

Name \_\_\_\_\_

October 27, 2000

Pledge: *No Aid; No Violations*

Please Sign the Pledge \_\_\_\_\_

## Quiz #2

## Note:

- Please answer in the space provided, or continue on the back of the page.
- Show your calculations in order that you may receive partial credit even if you make a numerical error.
- The examination will end at 11:50.
- After you finish the exam, check over your work carefully.
- You may turn in the exam and leave the room when you have finished – but please depart quietly.

## I: Please circle the letter in front of the best answer.

1. The Herfindahl-Hirschman Index (HHI)
  - a. Is about 2600 for the airline industry, 2750 for the beer industry and 3200 for the tobacco industry.
  - b. is computed by adding up the squares of market share percentages of all the firms in the industry [or more precisely,  $10,000 \times (S_1^2 + S_2^2 + \dots + S_n^2)$  where  $S_i$  denotes the share that the  $i$ th firm has in industry sales.
  - c. would equal 2500 if there were only four firms in the industry, all of the same size.
  - d. all of the above
  - e. none of the above.
  
2. Chapter 5 of the *Economic Report of the President, 2000* argues that
  - a. The US Government provides about 30% of the funds spent on Research and Development in the United States.
  - b. Small firms are more effective innovators than large firms.
  - c. Monopoly results in wasteful duplication of production facilities.
  - d. All of the above
  - e. None of the above
  
3. According to the reading on “Who should be in charge,”
  - a. Some corporate managers may be more interested in building empires and funding vanity projects than maximizing profits for the stockholders.
  - b. A. A. Berle and Gardiner Means concluded in their path breaking 1932 book, *The Modern Corporation and Private Property*, that the stockholders, as owners of the firm, would be able to throw out management if they failed to maximize profits.
  - c. Once a corporation’s board of directors has selected the management team they should follow a hands off policy, not try to micro manage the business of the firm, and let their appointees have complete freedom to show their stuff.
  - d. All of the above.
  - e. None of the above.

**Part II: Please answer five (ONLY 5) of the following 6 questions:**

1. Listed below are several important accounting concepts. Place a **B** in front of each item that appears on the firm's Balance Sheet and an **I** in front of each item that appears on the income statement. Then place an **A** before each item that is an Asset, an **L** after each item that is a liability, and an **N** after each asset that is a component of net worth. Note: some items will have several letters in front of them:
  - a. Sales revenue
  - b. Corporate profit tax
  - c. Accounts receivable
  - d. Advertising expense
  - e. Dividends
  - f. Retained earnings
  - g. Depreciation expense
  
2. Explain the major differences between "economic profit" and the profit figure recorded by the accountants on a firm's financial statements.
  
  
  
  
  
  
  
  
  
  
3. A firm with production function  $q = L^{1/2} + K^{1/2}$  employs 9 workers on 4 machines.
  - a. With these resources our firm can produce \_\_\_\_ units of output.
  - b. The marginal product of labor is:
  - c. The average product of labor is:
  - d. The average product capital is:
  - e. Demonstrate that the production function is not homogeneous of degree 1:

5. A management consultant recommends to a firm that its optimal lot size for Product X is 8 and that on average it should carry 4 units of this product in inventory, given its setup and inventory carrying costs and the fact that it sells 5 units per month. But now it is boom times and sales have increased to 20 units per month. Assuming there have been no changes in either setup costs or inventory carrying costs and that the boom will continue for ever more, what is the optimal lot size for the firm to produce? Explain briefly but clearly.
6. A firm has total costs  $C(q) = 9 + 4q + q^2$
- The average total cost function is \_\_\_\_\_
  - The marginal cost function is \_\_\_\_\_
  - Fixed costs are \_\_\_\_\_
  - At what level of output would average costs be minimized? \_\_\_\_\_
  - The minimum value of average total cost is \_\_\_\_\_.
  - The breakeven price is \_\_\_\_; the breakeven quantity is \_\_\_\_
  - If other firms may freely enter or leave the industry with the same cost function, the long-run competitive price will be \_\_\_\_\_.
  - If the demand function for industry output is  $q = 900 - 60p$ , how many firms will there be in the industry in the long run?

7. A monopolist with total cost function  $C(q) = 100 + 10q$  faces demand function  $q = 1000 - 50p$ .
- In order to maximize profits, our monopoly should produce \_\_\_\_ units of output.
  - It should sell this output at price  $p =$  , obtaining revenue of \$\_\_\_\_\_, incurring costs of \$\_\_\_\_\_ and enjoying profits of \$\_\_\_\_\_.
  - Consumer surplus will be \_\_\_\_\_.
  - What price would maximize the sum of consumer surplus plus profit? \$\_\_\_\_\_.

HONORS OPTION (No partial credit)

Prove that for any production function  $q(L,K)$ , the marginal product of labor is equal to the average product of labor at the level of employment at which the average product of labor attains its maximum value.

**Please check that you have answered exactly FIVE of the SIX questions in Part II.  
If you have answered six, cross off the question you do not want graded.**