Midterm Material (ECON 702)

General guidelines:
- This is a closed notes and closed books exam, and no calculators are allowed.
- The questions are based on notes and homework assignments.

Detailed guidelines:

1. Solow Growth Model
   a. Properties of the Neoclassical Production Function.
   b. Law of motion of capital per worker.
   c. Steady state analysis.
      i. Proving that with no growth in productivity, starting with any positive initial capital, $k_0 > 0$, endogenous variables converge to steady state.
      ii. Analyzing graphically the impact of changes in exogenous variables on the steady state.
      iii. Golden Rule.
   d. Special case – the Cobb-Douglas production function.
      i. Balanced Growth Path (BGP).
      ii. Calibrating the capital share $\theta$.
   e. Providing economic intuition for all the theoretical results.

2. Neoclassical Growth Model (NGM)
   a. Deriving the first order and feasibility conditions for equilibrium.
   b. Special case – inelastic labor supply.
   c. Special case – Cobb-Douglas production function.
      i. Balanced Growth Path.
      ii. Calibration of the model’s parameters using the BGP equations.
   d. Optimal saving rate: the modified golden rule and comparison to the golden rule in the Solow model.
   e. Providing economic intuition for all the theoretical results.

3. Empirical tests for Absolute Convergence.

4. Matlab
   a. Explaining what a code (or a series of commands) is doing.