ADVANCED MICROECONOMICS II
June 20, 2007

Surname:……First name:……

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1. Consider that the utility frontier of a two agent exchange economy is given by $U_2 = 600 - U_1$ and let $W = U_1^{\frac{1}{2}} U_2^{\frac{1}{2}}$ be the social welfare function. Find the social optimum of such economy. (1.25 points).

2. Why does any core allocation give the same basket of goods to every agent of the same type? Argue your answer. (1.25 points)

3. State the First and the Second Welfare Theorems. Give a graphical example of 1) a Walrasian equilibrium allocation which is not Pareto optimal and 2) a Pareto optimal allocation which cannot be decentralized as a Walrasian equilibrium. Specify the assumptions that are not satisfied in the above examples. (2.5 points).

4. Find the contract curve and the utility frontier of a two-agent exchange economy with utility functions: $U_1 = x_{11}x_{12}$, $U_2 = \min\{x_{21}, 2x_{22}\}$, and initial endowments $w_1 = (1, 0)$, $w_2 = (1, 1)$. Compute the Walrasian equilibrium and verify that the Walrasian equilibrium utility levels belong to the utility frontier of the economy. Exhibit graphically all the results. (2.5 points).

5. State the judgement values of a Paretian social welfare function. Why a Rawlsian social welfare function is not a Paretian social welfare function? (1.25 points).

6. Consider a two-agent exchange economy with utility functions $U_1 = x_{11}x_{12}$, $U_2 = \min\left\{x_{21}, x_{22}\right\}$ and initial endowments, $w_1 = (1,2)$, $w_2 = (2,1)$. Consider the following allocations, $a_1 = [(2,2), (1,1)]$, $a_2 = [(11/5,11/5), (4/5,4/5)]$, $a_3 = [(14/5,14/5), (6/5,6/5)]$. Argue whether they belong to the core of the economy. (1.25 points).