Concepts for Macro I

1. Balanced growth path (BGP). What are key characteristics of the BGP in terms of growth rates of GDP per capita, consumption per capita, the capital/output ratio, the rate of return on capital, and shares such as the capital formation share of GDP and labor's share of costs.

2. Transitory/Transitional versus trend growth. Trend growth in GDP per capita depends only on productivity growth, and transitory growth reflects deviations from trend growth as economies move back to BGP.

3. Golden rule. Hypothetical level of s_I that yields the highest level of consumption per capita along a BGP. The effect of changing s_I on consumption when s_I is above or below the Golden Rule.

4. BGP preferences. In order for consumption growth to remain constant along a BGP given a constant rate of return, preferences can only take a specific form with a constant intertemporal elasticity of substitution, CRRA.

5. Intertemporal elasticity of substitution (IES). The elasticity of consumption with respect to a change in the marginal utility of consumption. How willing an individual is to adjust consumption in response to a change in the "price" of consumption due to rates of return or other changes.

6. Euler equation. Condition arising from consumer optimization that relates the growth rate of consumption to the comparison of the rate of return and their discount rate, and how the IES mediates that relationship.

7. Equilibrium concepts. Arrow-Debreu and sequential equilibria are different ways of looking at the same forward-looking decision process. What are the basic concepts behind the two, and under what conditions would they give you the same equilibrium outcome?

8. Planner versus decentralized equilibrium. Whether AD or sequential, under what conditions would a decentralized equilibrium (individuals making consumption decisions, firms making labor/capital decisions, a financial market linking them) yield the same outcome as a central planner? What are the limitations of this equivalence?

9. Bellman equation. The Bellman equation as a way of writing a forward-looking problem in recursive form. Being able to set this up for a given problem, with or without uncertainty. The value function as something like an indirect utility function for a given initial value of the state variable (e.g. capital).

10. Value function iteration. An algorithm that one can use with a Bellman equation to find the actual value function numerically.

11. Precautionary savings. The idea that if future consumption is uncertain, then under some conditions a consumer will choose to save more. The intuition of that is to make uncertainty less painful, and the mathematical condition is when the coefficient of relative prudence is positive. What that implies about how marginal utility works.

12. Stationarity. The condition for any process that it has constant mean, constant variance, and constant auto-correlations. In other words, the process is stable even though it is stochastic.

13. Trend and difference stationarity. The idea that a process with the trend component removed can be stationary, or that the first-difference of a process can be stationary.

14. White noise. A stationary process with zero mean and finite variance and zero auto-correlations.

15. Random walk. A non-stationary AR(1) process with a coefficient of $\rho = 1$

16. Equivalence of AR(1) and MA(infinity). Being able to write an AR(1) process in the form of an infinite moving average of the shocks.

17. Stationarity of AR(1). The condition on ρ such that an AR(1) process is stationary. Equivalence to the condition on a MA(infinty) process to be stationary.