MACROECONOMICS COMPREHENSIVE EXAM

Consider a model with a representative consumer with preferences:

$$\sum_{t=0}^{\infty} \beta^t \left[\frac{c_t^{1-\sigma}}{1-\sigma} - \upsilon \frac{\ell_t^{1+\frac{1}{\chi}}}{1+\frac{1}{\chi}} + \lambda ln g_t \right]$$

Here c_t denotes consumption per person, and ℓ_t is the fraction of time devoted to market work.

The production function is given by $Y_t = K_t^{\alpha} (E_t \ell_t)^{1-\alpha}$, with $\alpha \in (0,1)$ and $E_{t+1} = (1+x)E_t$. Capital depreciates at a constant rate δ. There exists a government that imposes taxes $(\tau_t^c, \tau_t^l, \tau_t^k)$, on consumption, labor income, and net return on wealth, respectively. With these resources it finances a level of public expenditure, g_t (notice it enters into the utility function), and can issue government debt b_t.

(a) What can you say about the Intertemporal Elasticity of Substitution in consumption and the labor supply elasticity?

(b) Define a competitive equilibrium. Remember that you need to renormalize the system because of the presence of technological progress. Be explicit about any renormalization you introduce.

(c) Characterize the competitive equilibrium as much as you can.

(d) Set up the social planner's problem, characterize it and compare the solution to the one of part (c).