Do by 10/31/2006 at 12:40 pm.

- Late policy: The late homework assignment will receive a 25 percent discount penalty per each day late.
- Grading: simply giving numerical answer is not a warranty for obtaining maximum grades. The student should be prepared to explain in plain English sentences the reasoning that led him to obtain his result. Thus, it is not unexpected to give answer on a separate sheet of paper.

Question 1. Explain the reasons for the emergence of chain stores in maximum 10 lines.

Question 2. (Non linear pricing with membership in retailing)

You are manager of a store. The store carries two products A and B. There are two types of consumers visiting your store, type 1 and type 2. Each type of consumer is in proportion 50%. Consumer’s willingness to pay for good 1 and 2 is shown in table 1.

Table 1. Consumer’s willingness to pay.

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Consumer type 1</th>
<th>Consumer type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>$140</td>
<td>$210</td>
</tr>
<tr>
<td>Product 2</td>
<td>$200</td>
<td>$130</td>
</tr>
</tbody>
</table>

a) How could you maximize the profit if consumers are not able to sell the products to each other?

b) These two consumers are friends and willingly to co-operate. How much is your profit in this case?

Question 3.

A farmer is currently producing oats. The price of regular oats at the elevator is $2 per bushel. The average yield in that area is 50 bushels/acre. He is thinking about transferring to organic farming because the price of organic oats is 30 percent higher than the regular oats. If he transfers to organic farming the yield will be 40 percent smaller. The farmer
does not need to pay for fertilizer and spraying in organic farming. (It is not allowed to use fertilizer and chemicals in organic farming.) Those costs are 10 dollars per acre.

a) Should the farmer transfer to organic farming?

b) Because organic farming does not harm nature as much as conventional farming, government decides to issue a subsidy to promote organic farming. The subsidy is $20 per acre. Should the farmer change his first decision?

Question 4. Price choice and the LOMA.

You are a decision maker in company A. There are two other companies, B and C. The distance between A and B is 40 miles and the distance between A and C is 80 miles. There are no other roads than B to A and C to A. Company A needs 10 units of strawberries for its processes. The farms are located next to the roads. The distance between the farms is 10 miles. The farmers pay the transportation. Each farm is producing 2 units of strawberries. The transportation cost is $1/unit of strawberries per 10 miles. All the farmers prefer A to B and A to C because it is a locally owned business. (They sell to company A if the price is the same.)

The competitors have the following prices:

<table>
<thead>
<tr>
<th>Company</th>
<th>Price/unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>$20</td>
</tr>
<tr>
<td>C</td>
<td>$25</td>
</tr>
</tbody>
</table>

a) What approach will solve this problem?

b) How much should company A pay to get enough strawberries?

c) How much should company A pay if company C rises the price by $3?
Question 5. Strategic store location choice and the LOMA

You are the owner of a retailing chain and you are looking for a place to locate a new food store in the main street of a midsize town. Unfortunately, competitor C has already chosen to open a store before you where he sells the same product as you for $2/unit. The street which is 9 miles long is represented below:

![Street Representation](image)

You know that consumers are scattered uniformly on each point of the main street (i.e. there is 1000 consumers at point 0, a 1000 at point 1, ..., a 1000 at point 9) and they have a transportation cost equal to $1/mile. Moreover you know that consumers who are indifferent between two food stores will buy at the closest one. Your objective is to maximize your sales.

1/ Assuming that the price that you will charge is $4/unit, where would you locate?
Give your total sale in dollar and the total sale of your competitor assuming each consumer buys only one unit.

2/ Assume now that people living at 0, 1, 2, 3, 4, 5 are on average younger than the rest of the town and that they have a transportation cost equal to $0.5/mile. Where would you locate?
Give your total sale in dollar and the total sale of your competitor assuming each consumer buys only one unit.

3/ Discuss whether your competitor’s choice (who anticipated your arrival) of location was wise in the first place. Would you have chosen the same location? explain.