PART I: Short Answer/Problem Solving

1) Tyler was having difficulties studying during his senior year at high school and thus was not allowed to play computer games for one year. Now that he is in college and decides for himself, he is very excited about the opportunity to play games once again. He found a website which sells used Xbox One games. He reports his willingness to pay for Xbox One games as follows:

For the first game (Battlefield 1), he is willing to pay up to $40
For the second game (Gears of War 4) he is willing to pay up to $30
For the third game (Grand Theft Auto V) he is willing to pay up to $20
For the fourth game (FIFA 17) he is willing to pay up to $10

a) Draw Tyler’s demand curve for Xbox One games on the grid given below

b) How many Xbox One games would Tyler buy if a game costed $25?

c) If the price of an used Xbox One game is $15, shade Tyler’s consumer surplus on your graph and calculate the value of his consumer surplus.
2) After taking Econ110 you are inspired to open up your own cleaning business on campus “Dirt Busters” where you offer dorm-cleaning services for students. For your firm you had to obtain a license to operate a business and pay a monthly fee of $50. You also leased 4 professional vacuum cleaners, each costing $100 per month. Moreover you use workers to provide the dorm cleaning service. Each hired worker has a monthly salary of $400. In the table below the relationship between the number of workers you hire and the quantity of dorm rooms your firm cleans in a month is presented.

<table>
<thead>
<tr>
<th>Number of workers (L)</th>
<th>Quantity of Dorm Rooms Cleaned (Q)</th>
<th>Marginal Product of Labor (MP)</th>
<th>Fixed Costs (FC)</th>
<th>Variable Costs (VC)</th>
<th>Total Cost (TC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Fill in the missing entries in the above table.

b) Is your firm experiencing diminishing returns? (Please answer Yes or No). If yes, please specify when the diminishing returns kick in.

3) A local photocopy business in Delaware wants your economic advise. The owner of the photocopy shop wants to know how each of the following changes would affect the fixed cost (FC), variable cost (VC), total cost (TC), average total cost (ATC), average variable cost (AVC), average fixed cost (AFC), and marginal cost (MC)?

<table>
<thead>
<tr>
<th>Change</th>
<th>FC</th>
<th>VC</th>
<th>TC</th>
<th>ATC</th>
<th>AVC</th>
<th>AFC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A decrease in the rent of the firm’s building</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>An increased in the cost of paper</td>
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<td></td>
</tr>
</tbody>
</table>

For each cell choose one of the following: Increases, Decreases, Not affected.
4) As a business consultant to small businesses, you have four clients operating in different perfectly competitive markets. All four have the goal of maximizing profits. Based on your analysis of the data for each of their situations, what would you advise each of these firms?

<table>
<thead>
<tr>
<th>Client</th>
<th>Price</th>
<th>q</th>
<th>TR</th>
<th>TC</th>
<th>Profit</th>
<th>VC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>100</td>
<td>350</td>
<td>350</td>
<td>300</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>20</td>
<td>500</td>
<td>500</td>
<td>400</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td>100</td>
<td>5100</td>
<td>5100</td>
<td>3000</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>100</td>
<td>3000</td>
<td>2500</td>
<td>2500</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

For each client put a check mark (✔) in the column of the action you recommend based on the data given above.

- Decrease output
- Increase output
- Stick to current output
- Shut down

Client 1
Client 2
Client 3
Client 4
5) In each of the diagrams below the figure on the right represents the perfectly competitive milk industry. The one on the left represents an individual milk producer in this market. In all diagrams the vertical axis is measured in dollars, and the horizontal axis represents output. The diagrams are labeled A, B and C. Match the letter of the graph to the correct scenario given below.

The industry supply will decrease and firms will exit the industry in diagram _______ since individual firms are making negative economic profit.

The industry supply will increase and new firms will enter the industry in diagram ________ since individual firms are making positive economic profit.

The market in diagram ______ is in the LR equilibrium since individual firms are making zero economic profit.
PART II: Multiple Choice

1) Suppose you opened the only Weekend Car Rental Store, “Bishops Weekend Car Rental” on campus. Your demand, marginal revenue and marginal cost data are given in Figure 1. Which of the following is the profit-maximizing price that you would charge for a weekend car rental?

a) $80  
b) $50  
c) $40  
d) $70  
e) $60

2) Refer to Figure 1, Which of the following is the profit of your firm “Bishops Weekend Car Rental”?

a) $600  
b) $900  
c) $2,000  
d) $300  
e) $1,000
Figure 2: Demand and Supply of Tickets for the Chainsmokers Concert

3) Assume the demand and supply curves of tickets for the Chainsmokers concert are given above. Which of the following gives the correct consumer surplus (CS), and producer surplus (PS) under free market equilibrium?

a) CS = 32,000 and PS = $16,000  
   b) CS = 32,000 and PS = $32,000  
   c) CS = $16,000 and PS = $32,000  
   d) CS = 16,000 and PS = $16,000  
   e) CS = 64,000 and PS = $64,000

4) Consider the demand and supply of tickets for the Chainsmokers concert given in figure 2. Suppose Columbus city council imposes a price floor of $70 on this market. Which of the following would be the consequences of this price floor?

a) The quantity demanded of Chainsmokers concert tickets would go up to 1,200.  
   b) The price floor of $70 would not have any effect on the initial market equilibrium since it is not an effective price floor.  
   c) There would be an excess supply of 400 Chainsmokers concert tickets at the price floor  
   d) There would be a shortage 400 Chainsmokers concert tickets at the price floor.  
   e) As a result of this price floor 800 tickets would be bought and sold in the market.
5) The small coffee stand in Hamilton Williams Campus Center charging $3 for doughnuts and selling 400 in a month. The owner reduced the price of doughnuts to $1 and experienced that the sales increased to 800 doughnuts a month. Which of the following is the price elasticity of demand for doughnuts at the campus center coffee shop?
   a) -1.5  
   b) 0  
   c) -0.66  
   d) -0.5  
   e) -0.25 

6) When a factory is operating in the short run,
   a) average fixed cost rises as output increases  
   b) it can not adjust the quantity of fixed inputs  
   c) it can not adjust the quantity of variable inputs  
   d) it can not alter variable costs  
   e) total cost is less than variable cost

7) Suppose the city officials are considering imposing a rent control on the apartments in German Village. The above figure illustrates the effect of the proposed rent ceiling of $400, were \( S_{SR} \) is the short run supply curve of rental apartments, and \( S_{LR} \) is long run supply curve of rental apartments. Which of the following statements is NOT one of the consequences of this rent control?
   a) 250 new apartments will be constructed by entrepreneurs in the long run to meet the excess demand.  
   b) The quality of the existing apartments deteriorate as the landlords fail to maintain their existing units  
   c) Some of the landlords will remodel their apartment buildings as office buildings.  
   d) There will be a shortage of apartments equaling to 250 in the short run.  
   e) As a result of rent control, the number of available apartments will fall to 200 in the long run.
8) Suppose your factory manager reported that your marginal cost is less than your marginal revenue at the current output level. In order to maximize your profits, you should
   a) Increase the output level
   b) Produce half of your current output level
   c) Decrease the output level
   d) Stay at the current output level
   e) The answer depends on the market structure

9) Assume that after graduation, you have two choices. 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. (The $5,000 will be spent on legal expenses for filing the initial paperwork). You could have earned an interest return of 5 percent on your savings. You choose to start your own consulting firm. At the end of the first year your expenses are $12,000 in rent, $1,000 in office supplies, $20,000 for office staff, and $4,000 in telephone expenses. At the end of the first year, your total revenues are $77,250. Which of the following represents your accounting profit and your economic profit?

   a) Accounting Profit:$45,000, Economic Profit:-$25,000
   b) Accounting Profit:$35,250, Economic Profit:-$5,000
   c) Accounting Profit:$30,250, Economic Profit:-$5,250
   d) Accounting Profit:$77,250, Economic Profit:-$5,000
   e) Accounting Profit:$45,250, Economic Profit:-$25,250

10) Which economic concept explains why a large PC manufacturer like DELL can produce a PC at a lower average cost than Delaware Computer Geeks Co, a small individually owned PC shop?

   a) Diseconomies of scale
   b) Decreasing returns to scale
   c) Diminishing marginal returns
   d) Economies of scale
   e) Increasing marginal costs

11) Which of the following best describes the relationship between marginal cost (MC) and average total cost (ATC)?

   a) When MC is less than ATC, ATC decreases and when MC is larger than ATC, ATC increases.
   b) When MC is constant ATC decreases at a constant rate
   c) ATC intersects MC at MC’s minimum point
   d) When MC decreases, ATC decreases and when MC increases, ATC increases.
   e) When MC increases, ATC decreases and when MC decreases, ATC increases.
Newman’s demand for Tutoring services

12) Newman is an OWU freshman taking Econ110. His demand for tutoring services is given in the above Figure. Thanks to the economics honor society (ODE), the tutoring sessions are offered to the students for free.

Calculate Newman’s consumer surplus.

a) $10
b) $20
c) $40
d) $0
e) Cannot be determined from the information given.

13) Suppose you are operating a photocopy shop on campus. During the winter break, your sales have dropped tremendously and therefore you are considering shutting down temporarily until demand for your copy services picks up again. At the profit maximizing output of 3,000 pages per day, your total revenue is $300. Your variable costs are $250 and your fixed costs are $200. Which decision do you make regarding production?

a) Shut down, produce nothing, and suffer a loss equal to fixed costs.
b) Produce copy services and earn zero profit
c) Not enough information provided to answer the question.
d) Produce copy services and earn a positive profit.
e) Produce copy services, but suffer a loss.
14) ‘Squeaky-Clean’ is a car wash company operating in a perfectly competitive market in the short run. The total cost of providing car wash service for various output levels is given below. Moreover, the Squeaky-Clean’s fixed costs (FC) are given as $30.

<table>
<thead>
<tr>
<th>Output (Q)</th>
<th>Total Cost (TC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>45</td>
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<tr>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>63</td>
</tr>
<tr>
<td>6</td>
<td>73</td>
</tr>
<tr>
<td>7</td>
<td>85</td>
</tr>
</tbody>
</table>

If the price of a car wash is determined in the industry as $8, how many cars will be washed by ‘Squeaky-Clean’ in the short run? What is the total profit of this firm?

a) shut down and make a profit of 0  
b) shut down and make a profit of -$30  
c) wash 3 cars and make a profit of $24  
d) wash 5 cars and make a profit of -$23  
e) wash 6 cars and make a profit of -$25
15) In Figure 3, if the market price is $7 in the perfectly competitive industry, in the short run

a) the firm will shut down and make a loss of $80  
b) the firm will shut down and make a loss of $100  
c) the firm will shut down and make zero profits  
d) the firm will produce Q=80 and make a loss of $80  
e) the firm will produce Q=80 and make a loss of $40

16) You produce jewelry boxes. If the demand for jewelry boxes is elastic and you want to increase your total revenue, you should

a) increase the price of your jewelry boxes.  
b) decrease the price of your jewelry boxes.  
c) not change the price of your jewelry boxes.  
d) None of the above answers are correct.