls so that the budget constraint is now tangent to one of the indifference curves. (The new budget constraint is NOT shown in the diagram.)

49. Which point in the figure BEST describes the consumer’s new optimal choice?
   a. Point B
   b. Point C
   c. Point D
   d. Point E

50. Which distance BEST describes the substitution effect of the price change?
   a. Point O to Point B
   b. Point D to Point E
c. Point O to Point A

d. Point A to Point B

51. Which distance BEST describes the income effect of the price change?
   a. Point O to Point B
   b. Point D to Point E
   c. Point A to Point O
   d. Point A to Point B

52. Which condition does a firm selling its output at price P use to determine the optimal number of worker to hire?
   a. Wage = marginal product of labor
   b. Wage = average product of labor
   c. Wage = P * marginal product of labor
   d. Wage = P * average product of labor

53. Suppose that you are a profit maximizing monopolist in the market for Good A and Good B. There are two consumers, Consumer 1 and Consumer 2. Each will buy either 0 or 1 unit of good A and each will buy either 0 or 1 of Good B. You know the maximum they would be willing to pay for these good are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Good A</th>
<th>Good B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer 1</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Consumer 2</td>
<td>22</td>
<td>15</td>
</tr>
</tbody>
</table>

You produce both goods at a constant average and marginal cost of $5. If you engage in price discrimination but you do not bundle these goods, what prices will you charge for Good A?
   a. Charge $5 to both Consumers
   b. Charge $15 to Consumer 1, and $22 to Consumer 2
   c. Charge $22 to Consumer 1, and $15 to Consumer 2
   d. Charge $22 to both Consumers

54. The value of the marginal product of labor is equal to the change in
   a. marginal cost caused by the addition of the last worker.
   b. average cost caused by the addition of the last worker.
   c. total revenue caused by the addition of the last worker.
   d. total profit caused by the addition of the last worker.

55. Letting Δ denote change, a competitive firm will hire an additional worker only if the result of hiring that worker is such that
   a. Δ revenue > Δ cost.
   b. Δ revenue > Δ profit.
   c. Δ profit > Δ cost.
   d. Δ marginal product > Δ cost.
56. When a country allows trade and becomes an exporter of a good, which of the following would NOT be true?
   a. The price paid by domestic consumers of the good increases.
   b. The price received by domestic producers of the good increases.
   c. The losses of domestic consumers exceed the gains of domestic producers.
   d. The gains of domestic producers exceed the losses of domestic consumers.

57. Critics of free trade sometimes argue that allowing imports from foreign countries costs jobs domestically. An economist would argue that
   a. foreign competition may cause unemployment in export-competing industries but the increase in consumer surplus is larger than the loss in producer surplus represented by the lost jobs.
   b. foreign competition may cause unemployment in import-competing industries, but the increase in consumer surplus due to free trade is larger than the loss in producer surplus represented by the lost jobs.
   c. the critics are correct, so countries must protect their industries with tariffs or quotas.
   d. foreign competition may cause unemployment in export-competing industries, but the increase in the variety of goods consumers can choose from is more valuable than the loss in producer surplus represented by the lost jobs.

58. Suppose that you want to put on a fireworks display in your hometown of 1,000 people this July. The cost of the display is $6,000 and each person values the display at $5. After a month, you have only sold 50 tickets at $5 each. The result is
   a. the local government will put on the display but you will not.
   b. you will still put on the display but the local government would not.
   c. neither you nor the local government would put on the display.
   d. This question cannot be answered without knowing the amount of tax the local government would charge for the display.

59. A simultaneous game where players A and B choose strategies at the same time is the same as a sequential game where A acts first, B acts second, AND
   a. A doesn’t know what action B will take
   b. A knows what action B will take
   c. B doesn’t know what action A took
   d. A and B both know each others’ actions in advance

60. In a graph showing indifference curves, the X and Y axes are:
   a. Price and quantity
   b. Total cost and quantity
   c. Two different production inputs
   d. Quantities of two different consumer goods.