Midterm Exam

You have until 4:50pm to complete the exam, be certain to use your time wisely. Answer all questions directly on the exam (if choosing to use a laptop to type answers, please indicate that on the exam). Answer all questions completely but concisely. Including additional incorrect information in an otherwise correct answer may result in the loss of points. Remember to put your ID number on the exam. Good luck!

ID Number:

1. (20 points) Consider the readings from the beginning of the semester on the Iranian kidney market and the theoretical international trade of pollution. These two readings relate to two markets that are essentially absent in the United States:

   - A market for people in need of an organ transplant to purchase that organ directly from an organ donor.
   - A market for Americans to sell pollution and environmental waste to least developed countries (LDCs) willing to take that environmental waste in exchange for monetary compensation.

   The first market does not exist due to legal restrictions. The second is largely non-existent because of both technical feasibility of transporting pollution and because of environmental regulations. Choose *one* of these two markets and discuss all of the following:

   (a) Why the existence of the market could improve efficiency.

   (b) Why the existence of the market could actually lead to more inefficient outcomes.

   (c) Why the existence of the market could lead to less equitable outcomes.

   (d) Why the existence of the market could lead to more equitable outcomes.

2. (20 points) In class we briefly discussed the notion that forcing cable companies to pay a franchise fee, a lump sum the firm is required to pay to the local government, will cause a loss in efficiency. Use a graph with price on the vertical axis and number of cable customers on the horizontal axis to show the *additional* deadweight loss generated by the imposition of a franchise fee. Assume the following:

   - Demand for cable is decreasing as price increases.
   - The cable company has constant marginal costs and decreasing average costs.
   - There are quantities at which the cable company would be profitable.
   - To win the cable franchise, firms bid on the price they are willing to charge. Assume that this bidding is competitive and leads to the winning firm charging a price that just allows the firm to break even. Firms will also bid each other down to zero overall profits when the franchise fee is introduced.

   Be certain to clearly label all relevant curves, prices, quantities and areas on your graph. Include a brief written explanation of what your graph is showing (this explanation should require no more than two or three sentences).

3. (20 points) The proposed $11 billion merger between American Airlines and U.S. Air would make the merged airline the largest domestic carrier. The Department of Justice has yet to approve the merger and is still in the process of evaluating the potential anti-competitive effects of the merger.

   (a) Explain why the Department of Justice would be concerned that the merger will reduce efficiency in the market for air travel. While your answer should include the general economic critiques of horizontal mergers, it should also be tailored to the specifics of the market for air travel.

   (b) What arguments would American and U.S. Air likely make to justify the merger on efficiency grounds? Once again, be certain that at least part of your answer is specifically related to the air travel industry.

   (c) If you were representing American and U.S. Air, how would you define the relevant market when determining whether the merged firm would lead to excessive market concentration? Be as specific as possible.

   (d) If you were representing the Department of Justice with the goal of blocking the merger, how would you define the relevant market? Be as specific as possible.

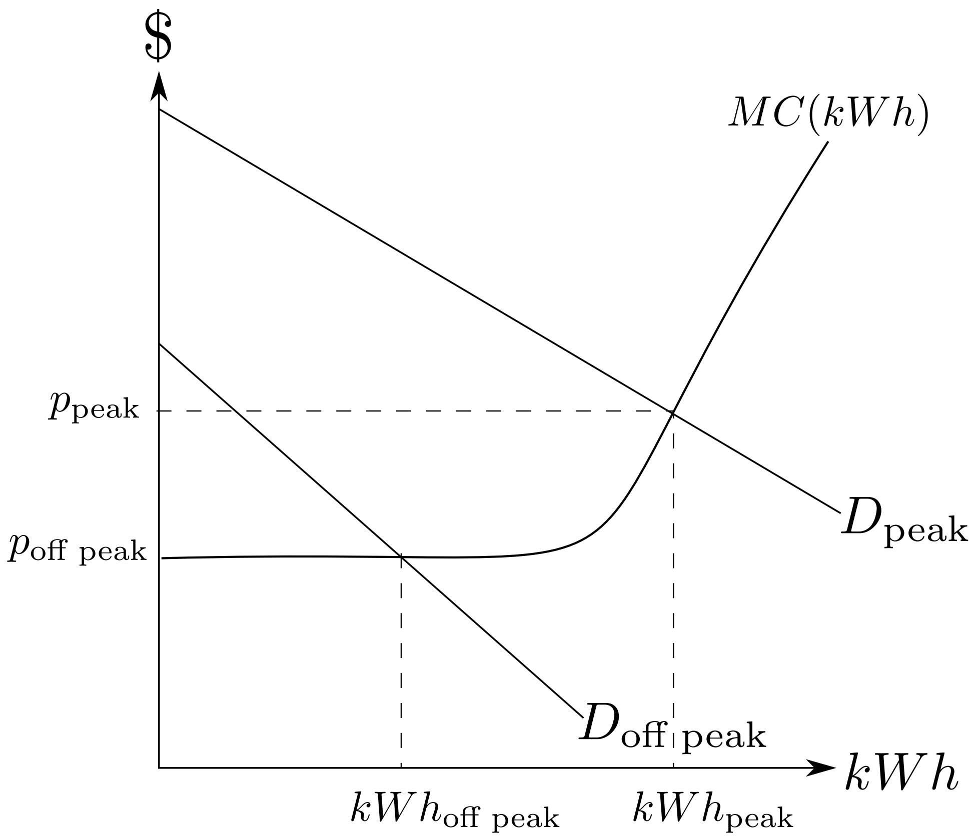
4. (20 points) Consider the collusion that occurred between Sotheby's and Christie's auction houses.

   (a) How did the collusion between the auction houses affect efficiency in the auction market? How did it affect equity in the auction market? While your answer should relate to the specifics of how collusion took place, your discussion of the effects can be focused on the theoretical effects of that collusion.

   (b) What aspects of the auction market made collusion more likely to work than in other markets? What features of the collusive agreement made it more likely for the agreement to hold?

   (c) Suppose that there will be a change in estate tax laws that will make it more favorable to make intergenerational transfers of cash rather than physical assets such as artwork or antiques. The expectation is that this law will go into effect in the next year and be permanent. Discuss how this will influence the likelihood of a collusive agreement between auction houses forming and being maintained.

5. (20 points) The graph below shows the marginal cost of producing electricity, $MC(kWh)$, the demand for electricity during peak hours, D_{peak}, and the demand for electricity during off peak hours, $D_{\text{off peak}}$. The horizontal axis is measured in kilowatt-hours of electricity and the vertical axis is measured in dollars.



Currently, a regulator mandates that the electric company set price equal to marginal cost in both the peak and off peak markets, leading to the current peak and off peak prices of p_{peak} and $p_{\text{off peak}}$ shown on the graph as well as the corresponding quantities kWh_{peak} and $kWh_{\text{off peak}}$.

(a) Suppose that the regulator is considering using smart meters and an informational campaign to convince several peak users to switch to consuming electricity during off peak hours. If these customers switched, the marginal benefit they would receive from each kilowatt-hour of electricity would remain the same. Explain what effects this would have on total surplus, consumer surplus and producer surplus.

(b) Given your answer to part (a), should the regulator pursue this plan? What other factors should the regulator take into account when evaluating whether to pursue the plan?

(c) Recall the retail rate caps that were a feature of the California electricity regulation reforms. Suppose that this cap was in between p_{peak} and $p_{\text{off peak}}$ on the graph above. On the graph above, show how the imposition of these price caps would affect total surplus. You can assume that in cases where the price caps are not binding, the competition between electricity providers drives price down to marginal cost. Also assume that the utility distribution companies (UDCs) were required to meet all electricity demand.