A total of 100 points are possible.

Last Name: _____________________________ First Name: ________________________

Your Student ID Number: __ __ __  -  __ __  -  __ __ __ __

** Part A: Multiple Choice Questions **  
(20 questions, each of which is worth 3 points)

Instructions: Answer these multiple choice questions on your Scantron. Write on the Scantron your name (last name first), student ID number, date, exam version number, and your section number in the “name,” “subject,” “date,” “test no.” and “hour” boxes respectively. For example,

<table>
<thead>
<tr>
<th>NAME</th>
<th>McComb, Madeline</th>
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<tbody>
<tr>
<td>SUBJECT</td>
<td>530-66-6271</td>
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<tr>
<td>DATE</td>
<td>2/4/2000</td>
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<td>HOUR</td>
<td>Sect 4</td>
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<td>Vers. 1</td>
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** Warning **  
If you first fill in an answer and then erase it to fill in a different one, and the first answer is not fully erased, the Scantron reader may detect two answers and not accept either one. Do not fill in an answer till you are sure this is the one you want to give, or you may not receive credit for the question.
1. Price discrimination means

A. Selling goods at a price greater than the marginal cost.
B. **Selling goods at different prices even though they have the same marginal cost.**
C. Selling goods at different prices in different markets.
D. Charging black consumers more than white ones.
E. Charging more to press women’s shirts than those of men.

2. Perfect price discrimination would be

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<tbody>
<tr>
<td>A.</td>
<td><strong>Efficient</strong></td>
</tr>
<tr>
<td>B.</td>
<td>Unprofitable</td>
</tr>
<tr>
<td>C.</td>
<td>A way of maximizing consumer surplus</td>
</tr>
<tr>
<td>D.</td>
<td>A way of minimizing producer surplus</td>
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<tr>
<td>E.</td>
<td>A way of achieving monopoly</td>
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3. Water has an **income elasticity** of 1.05. This means that in economic terms water is a

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<tbody>
<tr>
<td>A.</td>
<td>Necessity</td>
</tr>
<tr>
<td>B.</td>
<td>Normal good</td>
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<tr>
<td>C.</td>
<td>Luxury</td>
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<td>D.</td>
<td>Both A and B</td>
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<td>E.</td>
<td><strong>Both B and C</strong></td>
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4. Suppose the **price elasticity** of demand for wheat at the current price is 1. What (approximately) happens to the revenue of wheat sellers if the price rises by 4%?

A. **It stays the same.**
B. It falls 4%.
C. It rises 4%.
D. It falls 1/4%.
E. It rises ½%.

5. Suppose a consumer consumes only two goods, donuts and diet soda. Suppose the price of donuts and of soda halves, but income also halves. What happens to the budget constraint?

A. It rotates towards the origin around the intercept on the donut axis.
B. It rotates towards the origin around the intercept on the soda axis.
C. It shifts away from the origin, but stays parallel to the original constraint.
D. It shifts towards the origin, but stays parallel to the original constraint.
E. **It stays the same.**
6. The supply curve for ice cream is given by \( P = 4 \). The demand curve is \( P = 20 - Q/10 \). When a tax of $2 per unit is imposed on producers:
   A. **The market price rises by $2.**
   B. The market price rises by less than $2.
   C. The market price is unchanged.
   D. The market price falls by less than $2.
   E. The market price falls by $2.

7. Suppose that in a constant cost competitive industry the long run total cost curve of each firm is \( LTC = 25 + 2Q + Q^2 \). Long run marginal costs are \( 2+2Q \). The long run price in the industry will be:
   A. $4
   B. $6
   C. $8
   D. $10
   E. $12

8. A market in which there is no additional transaction that would benefit a buyer, a seller, and any third parties affected by the transaction is called
   A. a free market
   B. a contestable market
   C. **an efficient market**
   D. A competitive market
   E. a free entry market

9. In a competitive market an interference by the government through taxes, minimum prices or maximum prices, will only cause a **deadweight loss** if
   A. both the price and quantity sold change
   B. **the quantity sold changes**
   C. the price changes
   D. the price goes up
   E. the price goes down

10. Which of the following is NOT a requirement for **efficiency** in an economy?
    A. Output is on the production possibility frontier.
    B. The total $ value of consumer and producer surplus in the economy has been maximized.
    C. The marginal benefit of any activity is at least as great as its marginal cost.
    D. No trades are possible which can make one person better off without making anyone else worse off
    E. **All goods are normal goods.**
11. Which of the following statements is *normative*?
A. The US selling radioactive waste to poor countries to dispose of would be efficient.
B. The supply of radioactive waste would be increased by such a policy.
C. Some people living near waste dumps in poor countries would be worse off under such a policy.
D. **A free market in radioactive waste would be better than the current system.**
E. Many people would find such sales of waste repulsive.

12. The toll on the Bay Bridge, always $2, is too low for efficiency at the times of congestion, and too high for efficiency at the slack times.

Suppose that the tolls collected at the peak times are $400,000 per day, and at the slack times $200,000. We could generate the same revenue by charging $3 at the peak and $0 at the slack. What is the best approximation of the **social gain** in $ per day from doing this?

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<tbody>
<tr>
<td>A.</td>
<td>$400,000</td>
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<td>B.</td>
<td>$100,000</td>
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<tr>
<td>C.</td>
<td>$0</td>
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<tr>
<td>D.</td>
<td>$300,000</td>
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<tr>
<td>E.</td>
<td><strong>$200,000</strong></td>
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13. Suppose the MacArthur Foundation wants to give away $1 million per year. What is the most efficient way to do this?

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<tbody>
<tr>
<td>A.</td>
<td>Give $100 to each of the first 10,000 people who shows up at the foundation offices at 9 am on January 1.</td>
</tr>
<tr>
<td>B.</td>
<td>Give $10,000 to each of the first 100 people who shows up at the foundation offices at 9 am on January 1.</td>
</tr>
<tr>
<td>C.</td>
<td>Give $10,000 to each of the first 100 people who shows up at the foundation offices at 9 am on January 1, as long as their income is below $20,000 per year.</td>
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<tr>
<td>D.</td>
<td>Have an essay writing competition where people would make a case for why they need the money, with $10,000 to each of the 100 best essays.</td>
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<td>E.</td>
<td><strong>Mail $100 each to 10,000 people chosen randomly from the phone book.</strong></td>
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14. Suppose your income halves. Using the method of budget constraints and indifference curves we can conclude that
A. You consume half as much of every good.
B. You are half as happy as you were before.
C. You are less than half as happy as you were before.
D. Your happiness is between 0.5 and 1.0 times its old level.
E. **You are less happy.**
15. Which of the following statements is **TRUE**.

A. Marginal costs can never fall with output in the long run.
B. Marginal costs in the short run are always greater than in the long run.
C. **Marginal costs in the short run eventually become greater than in the long run as output increases.**
D. All marginal cost curves eventually rise because of the Law of Diminishing Returns
E. Marginal cost is never 0.

16. Which is the most general rule that all profit maximizing firms will follow in hiring labor in a competitive labor market?

A. \( P = MC \)
B. \( MR = MC \)
C. \( MR \cdot MPL = w \)
D. \( P \cdot MPL = w \)
E. \( MC = w \)

17. The **Marginal Productivity Theory of Wages** implies

A. Women will always be paid less than men.
B. Women should be paid the same as men.
C. Most of the gains from technological advance will go to labor.
D. There is no guarantee that technological progress need not reduce the wage of unskilled labor to $1 per hour.
E. Technological advance is bound to eventually reduce wages.

18. Which of the following is a requirement for **efficiency** in an economy?

A. The government intervenes to prevent those who cannot work from starving.
B. The government redistributes at least some income to those who are poorer.
C. All people have to earn at least some income.
D. **You cannot increase the output of any one good without reducing the output of some other good.**
E. All goods have at least one substitute.
19. The market demand for hamburgers is given by \( Q_d = 10 - P \). The market supply is \( Q_s = P - 2 \). At the competitive equilibrium total surplus is

A. $24  
B. $16  
C. $14  
D. $12  
E. $10

20. Suppose in 19 the government imposes price controls for hamburgers so that the price is set at $4. If rent seeking occurs what will be the new total surplus?

A. $0  
B. $2  
C. $4  
D. $10  
E. $12
Part B: Short Answer Questions
(Worth 40 points. Points for each part in parentheses.)

Instructions: Write your answers on this exam sheet. Show any calculations needed to derive your answer. You will not receive credit for a correct answer without the appropriate calculations.

1. Suppose demand for cinema tickets for each showing of the movie “Eisenhower: When America was Proud” is given by \( P = 20 - 0.2Q \). Suppose also the theater has a capacity of 120 seats, and that the cost of the marginal person up to the capacity is $0. The fixed cost of the theater per showing is $100.

   (a) Calculate the profit maximizing price. Calculate also consumer surplus and the theater’s profits. (6)

   \[ Q^* = 50, \quad P^* = 10 \]
   \[ CS = 250 \]
   \[ \pi = TR - TC = 400 \]
The theater manager discovers that the demand curve is composed of two elements. All the demand for a price equal to or above $8 is from people 60 or over, and all the demand for a price of $8 or below is from people aged less than 60.

(b) In the figure below draw the demand curve and marginal revenue curve for seniors, labeling the axis and the intercepts. Calculate the profit maximizing price for this group. (3)

\[ Q_{old}^* = 50, \ P_{old}^* = 10 \]
(c) In the figure below draw the demand curve for younger people and marginal revenue curve for younger people, labeling the axis and the intercepts. Calculate the profit maximizing price for this group. (3)

\[ Q_{\text{young}} = 20, P_{\text{young}} = 4 \]
(d) Show that price discrimination in this case is economically efficient. (4)

**TS with one price** = \( CS + \pi = 250 + (500 - 100) = 650 \)

**TS with two prices** = \( CS(\text{old}) + CS(\text{young}) + \pi = 250 + 40 + (500 + 80 - 100) = 770 \)

(e) Are consumers better or worse off with price discrimination? Explain. (2)

Better off with discrimination, since \( CS(\text{two prices}) = 290 > CS(\text{one price}) = 250 \)
2. (a) In a **monopolistic competition** market what three conditions will firms satisfy in the long run? (3)

\[ P = LAC, \ MR = SMC, \ MR = LMC \]

(b) Suppose the firms have cost functions of \( LTC = 9 + 12q + q^2 \) (so that LMC is \( 12 + 2q \)). Calculate the price that output would sell at if the industry is perfectly competitive. (3)

\[ LAC = \frac{9}{q} + 12 + q = LMC = 12 + 2Q \Rightarrow q = 3, \ p = 18 \]

(c) Given that the industry is one of **monopolistic competition** will the price in this market be higher or lower than the price you calculated in (b)? Explain your answer carefully. (4)

Higher. See other practice final, short answer on monopolistic competition, diagram.
3. Suppose that demand in the market for bicycles in Davis is given by \( P = 100 - Q_d \).
Supply is given by \( Q_s = P - 50 \).

(a) In the diagram show the demand and supply curves (labeling axes and intercepts). Calculate the equilibrium price and quantity. (4)

\[ P^* = \$75, \quad Q^* = 25 \]

(b) In an effort to promote bike use the city subsidizes bike sales by giving $20 to each bike purchaser. In the diagram above show the new demand curve (labeling axes and intercepts), and calculate the new price and quantity (4)

New demand curve is \( P = 120 - Q_d \)

\[ P_{(sub)} = \$85, \quad Q_{(sub)} = 35 \]

(c) If there are no external benefits or costs from bike usage calculate the efficiency cost of the subsidy in $. (4)

\[ DWL = (35-25)(85-75)\times 0.5 = \$100 \]