

Name: _____

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AP Macroeconomics FRQ — Practice Exam

Instructions: Answer ALL three questions. Question 1 is the long question (10 points); Questions 2 and 3 are short questions (5 points each). The time includes a 10-minute reading period. Draw graphs large and label all axes, curves and equilibrium points. Show your work for every calculation.

Time Limit: 60 minutes

- [10 points] 1. Monetary policy and the output gap. Veridia is currently in short-run equilibrium with an unemployment rate of 3 percent. The natural rate of unemployment in Veridia is 5 percent. Assume that the banking system has limited reserves and that the central bank conducts monetary policy through open-market operations.

$$u = 3\%, \quad u_n = 5\%$$

- [2 points] (a) Draw a correctly labeled graph of aggregate demand, short-run aggregate supply and long-run aggregate supply for Veridia. Show each of the following: (i) the current equilibrium price level and real output, labeled PL_1 and Y_1 ; (ii) full-employment output, labeled Y_f .

- [3 points]** (b) (i) Identify the open-market operation the central bank should use to move real output toward full employment. (ii) Draw a correctly labeled graph of the money market and show the effect of the open-market operation you identified in part (b)(i) on the nominal interest rate.

- [1 point]** (c) Based on your answer to part (b)(ii), what will happen to aggregate demand in Veridia? Explain.

- [2 points]** (d) Now assume instead that the central bank takes no policy action. Explain how the short-run aggregate supply curve will adjust in the long run, and state what will happen to the price level and to real output relative to PL_1 and Y_1 .

- [2 points]** (e) Draw a correctly labeled graph of the short-run and long-run Phillips curves. Plot a point labeled A that shows Veridia's current situation described in the question, and show the numerical value of the natural rate of unemployment on your graph.

- [5 points]** 2. Inflation and real interest rates. On January 1, Harbor Bank lends 20,000 dollars to a small business for one year at a fixed nominal interest rate of 7 percent. When the loan is signed, both the bank and the business expect the inflation rate over the year to be 3 percent. The table shows the consumer price index (CPI) at the start and at the end of the year.

Date	Consumer price index
January 1	150
December 31	159

[1 point] (a) Using the CPI values in the table, calculate the actual inflation rate for the year. Show your work.

[1 point] (b) Calculate the real interest rate that the bank and the business expected when the loan was signed. Show your work.

[1 point] (c) Calculate the actual real interest rate on the loan. Show your work.

[1 point] (d) Does the unanticipated inflation benefit the bank or the business? Explain.

[1 point] (e) For a new one-year loan, the bank now expects inflation of 6 percent and wants to earn the same real interest rate that it expected in part (b). What nominal interest rate should it charge? Show your work.

[5 points] 3. The loanable funds market. The government of Marovia initially has a balanced budget. Households in Marovia become more concerned about saving for retirement and increase the amount they save at every real interest rate.

- [2 points]** (a) Draw a correctly labeled graph of the loanable funds market and show the effect of the increase in household saving on the equilibrium real interest rate.

- [1 point]** (b) Based on your answer to part (a), what will happen to the level of private investment in physical capital in Marovia? Explain.

[1 point] (c) Explain how the change in investment you identified in part (b) will affect Marovia's long-run economic growth.

[1 point] (d) Suppose that at the same time as households increase their saving, the government of Marovia begins to run a budget deficit financed by borrowing. Compared with the original equilibrium, will the real interest rate increase, decrease, or is the change indeterminate? Explain.