**PRE-EXAM** Industrial Economics and Policy (28th April 2017)

1. Consumers are uniformly distributed on the unit interval. Two ice-cream vendors, *A* and B, are located at the two extremes of the unit interval. The transportation cost is equal to 5 and the marginal costs are, respectively, cA=10 and cB=20. **Explaining your reasoning**, compute:

(a) the demand for each vendor;

(b) the best response functions;

(c) the equilibrium prices.

**OR**

1\* Consumers are uniformly distributed on the unit interval. Two ice-cream vendors, *A* and B, are located at *xA=¼* and *xB=1*. The transportation cost is equal to 5 and the marginal costs are, respectively, cA=10 and cB=20. **Explaining your reasoning**, compute:

(a) the demand for each vendor;

(b) the best response functions;

(c) the equilibrium prices.

1. Consider two firms producing a homogeneous good. The demand function is ***Q=100-P*** (with *Q=q1+q2*); the cost function is ***TCi=ciqi*** with ***c1=50*** and ***c2=60***.

**Explaining your reasoning,**

* 1. Compute the (Nash) equilibrium of the game in which the two firms choose the production level simultaneously.
  2. Compute the (Nash) equilibrium of the game in which the two firms choose the price simultaneously.
  3. Suppose that the price game is repeated indefinitely. Find the efficient collusive agreement.
  4. Explain why, without monetary transfers, the agreement is not self-enforcing.
  5. \* Let the discount factor δ be equal to 0,8. Compute the amount of the monetary transfer such that the efficient agreement can be sustained.

1. Consider the following game

|  |  |  |
| --- | --- | --- |
|  | ***L*** | ***R*** |
| ***T*** | ***1 a*** | ***0 4*** |
| ***B*** | ***0 4*** | ***2 1*** |

* 1. Find the Nash equilibria when *a=1*
  2. Now consider the sequential game in which Row player moves first. Draw the game tree and solve for *a* such that *(T, L)* is the equilibrium outcome.
  3. Which is the subgame perfect equilibrium of the above sequential game? [Recall the definition of a strategy and remember that an equilibrium is a set of strategies]