

Course: S-38.041
Date: 31.08.2004 at 9-12
Place: hall S1
Teacher: prof Heikki Hämmäinen

Each question is worth max 6 points. Answers can be written in English, Finnish, or Swedish. Answers must be short and concise. Please indicate if you have participated the voluntary mobile operator business game session to compensate one question.

1. Explain the following techno-economic terms briefly (max 5 sentences per term).
 - a. Flat rate
 - b. Free riding
 - c. Long-run incremental cost
 - d. Virtual mobile network operator
 - e. Tatonnement
 - f. Consumer surplus
2. Assume a market with positive network effects and N potential customers ($N=100$) indexed by $i = 1 \dots N$. Willingness to pay of customer i is $u_i(n) = ni$ for a unit of good given that n other customers will be using it. Customers can always return the good and get refund if the price goes below utility. Assume price $p=900$ posted. Calculate the possible equilibrium points and define conditions for reaching them. Define the socially optimal point and conditions for reaching it.
3. Describe schematically the GRX-based charging model for roaming traffic between GPRS operators.
4. Describe the EU regulatory process schematically.
5. The present value of a customer to an operator equals her switching cost. Assume that operator has a variable monthly cost of 20 EUR per customer. Further, it costs a customer 80 EUR to switch from one operator to another. Supposing a monthly interest rate of 1%, what is the equilibrium price setting for a monthly subscription. At equilibrium, operators are profitable and customers don't have incentive to switch operators.