

MIDTERM EXAMINATION
Class #13

Instructions: You have 1 hour and 25 minutes to complete this exam. This exam is closed-book: no books or notes are allowed. In addition, you may *not* use a graphical calculator or one that stores words, user-specified functions, or spreadsheets. Answer *all* questions. Be sure to write your name and the name and number of the course on all pages that you hand in. Be as clear and legible as possible. The exam consists of 3 parts and 5 questions in total. Please note that ALL work must be shown to receive credit. The exam is out of 60 points.

Part I: Short Question and Answer Section. (Total points: 15) Please limit your response to NO LONGER than 3 or 4 sentences (take into account that each question is only worth 5 points).

1. If the benefit deregulating the airline industry in Mexico involves a one off cost \$1 bn now and an annual gain of \$100m starting in a year's time. How high would the discount rate have to be for this not to be a worthwhile investment for society? If the cost of deregulation were incurred by the government (for the whom the social value of \$1 is \$1) and the gains went to rich consumers (for whom the social value of \$1 is \$0.5), how would this change the answer?
2. The government decides to auction radio spectrum for use by 3G mobile phone companies. Does it matter for the final price of mobile phone services what the government receives from the companies as a result of the auction? Justify your answer.
3. Price and entry/exit regulation usually go together in all regulated industries. It is rare to see one type of regulation and not the other. Explain why this was the case in US railroads.

Part II: Numeric Problem. (Total points: 25). Be sure to show all of your work.

4. A natural monopolist has total costs $C(Q)=300+15Q$ and faces market demand $Q=200-2P$. Solve for the monopolist's profits, output, and consumer surplus when:
 - (a) Price is set equal to marginal cost.
 - (b) Price is set equal to average cost.
 - (c) There is two-part pricing, the monopolist sets them to maximize profits.
 - (d) There is two-part pricing, the regulator sets them to maximize consumer surplus, subject to the monopolist breaking even.For parts (c) and (d), you can assume that there are 10 identical consumers.

Part III: Short Essay (Total points: 20).

5. Government ownership is an alternative way of regulating production that might otherwise be undertaken by a regulated private monopoly. In the US it is still the case that government ownership is significant in for example the rail, electricity and water sectors. Discuss (1) the motivation for government ownership as a form of regulation (2) how it is supposed to work (3) any theoretical and practical weaknesses of government ownership. Try to use specific examples and evidence drawn from the class to support your views.