Directions

1. Do not open the exam until you are instructed to begin.

2. There are 28 fill in the blank/multiple choice questions worth 3 points each. A series of short answer questions worth 24 points follows. Put all answers to the first 28 questions on the answer sheet attached to the end of the exam. Credit will be given only for answers put in the appropriate space.

3. You have until the end of the class period to complete the exam. No additional time will be provided.
1. Suppose a bank is willing to lend you money for college at 8% interest. If you promised to pay the bank $1000 in 5 years and another $1000 in 6 years, how much would the bank be willing to lend you today? (Round your answer to the nearest dollar).

2. Suppose you deposit $5000 in a bank today and it earns 6% interest annually. If the interest is allowed to compound, what would your balance be in 10 years? (Round your answer to the nearest dollar).

3. Consider a one year bond with a maturity value of $1000 and a coupon rate of 8%. If the bond sells for $950 today, what is the yield on the bond? (Round your answer to the nearest 1/10 of a percent, e.g. 11.9%).

4. Economic profits are positive if and only if:
   a. implicit costs are less than accounting profits.
   b. explicit costs are less than accounting profits.
   c. the sum of implicit and explicit costs are less than accounting profits.
   d. none of the above.

5. Which of the following is false?
   a. the proprietorship has unlimited liability.
   b. corporate profits are taxed twice -- once by the personal income tax and once by the corporate income tax.
   c. proprietorships account for a larger share of sales in the U.S. than corporations.
   d. proprietorships account for a larger number of firms in the U.S. than corporations.

6. If labor is the only variable input, the marginal cost of output can be calculated as:
   a. the wage rate divided by the marginal product of labor.
   b. the wage rate divided by the average product of labor.
   c. the marginal product of labor divided by the wage rate.
   d. the average product of labor divided by the wage rate.
To answer the next 5 questions, suppose that a landscaping company that installs grass sod pays $150 per day for labor. Its capital is fixed and the implicit rental rate is $150 per day.

<table>
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<tr>
<th>Number of workers</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Square yards of sod per day</td>
<td>0</td>
<td>100</td>
<td>250</td>
<td>330</td>
<td>360</td>
<td>380</td>
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</table>

7. What is the marginal product (per day) of the third worker?

8. What is the average product of labor (per day) when there are 3 workers?

9. What is the average total cost of producing 330 square yards per day? (Give your answer in dollars and cents).

10. What is the marginal cost (per square yard) of increasing production when production is between 250 and 330 square yards per hour?

11. If the price of sod installation was $4 per square yard, the firm’s hourly profits would (increase, decrease) by _____ if it increased sod production from 330 to 360 square yards per hour.

12. If the price of sod installation is $4 per square yard, how many workers should the firm hire to maximize profits?
To answer the next 6 questions, suppose that the typical firm in the barley industry faces the cost curves and market supply and demand curves as given below. Also, unless told otherwise, assume that this is a constant cost industry.

13. At the $4.50 equilibrium price, in the short run, the typical barley firm will earn a $________ economic (profit, loss).

14. At the current short run equilibrium, there are _____ firms in the industry.

In the long run, assuming this is a constant cost industry,

15. the price of barley will be $________.
16. the industry will produce ______ bushels.
17. there will be _______ firms in the industry.

18. If this was an increasing cost industry, in the long run, the equilibrium quantity would be _______ (provide a range of quantities).
19. Suppose that you own a company that manufactures cell phones. If new companies enter the cell phone industry causing your production costs to fall, it would be correct to conclude that:
   a. there are economies of scale in the production of cell phones.
   b. there are diseconomies of scale in the production of cell phones.
   c. there are external economies of scale in the production of cell phones.
   d. there are external diseconomies of scale in the production of cell phones.

To answer the next 3 questions, suppose that the tobacco industry is a perfectly competitive industry in a long run equilibrium with tobacco selling for $5 per pound.

20. Suppose there is a decrease in demand for tobacco. In the short run, the typical tobacco farmer will
   a. decrease production and realize economic losses.
   b. decrease production but have a zero economic profit.
   c. increase production but realize economic losses.
   d. increase production but have a zero economic profit.

21. Assuming this is a constant cost industry, in the long run, the price will settle _____ and tobacco farmers will have ______ profits.
   a. at $5; zero.
   b. below $5; zero.
   c. above $5; negative.
   d. none of the above.

22. Assuming this is a decreasing cost industry, in the long run, price will settle_____.
   a. at $5.
   b. below $5.
   c. above $5.
To answer the next 4 questions, consider the diagram below representing a company with a natural monopoly in the provision of electricity. Notice that quantity is in millions of kilowatts per month and be sure to adjust your answers accordingly.

**NOTE THAT QUANTITY IS MEASURED IN MILLIONS OF KILOWATTS PER MONTH IN THE ABOVE DIAGRAM! BE SURE YOUR ANSWERS REFLECT THIS.**

23. The profit maximizing price for this monopolist is ______ and the profit maximizing quantity is ______ million kilowatts per month.

24. Assuming no externalities in the production of electricity, at the profit maximizing price and output, there is a deadweight loss of $__________.

25. If regulators impose fair return pricing, the monopolist would be forced to charge a price of _____ and its profits would be ______.

26. Assuming no externalities, if regulators impose the price that generates demand equal to the socially efficient level of output, price will be _____ and there will be a deadweight loss of $______.
27. If a monopoly is able to practice perfect price discrimination,
a. it will sell the socially efficient level of output.
b. there will be zero consumer's surplus.
c. it will have higher profits than if it charged a single price for everything.
d. all of the above.

28. Suppose that you own a motel and discover that type A customers have more elastic demand than type B customers. With this information, it would make sense to lower your price to ___ customers and raise your price to ___ customers because if you charge the two groups the same price, marginal revenue is higher in the ___ market.
a. A, B, A
b. A, B, B
c. B, A, A
d. B, A, B
SHORT ESSAYS (4 POINTS EACH)

To answer the 3 questions on this page, consider the following information. Several patented prescription drugs for the treatment of AIDS are extremely expensive. For example, the Brixol-Meyer pharmaceutical company has a patent on Zerit and currently sells an annual supply to a patient in the U.S. for about $3600. Estimates are that the marginal cost of producing an annual supply of the drug is only about $50.

1. Some of the major pharmaceutical companies are considering reducing their price for AIDS-fighting drugs for customers in under-developed countries well below what they charge in customers in the U.S. Using what you know about price discrimination, under what conditions would charging a lower price for customers in under-developed countries improve the drug companies' profits?

If the elasticity of demand for the drug is much higher in the under-developed country than in the U.S., the marginal revenue of increased sales in the under-developed countries could be higher than it is in the U.S. In this case, it would make sense to cut price in the under-developed country until MR becomes equal to marginal cost of production.

2. Some under-developed countries argue that the AIDS epidemic is so catastrophic that the U.S. should exempt them from patent laws that apply to the AIDS drugs so that they can distribute the drugs at a lower price and save more lives. However, officials in the U.S. have argued that, without patent enforcement, there will be a greater number of AIDS deaths in the long run because there would be less progress on the development of more effective drugs against AIDS. How could a lack of patent enforcement lead to more AIDS deaths in the long run?

A lack of patent enforcement would reduce the profitability of discovering a cure for AIDS since competing drug companies could copy the drug without paying anything for the research required to discover the drug. In turn, this would reduce the amount that firms invest in research to find an AIDS cure and could lead to more AIDS deaths in the long term.

3. Suppose that the U.S. enforced the patent law but forced the pharmaceutical companies to sell their drugs at the marginal cost of production. What problem would this create?

If the firms are forced to sell at their marginal cost of production, they would likely incur economic losses since the large fixed cost of research and development for the drugs likely leads to scale economies where marginal cost is less than average total cost.
In the assigned reading on the proposed merger of Hughes Electronics and EchoStar, it was pointed out that consumers could be made better or worse off by the merger.

4. According to the article, how could the merger make consumers better off?

The merger could make consumers off in two ways. First, because of scale economies in the provision of satellite TV, the cost of satellite services would drop and the lower costs could result in lower prices for consumers. Second, the merger could make satellite TV services more able to compete with cable TV and lead to lower prices for cable TV.

5. According to the article, how could the merger make consumers worse off?

Consumers could me made worse off because the merger would reduce the level of competition in the provision of satellite TV which could lead to higher prices. This was of particular concern for customers in rural areas where there is no access to cable TV.

6. In the assigned reading on the proposed settlement between the Department of Justice and Microsoft, there is discussion of placing requirements on Microsoft that would reduce their ability to monopolize the software market. Describe the requirement.

Microsoft would be required to provide other software vendors with information about the Windows operating system that would allow them to integrate their software with windows. This would be accomplished by establishing a site where other software developers could ask questions of Microsoft programmers.
## Eco201, Fall 2001, Midterm 2, Prof. Bill Even.

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**Answers for 1-28.**

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