

Quiz 2: The Solow–Swan and Cass–Koopmans–Ramsey models

Questions	Answers
1. In the Solow–Swan model, why does a sudden rise in the saving rate produce a continuous change in y_t but a discontinuous change in c_t ?	☐ Because c_t is a stock and y_t is a flow. ☐ Because c_t equals $(1 - s) y_t$. ☐ Because y_t equals $f(k_t)A_t$, and since k_t and A_t are stocks they are differentiable with respect to time, hence continuous. ☐ The premise of the question is false.
2. What is dynamic inefficiency?	☐ A situation in which consumption per head could be raised at every point in time. ☐ In the Solow–Swan model, it arises when $s < s_{\text{GOLD}}$. ☐ In the Solow–Swan model, it arises when $s > s_{\text{GOLD}}$. ☐ A situation in which output per head could be raised at every point in time.
3. Which definition of the steady state is the most appropriate? Initial conditions are such that:	☐ There are no more flows in the economy. ☐ Household consumption is non-zero and maximized. ☐ All the endogenous variables of the model are non-zero and grow at constant rates. ☐ All the exogenous variables of the model are non-zero and grow at constant rates.
4. In the Cass–Koopmans–Ramsey model, the representative consumer:	☐ Lends her assets to other households and holds ownership claims on capital, which is rented out to firms. ☐ Has a convex utility function (as in the Cobb–Douglas case seen in microeconomics). ☐ Maximizes her instantaneous utility in every period. ☐ Can borrow on financial markets to repay her debts and consume what is left.
5. Household indifference between the capital market and the asset market gives:	☐ $z_t d_t = r_t$. ☐ $z_t = r_t d_t$. ☐ $z_t = r_t + \delta$. ☐ None of the above.

Questions	Answers
6. Write the law of motion of capital:	☐ $K_{t+dt} - K_t = C_t + \delta K_t.$ ☐ $K_{t+dt} - K_t = I_t - \delta K_t.$ ☐ $\dot{K}_t = I_t - \delta K_t.$
7. Intuitively, what is the difference between the transversality condition and the solvency constraint?	☐ The solvency constraint ensures that I repay my debts when I die. ☐ The transversality condition ensures that I consume all of my savings, so that nothing is left on the day I die. ☐ The transversality condition ensures that I never spend more than my disposable income in any given period. ☐ The solvency constraint ensures that I never spend more than my disposable income in any given period.