Lab 7 – Production and Cost

Economic verses Accounting Costs

1. The main difference is that Economic costs include explicit and implicit costs while Accounting costs only consider explicit costs
   a. Explicit costs –

   b. Implicit costs –

2. Suppose that you left your job as an editor for a textbook publisher. You decide to use your savings to start up a company that specializes in making greeting cards. You need to rent a warehouse, hire workers, and purchase supplies in order for your business to run. Try to list all the Accounting costs and Economic costs that you can think of.
   a. Accounting Costs:

   b. Economic Costs:

Production

1. Production is the process of using the services of labor and equipment together with other inputs to make goods and services available
   a. Inputs are:
      i.
      ii.
      iii.
      iv.
   b. The relationship between any combination of input services and the maximum output obtainable from that combination is described by a production function
      i. Production functions are defined for a given technology
      ii. An improvement in technology increases the maximum output obtainable from any combination of inputs and, therefore, results in a new production function
   c. Short run –

      i. Variable input – one whose quantity can be changed in the short run
      ii. Fixed input – one whose quantity cannot be changed in the short run

d. Long Run –

        i. In the long run, there are no fixed inputs
2. Defining terms in cost:
    a. Fixed Cost –

    b. Variable Cost –

    c. Total Cost –

    d. Average Cost –

    e. Marginal Cost –

3. Defining terms in production:
    a. Total Production –

    b. Average Product –

    c. Marginal Product –

4. An example: You own a factory that produces widgets. In order to produce widgets, you need to buy a machine that costs $100 but after you buy this machine you can produce as many widgets as you like provided you use the correct inputs for the machine. Below is a table for your output and various costs. Fill the table out.

Total Output	Total Cost	Total Fixed Cost	Total Variable Cost	Average Cost	Marginal Cost
0	100	100	0	-	-
1			40	140	40
2			70		30
3	190				20
4	200				
5	210				10
6					20
7	260		160		
8			200		
9	350				50

Problems

1. After graduation, you face a choice. One option is to work for a multinational consulting firm and earn a starting salary of $40,000. The other option is to use $5,000 in savings to start your own consulting firm. You could have earned an interest return of 5% on your savings. You chose to start your own consulting firm. At the end of the first year, you add up all of your expenses and revenues. Your total includes $12,000 in rent, $1,000 in office supplies, $20,000 for office staff, and $4,000 in telephone expenses. What are your total explicit costs and total implicit costs?

2. Using the information from question 1, suppose your total revenue is equal to $77,250. What is your accounting profit? Your economic profit?

3. The short run is a period of production
   a. in which some inputs can't be varied.
   b. that's too short for the firm to change its output.
   c. of 1 month or less.
   d. of 1 year or less.

4. Suppose you operate a small factory producing telephones. The only variable input you use is labor. Currently, you estimate that the average product of labor is 40 telephones per week per worker. Each worker earns $400 per week and works a standard 40-hour week. The average variable cost of telephones is
   a. impossible to determine from the information given.
   b. $10.
   c. $4.
   d. $1,600.

5. Don runs a small factory in which he produces lamps. His only variable input is labor. This week, he measures the marginal product of labor and finds it equal to 4 lamps per labor hour when he's producing 100 lamps. At the same level of output, he calculates the average product of labor to be 5 lamps per labor hour. If he gets more orders this week and hires more labor to increase production over 100 lamps,
   a. the average product of labor will increase.
   b. the average product of labor will remain 5 lamps per labor hour.
   c. the average product of labor will decrease.
   d. the marginal product of labor will decrease.
   e. Both (c) and (d).

6. A plant producing T-shirts finds that output will vary with the number of workers employed per week in the following way:

# of Workers	Output per week	Marginal Product
1	14	
2	36	
3	66	
4	92	
5	110	
6	120	
7	125	
8	125	

The point of diminishing returns is reached just after

a. 1 worker is employed.
b. 2 workers are employed.
c. 3 workers are employed.
d. 4 workers are employed.
e. 5 workers are employed.