



**Eco 188/288 Problem Set 2: Due Oct. 1, at beginning of class.**

1. When Hernan Cortes arrived on the shores of Mexico he ordered that his own ships be burned. His soldiers had the choice of fighting vigorously (FV) or proceeding with caution (PC). We'll model this strategic setting with the above game tree, where the players are Cortes (C) and his soldiers (S). Cortes' actions are to burn the ships (B) or to not burn them(DB).
  - a) solve for the Nash Equilibria of the game.
  - b) Solve for the subgame perfect Nash equilibria.
  
2. Assume that the manufacturing of cell phones is a perfectly competitive industry. The market demand curve is described by the function  $Q^d = \frac{6000 - 50P}{9}$ . There are 50 manufacturers and each has the same production costs. Long run total costs and marginal costs are  $TC(q) = 100 + q^2 + 10q$  and  $MC(q) = 2q + 10$ .
  - a) What is the profit maximizing output for each firm?
  - b) What does the industry supply curve look like?
  - c) What is the market price and aggregate quantity purchased in equilibrium?
  
3. Following up on the previous question, now assume the industry is monopolized, and the monopoly has 50 identical plants to run. The overall marginal cost function for the multiplant monopolist is  $MC(Q) = 10 + Q/25$ . The market demand is assumed to be the same as in the previous question.

- a) What is the monopolist's marginal revenue function?
- b) What is the monopolist's profit maximizing level of output and what price is set to sell this level?
- c) What profit does the monopolist earn?

4. Cabral, exercise 6.2., 7.4, 7.5.