Problem Set 4

Problem 1

Assume that a monopoly supplier of a good makes sales to customers located in different regions of the country. The demand functions for the good in each region are:

\[ q_1 = \frac{1}{2} - p_1 \]

and

\[ q_2 = \frac{1}{2} - p_2 \]

Assume in what follows that production and transport costs are zero.

(i) Assuming that the monopolist must charge a uniform (linear) price to the two regions, calculate the profit-maximizing uniform price.

(ii) Assume that the monopolist can engage in third-degree price discrimination. Calculate the profit-maximizing price for each region.

(iii) Does third-degree price discrimination increase or decrease welfare, as measured by the sum of consumers' plus producers' surplus, in this case?

Problem 2

Disneyland used to offer a variety of admission fees. For a given fee, the purchaser was entitled to a certain number of rides once in the park. (For example, there might have been an Economy@ package that cost $10.00 and included tickets for five rides and an Adventure@ package that cost $15.00 and included tickets for ten rides.)

(i) Using diagrams and/or equations, explain why Disneyland's management might have found this scheme profitable. Why didn't they simply charge a fee per ride?

(ii) There are numerous products for which there is a fixed charge to use the service and then a charge per usage. Examples are Polaroid cameras and film and electrofax copying machines and paper. How does the optimal pricing for these products differ from that of Disneyland, and in what respects is it similar? Explain the reasons for the similarities and the differences.
Problem 3

(i) A monopolist faces a single consumer, with demand function \( q = a - p \). His marginal cost is 0. The monopolist faces a competitive fringe at price \( p_o < a \) (that is, a perfect substitute is available at price \( p_o \)). What is the optimal pricing scheme under a linear tariff? Under two-part pricing?

(ii) Suppose now that there are two types of consumers, with demands \( q = a_1 - p \) (in proportion \( x \)) and \( q = a_2 - p \) (in proportion \( 1-x \)), where \( p_o < a_1 < a_2 \). Consider linear pricing and third-degree price discrimination. Would uniform (linear) pricing increase welfare? (Think of the case in which \( \frac{a_2}{2} > p_o > \frac{a_1}{2} \)).

(iii) Consider the two types of consumers of question ii, but look at second-degree price discrimination. Compare the monopoly price under linear pricing and the marginal price under a two-part tariff.