

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 160 points) and is scheduled to take 50 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 12-point question should take 6 minutes. Because of classes after yours, I cannot give extra time.

1) (12 points) Answer EITHER Part A OR Part B.

A) Would you expect the velocity of M1 to increase, decrease, or not change when interest rates greatly increase? Explain your logic.

B) Why do we care whether or not the velocity of money is constant?

2) (14 points) Answer EITHER Part A OR Part B.

A) Explain  $\pi = \Delta M/M - \eta_Y \cdot \Delta Y/Y$ . You can treat  $\Delta \text{variable}/\text{variable}$  as one variable after you define it..

B) Explain  $M^d/P = L(Y, r, \pi^e)$ . You can treat  $M^d/P$  as a single variable if you define it.

3) (14 points) Answer EITHER Part A OR Part B.

A) Explain how increasing the discount rate would affect the money supply.

B) Explain why central banks cannot control the money supply accurately.

4) (18 points) Answer EITHER Part A OR Part B.

A) The Endogenous Growth Model yields results which imply that government policies can affect long-term growth of an economy. What changes to our tax system could help our long-term growth? State one change and explain how it would help the economy grow faster.

B) The Endogenous Growth Model yields results which imply that government policies can affect long-term growth of an economy. What government policies could help improve the "A" variable in the equation? State one change and explain how it would help the economy grow faster.

5) (18 points) Answer EITHER Part A OR Part B.

A) Suppose the economy grew 5%, the capital stock grew 4%, and the labor supply grew 3%. How much did the technology improve? Explain your logic and show all work. Why do we measure productivity this way?

B) Draw the Solow Growth Model with the appropriate line to find  $k_G$  (golden rule). Find  $k_G$ . Explain how you found it and why that method gives  $k_G$ .

6) (24 points) Answer EITHER Part A OR Part B.

A) Draw the diagram for the Solow Growth Model. Illustrate the effects of a faster population growth rate. Explain why the curve(s) moved as drawn. What happens to the capital-labor ratio and the output per worker? What is the economic reason for these changes? (In other words, use economic logic rather than referring to the graph.)

B) Draw the diagram for the Solow Growth Model. Illustrate the effects of a decreased savings rate. Explain why the curve(s) moved as drawn. What happens to the capital-labor ratio and the output per worker? What is the economic reason for these changes? (In other words, use economic logic rather than referring to the graph.)