

Economics 100b, Fall 2005  
Sample Midterm Questions  
Chapter 6

Consider an economy in Romer world. Suppose that the production function for the consumption goods is  $Y_t = A_t L_{yt}$ . For each of period,  $\Delta A_t$  amount of new ideas is invented, where  $\Delta A_t = \bar{v} A_t L_{At}$ . Assume that the population of the economy is  $\bar{N}$ . All people in this economy either produce consumption goods or invent new ideas, and the ratio is  $1 - \bar{\ell}$  to  $\bar{\ell}$ .

- (a) List all unknowns, equations, and exogenous variables for this economy.
- (b) Solve for this model. (Please also include per capita output.)
- (c) Will this economy grow forever? Why or why not?
- (d) Draw a time path diagram for per capita output.
- (e) Suppose at time  $t$ , the productivity of inventing new ideas increases from  $\bar{v}$  to  $\bar{v}'$ . What effects will this event bring to this economy? (Explain your answer with a time path diagram.)
- (f) Suppose at time  $t$ , the ratio of population in inventing ideas to producing consumption goods drops from  $\bar{\ell}$  to  $\bar{\ell}'$ . What effects will this event bring to this economy? (Explain your answer with a time path diagram.)