

Homework 5

EE412

For the Cass-Koopmans model,

$$\int_{t=0}^{\infty} e^{-\beta t} u(C_t) dt$$

Subject to

$$\int_{t=0}^{\infty} e^{-R(t)} \left\{ \frac{C(t)}{L(t)} \right\} dt \leq \left(\frac{K_0}{L_0} \right) + \int_{t=0}^{\infty} e^{-R(t)} w(t) L(t) dt$$

Where

$$u(C_t) = \ln C_t$$

$$F(K_t, L_t) = K_t^\theta L_t^{1-\theta}$$

With $\theta=1/3$, $r=0.0416$, $n=1$, $A(t) = 1$, $(K_0/L_0) = 0.1$

- 1) Calculate the steady-state capital stock per head and consumption per head.
- 2) Find the closed-form solution of the value function and the policy function.