ECONOMICS 7344, Spring 2006
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Final Exam, May 3 — 4 questions. All sub-questions carry equal weight except when stated.

1. (10%) Explain in detail what is meant by Excess Smoothness of Consumption. (Note: Start by explaining which model this refers to and under which conditions that model holds. You need all the steps to get points.)

2. (25%) A consumer lives for 3 periods and expects to earn 30$, 0$, and 30$ in period 1, 2, and 3, respectively. The consumer maximizes

$$U(C_1) + \frac{1}{1.1} E_1 U(C_2) + \frac{1}{1.21} E_1 U(C_3) \ ,$$

where

$$U(C) = \log C \ .$$

The consumer can freely borrow and lend at a known interest rate and the consumer believes that there is no uncertainty about his or her income. The rate of interest is 10 percent.
a) Find the consumer's period 1 consumption and his/her expected consumption in period 2 and period 3.
However, when period 2 comes along, the world has changed and the consumer now is informed that income in period 3 is a random variable. With probability 0.5 income is going to be 20$ and with probability 0.5 income is going to be 40$.
b) Find the level of consumption in period 2 and period 3—(I need the distribution of consumption, not just the mean).
c) Explain, using concepts from class, why consumption in period 2 and expected consumption in period 3 now are higher or lower than in the initial situation. You can get full points for a correct explanation even if your answer to part b) is messed up.

3. (20%) a) Explain carefully the logic of the Lucas imperfect information model and its implications for monetary policy. You do not need to do any mathematical manipulations but the explanations have to be clear.
b) Explain carefully the logic of the Fischer model of prices and explain its implications for monetary policy in relation to the Lucas model.

4. (45%) Consider the case of the 2 agents, 2 periods, 2 states-of-the-world model of Obstfeld-Rogoff Chapter 5.2 (where agents can trade using a full set of Arrow securities). Assume that both agents have CRRA utility functions $U(C_0) + E_0 U(C_1)$, where $U(C_t) = -\frac{1}{2} C_t^{-2}$.

Assume that the endowment of the first agent is $y_0 = 3, y_1 = 3$ and that the endowment of the second agent in period 0 is $y_0^* = 3$ and in period 1 his or her endowment is $y_1^* = 6$ in the "good state" g. In the "bad state" b the endowment of the second agent is $y_1^* = 0$. Assume that the good state happens with probability 0.5.

In the following questions you need to be precise in economic terms about "why" effects are what they are. You can argue the answer to each of the questions using words or you can use the appropriate formula that is derived in the book (we are not asking you to prove formulas in this question). If you use the appropriate formula correctly you will get half of the points for that and the other half for explaining properly. You can get full points for detailed explanations without writing formulas.

a) Would the rate of interest be positive or negative and why?

b) If the endowments of both agents doubled in period 0, what would happen to the interest rate relatively to the initial situation?

c) If the endowment of the first agent in period 1 now is $y_1 = 0$ in state g and $y_1 = 6$ in state b, while the endowments of the second agent remains as in the initial case, what would happen to the interest rate compared to the initial situation?

d) In the initial situation explain if agent 1 will have higher or lower consumption than agent 2 in each of period 0, period 1 (state g), and period 1 (state b). You can do the derivation but if you can explain what will happen in terms of the theory you do not need to find the numbers.

e) In the situation in question c) which consumer (if any) will have higher consumption in period 1. Do NOT derive it, I want you to explain in terms of economics of the model what will be the answer.