

Econ 702, Spring 2007
Problem set 8
Due Tuesday April. 10th

Problem 1. *In Romer's model of growth through Research and Development*

1. *Show that the equilibrium interest rate in this model is different from the Neoclassical growth model case. Why is it this the case?*
2. *Show that in equilibrium, $x_t(i) = x_t$ for all i .*
3. *How would you describe a balanced growth path for this economy?*

Problem 2. *Take the model of unemployment that we saw in Class*

1. *State conditions on $p(a)$ for the first order condition on a*

$$-1 + \beta p'(a) [V^E - V^u] = 0$$

to be necessary and sufficient

2. *Sketch a proof for the operator T being a contraction, where*

$$T(V^u) = \max_a u(0) - a + \beta [p(a)V^E + (1 - p(a))V^u]$$

3. *Show that imposing linearity (i.e., $u[c, a] = u(c) - a$) does not imply loss of generality*
4. *Pick a utility function and solve the problem of the agent.*