

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 150 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. I can't give extra time, but I won't give much.

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

A) Explain the equation for the straight line on the Solow Growth model, $I/K = (n+d)k$.

B) Explain the equation including η_Y , treating the fractions as a single variable. $\pi = \Delta M/M - \eta_Y(\Delta Y/Y)$

2) (16 points) Answer EITHER Part A OR Part B.

A) Look at the graph on the back of this exam. For either line, is that variable pro-cyclical or counter-cyclical? Explain your logic. Is it leading, lagging, or roughly coincident? Explain your logic.

B) If a person quits looking for a job because he has been unemployed for a long time, then what happens to the unemployment rate and the labor force participation rate? Which type of unemployment is the one most likely to be affected? Explain your logic for all parts.

3) (16 points) Answer EITHER Part A OR Part B.

A) Draw the MPK^f/uc_K diagram. An advertisement I saw recently, claimed (I believe falsely) that West Virginia governor, Jim Justice increased the corporate income tax. Illustrate the effects of that on the diagram. Explain why the curve(s) moved as drawn. If that advertisement is true, what will happen to the desired amount of capital, user cost of capital, and investment in West Virginia?

B) Draw the MPK^f/uc_K diagram. Climate change will cause more depreciation of capital. Illustrate the effects of that on the diagram. Explain why the curve(s) moved as drawn. What will happen to the desired amount of capital, user cost of capital, and investment?

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

A) According to the Federal Reserve, the national saving rate as a percentage of GNI has been decreasing since the 1960s. Illustrate the effect of that on the Solow Growth Model diagram. Explain why the curve(s) moved as drawn. What happens to the equilibrium level of the capital-labor ratio and GDP per capita? <https://fred.stlouisfed.org/series/W206RC1Q156SBEA>

B) The governor of West Virginia, Jim Justice, has cut the state income tax rate and the state government's spending. Use the Endogenous Growth Model to determine the long-run effects of these actions. Explain your logic.

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

A) Draw the labor supply/labor demand diagram. Illustrate the effects of AI improving the productivity of labor. Explain why the curve(s) moved as drawn. What happens to the real wage and the level of employment at full employment?

B) Okun's Law can be written as $\Delta Y/Y = 3 - 2\Delta u$. Use it to prove that if GDP is dropping, the unemployment rate must be rising. In January of 2022, both the GDP and the unemployment rate were dropping. Obviously, something was happening which Okun's Law implicitly assumed would not happen. What caused both GDP and the unemployment rate to fall? Briefly state how that event caused both to fall.

6) (20 points) Answer EITHER Part A OR Part B.

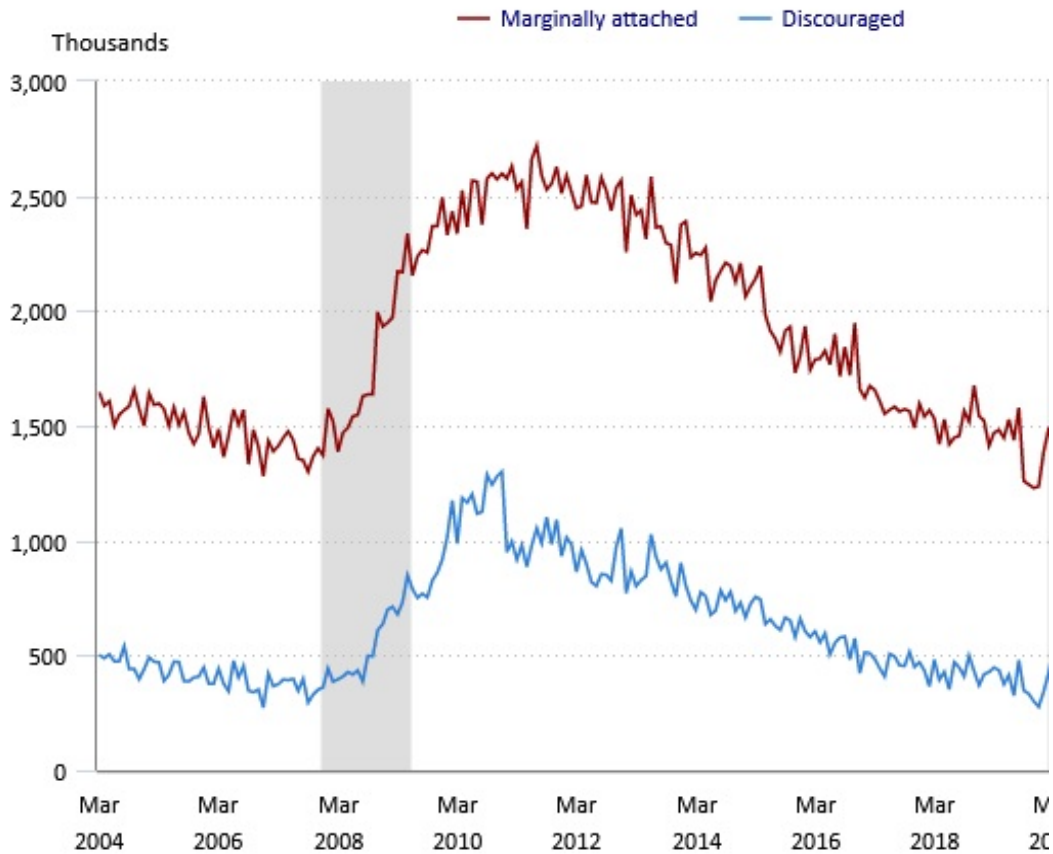
A) Draw the S/I diagram for a small open economy with balanced current account. Use the diagram to explain the term "twin deficits". Make sure you explain why the curve(s) moved, and where the name

comes from.

B) Draw the graph for Modigliani's Life-Cycle Model. The PowerBall Lottery will pay you 30 annuity payments over 29 years, if you choose not to get all the money at once. Suppose the person who is 60 years old chooses the annuity annual payment of \$300,000 (my guestimate of the after-tax value of the annuity with the current \$129 million jackpot). Illustrate that on the graph. Explain why the line(s) moved as drawn. Make sure you mention what you think the winner's MPC for that money is.

Persons not in the labor force, selected indicators, seasonally adjusted

Click and drag within the chart to zoom in on time periods



Hover over chart to view data.

Note: Shaded area represents recession, as determined by the National Bureau of Economic Research.

Source: U.S. Bureau of Labor Statistics.