1. **[28 points total (19%)]** Consider the Solow model studied in class with the investment (saving) rate $\bar{s}$, the depreciation rate $\bar{d}$ and the production function is equal to

$$Y_t = \bar{A} K_t^{\alpha} L_t^{1-\alpha}$$

Total labour grows at a constant rate $\bar{n}$ such that $\frac{L_{t+1}}{L_t} = 1 + \bar{n}$ and we assume it to be fully employed. TFP is $\bar{A}$. The capital accumulation equation is

$$K_{t+1} = I_t + (1 - \bar{d}) K_t$$

where $I_t = \bar{s} Y_t$. The total resource constraint is $Y_t = C_t + I_t$.

(A) **[5 points]** Derive the per capita production function y_t, per capita investment rule i_t, and the per capita change in the capital stock δk_{t+1}. Please show your work.