1. A recent article in the Wall Street Journal noted that “Fancy restaurants and luxury carmakers cater to customers who are willing to pay extra for a product they consider superior. For mutual fund investors, the less-expensive choice is often the better bet.” This is saying that people tended to have “loyalty” to restaurants (and luxury car makers) but not to mutual funds.
   a. Explain what is meant by loyalty in an economic sense. In your answer, talk about the qualities of each product and how they may or may not instill loyalty. Be sure to concentrate on the economic definition of brand loyalty.
   b. Use your answers to characterize the market for restaurants as opposed to financial advisors/brokers. Defend your answer and explain what that means about the price different providers will charge and the ability of restaurants and brokers to make economic profits.
2. The cola industry in a country has the following producers and shares:
   Coke: 25%
   Zight: 24%
   Pepsi: 23%
   Bright: 20%
   Quite: 8%

   a) Find the four-firm concentration ratio and the number of equal-sized firms that value indicates

   b) Find the HHI for the industry and the number of equal-sized firms that value indicates

   c) If the market elasticity of demand is -2, find the market weighted Lerner’s Index and the Lerner's Index for Zight.
3. Consider a two-person economy (Bill and Sue) with two goods (A and B) where both individuals have a utility function \( U = A \times B \). Sue owns more of the resources used for production than does Bill. The PPF for A and B is a normal curved shape. Both goods are produced in competitive markets without taxes so in equilibrium \( MCA = PA \) and \( MCB = PB \). (HINT: Think about MRS and MRT when answering this question)

a. Is this economy Pareto efficient in equilibrium? Explain why or why not?

b. Does it produce too much of A or too much of B, or the right amount of each?

c. In an effort to make the economy more equal, the government imposes a sales tax of \( t \) on both goods and gives money to Bill, essentially shifting the distribution. When it reaches equilibrium, is the economy Pareto efficient? Explain why or why not.

d. Suppose instead the government taxes only good A, so B is not taxed. Again, when it reaches equilibrium will the economy be Pareto efficient, or will it produce too much of one good? If yes, which one? Explain why.
4. Suppose we have a market with an inverse demand curve \( P=80-Q \) and \( MC \) is constant so \( MC=20 \).

a. If the market is a perfect competition, what will be the equilibrium price, what would be the market output, and how much profit would firms make?

b. Now suppose it is a monopoly. What will be the equilibrium price, what would be the market output, and how much profit would the firm make?

c. Now suppose it is a Cournot duopoly. What will be the equilibrium price, what would be the market output, and how much profit would each firm make?

d. Find the market price, each firms’ quantity, and profit if one firm acts as a Stackelberg leader and the other a follower.

e. Find the market price, each firms’ quantity, and profit if both firms act as a Stackelberg leader.
5. For any FIVE (5) of the statements below, indicate if it is True, False or Uncertain, and explain why. (Your explanation needs to give reasoning, not just a different statement). Each is worth 4 points.

a. If the MRS exceeds the MRT, the economy lies inside the PPF.

b. Suppose you have a Hotelling beach model but firms are in fixed locations. The firm closest to the middle will charge a higher price.

c. In an oligopoly market, if both firms follow Bertrand behavior, output will be more than if they both follow Cournot behavior.

d. The Kenworthy theater in Moscow charges $6 for a single entry, but sells ticket books at the rate of $50 for 10 entries. This is likely an example of 2nd degree price discrimination.

e. Imposing a tax on a firm in a kinked-demand curve oligopoly will increase the price of the good by the amount of the tax.

f. Clorox bleach and Safeway brand bleach have identical chemical properties. Hence, Clorox will have no market power because Safeway brand bleach is a perfect substitute.
g. The PPF for an economy that produces two goods, A and B, is a straight line with a slope of -2. Both residents of the economy have utility functions $U = A^{0.5}B^{0.5}$. A Pareto efficient general equilibrium will have both residents consuming so $A = B$.

h. A multiplant monopolist has plants in Seattle and Tacoma. When Seattle raised its minimum wage to $12 an hour (much more than the minimum wage in Tacoma) the best move for the monopolist will be to keep both plants open but produce more in Tacoma.

i. Water service provides water to households for a set price of $20 then $0.03 per a gallon. This is a form of perfect price discrimination.

j. Movie theaters they give older people a discount but the symphony gives students a discount but not old people. Movie theaters think students have a more elastic demand for movies and the symphony thinks older people are more elastic demand for the symphony.

k. Consumers should prefer to face a monopoly practicing 2nd degree price discrimination than one practicing 1st degree price discrimination.

l. If an initial allocation is Pareto inefficient, there is always an allocation that can make both people better off.

m. It is more likely that an oligopoly will make a positive economic profit than a monopolistic competition.
Extra Credit: Each of the following questions is worth 2.5 XC points.

XC1. Suppose you have the following game:

Payoffs are A,B

<table>
<thead>
<tr>
<th>Player A</th>
<th>Player B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
</tr>
<tr>
<td>Top</td>
<td>1,2</td>
</tr>
<tr>
<td>Bottom</td>
<td>2,1</td>
</tr>
</tbody>
</table>

Does either player have a dominant strategy? Explain why or why not?
Find any Nash Equilibria that exist in this game.

XC2. Suppose you have the following game:

Payoffs are A,B

<table>
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<tr>
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<th>Player B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
</tr>
<tr>
<td>Top</td>
<td>-1,-1</td>
</tr>
<tr>
<td>Bottom</td>
<td>-5,0</td>
</tr>
</tbody>
</table>

Does either player have a dominant strategy? Explain why or why not?
Find any Nash Equilibria that exist in this game.
What type of game is this?