**NTU SSS Economics HE1001**

**Problem Set 3: Monopoly II and Game Theory**

**This problem set will be discussed during the tutorials in Week 11 (30-31 Oct)**

**Monopoly II**

1. Suppose a firm can practice perfect first-degree price discrimination. What is the lowest price it will charge, and what will its total output be?
2. Third-degree price discrimination requires the ability to sort customers and the ability to prevent arbitrage. Explain how the following can function as price discrimination schemes:

*Requiring airline travellers to spend at least one Saturday night away from home to qualify for a low fare.*

1. A monopolist is deciding how to allocate output between two geographically separated markets (East Coast and West Coast). Demand for the two markets are:

*East Coast: P*1 = 15 - Q1

*West Coast: P*2 = 25 - 2 Q2

The monopolist’s total cost is C = 5 + 3(Q1 + Q2). What are prices, outputs, and profit if the monopolist can price discriminate?

**Game Theory**

1. Two firms are in the chocolate market. Each can choose to go for the high end of the market (high quality) or the low end (low quality). Resulting profits are given by the following payoff matrix. Please solve for the Nash equilibria?

**Firm 2**

**Low High**

**Firm 1 Low** 20, 30 900, 600

**High** 100, 800 50, 50

1. Does this game exist any dominant strategy equilibrium?
2. Does this game exist any Nash equilibrium?
3. Two major networks are competing for viewer ratings in the 8:00–9:00 pm and 9:00–10:00 pm slots on a given weeknight. Each has two shows to fill these time periods and is juggling its lineup. Each can choose to put its “bigger” show first or to place it second in the 9:00–10:00 pm slot. The combination of decisions leads to the following “ratings points” results:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Network 2 | |
|  |  | First | Second |
| Network 1 | First | 20, 30 | 18, 18 |
| Second | 15, 15 | 30, 10 |

(a) Find the Nash equilibria for this game, assuming that both networks make their decisions at the same time.