

These are the questions from one of the final exams that I gave in the past for ECON 2103.

1. Multiple Choice (45 points)

Circle the one alternative that best completes the statement or answers the question (3 points each question)

1. According to Modigliani's life-cycle hypothesis, if a consumer wants equal consumption in every year, and the interest rate is zero, there are 40 years until retirement and 60 years of life remaining, then the marginal propensity to consume out of income equals:
 - (A) 0.016.
 - (B) 0.40.
 - (C) 0.60.
 - (D) 0.67.

2. Milton Friedman argued that in average, consumption is:
 - (A) proportional to income.
 - (B) a fraction of permanent income that rises as income rises.
 - (C) a fraction of permanent income that falls as permanent income rises.
 - (D) proportional to permanent income.

3. Milton Friedman argued that, over long periods of time, the average propensity to consume is constant because, over these long periods of time:
 - (A) the variation in income is dominated by the permanent income component.
 - (B) the variation in income is dominated by the transitory income component.
 - (C) it is the behavior of the average consumer that dominates.
 - (D) income averages out to a constant.

4. Other things being equal, the neoclassical model of investment predicts that net investment will increase, when the:
 - (A) marginal product of capital falls.
 - (B) price of new capital goods rises.

- (C) real interest rate falls.
(D) depreciation rate rises
5. Other things being equal, Tobin's stock market valuation ratio q will rise if:
- (A) stock prices fall.
(B) the replacement cost of capital rises.
(C) more capital is installed.
(D) stock prices rise.
6. Suppose that the labor demand curve and labor supply curve of an economy are given by $\frac{w}{P} = 10 - 0.5L$ and $\frac{w}{P} = 1 + 0.5L$. The nominal wage w is set by the labor unions and is equal to 12 and the price level is $P = 2$. How many people will be unemployed in this economy?
- (A) zero.
(B) 2.
(C) 8.
(D) 10.
7. Assume a country experiences a reduction in productivity that lowers the marginal product of labor for any given level of labor. In this case, the:
- (A) labor supply curve shifts to the right.
(B) labor supply curve shifts to the left.
(C) labor demand curve shifts upward and to the right.
(D) labor demand curve shifts downward to the left.
8. A situation where policymakers have incentives to deviate from their initial course of action once other agents in the economy have acted is called:
- (A) rational expectation.
(B) outside lag.
(C) time-inconsistent policy.

- (D) active policy rule.
9. The political business cycle refers to the:
- (A) pattern of holding general elections every four or five years
 - (B) pattern of rising political donations during the run-up to each election.
 - (C) manipulation of the economy to win elections.
 - (D) composition of the government budget needed to stabilize the government debt.
10. All of the following statements are true *except*:
- (A) The short-run Phillips curve shifts upward if expected inflation increases.
 - (B) The short-run Phillips curve shifts upward if the natural rate of unemployment increases.
 - (C) The short-run Phillips curve shifts upward if inflation increases.
 - (D) The long-run Phillips curve is vertical.
11. A monetary policy rule that targets nominal GDP would ____ money growth when nominal GDP rises above the target and ____ money growth when nominal GDP falls below the target.
- (A) reduce; reduce.
 - (B) reduce; raise.
 - (C) raise; reduce.
 - (D) raise; raise.
12. A debt-financed tax cut will _____ current consumption in the traditional view, and will _____ current consumption in the view of Ricardian equivalence.
- (A) increase; increase.
 - (B) increase; decrease.
 - (C) increase; not change.
 - (D) decrease; not change.
13. Financing a budget deficit by _____ leads to inflation, and inflation _____ the real value of government debt.
- (A) issuing debt; increases.
 - (B) printing money; increases.
 - (C) issuing debt; decreases.

(D) printing money; decreases.

14. To increase the monetary base, the Bank of Canada can:

(A) conduct open-market sales.

(B) conduct open-market purchases.

(C) raise the required reserve ratio.

(D) lower the required reserve ratio.

15. One possible benefit of moderate inflation is:

(A) a reduction in boredom attributable to the changing prices.

(B) the elimination of menu cost.

(C) better functioning labor markets.

(D) increased certainty about the future.

2. Two-Period Consumption Model (34 points)

A consumer who lives for two periods obeys the two-period model of optimal consumption. In the first period, the consumer earns an income Y_1 of \$50,000 and in the second period and income Y_2 of \$80,000. Suppose that the real interest rate is equal to 0.04. Let C_1 denote the person's consumption in the first period, and C_2 his or her consumption in the second period.

- (a) What is the intertemporal budget constraint of this consumer? (5 points)
- (b) Suppose that the marginal rate of substitution MRS is equal to C_2/C_1 . Calculate the optimal level of consumption of this consumer in the two periods. (10 points)
- (c) Draw the intertemporal budget constraint and the indifference curves of this consumer into the $C_1 - C_2$ diagram and show the optimal point. Label your graph properly and indicate the value of the axis intercepts and the slope of the budget constraint in your graph. (11 points)
- (d) Now, assume that the consumer is not allowed to borrow in the first period. What would be his optimal level of consumption in the two periods under this condition? Explain. (8 points)

3. Mundell-Fleming Model and AD-AS Model (37 points)

Consider the following small open economy with perfect capital mobility. The country has a fixed exchange rate system. In period 0 the country is in its long-run natural level of output, \bar{Y} , and its real interest r is equal to the world interest rate r^* . The government of this country makes two policy changes:

- (i) To protect domestic producers from international competition, it unexpectedly raises the import tariff.
- (ii) To promote work-life balance, the government reduces the normal works hours from 42 hours to 35 hours.

The two policies will remain effective at all times in the future.

(a) How will the increase of the import tariff affect the AD-curve? Use the Mundell-Fleming model to explain the change in the AD-curve. Make sure that you label your graph properly and explain carefully in which direction and why a particular curve shifts. (16 points)

(b) How will the reduction in working hours affect the long-run natural level of output \bar{Y} ? How will it affect the AS-curve? (5 points)

(c) Trace the combined effect of these two policy changes in the AD-AS model for periods 1 and 2 (i.e. for the first two periods after the policy changes were introduced.) Where is the new long-run equilibrium? Make sure that you label all your curves properly and indicate the equilibrium price level and the equilibrium level of output in each period. Assume that price expectations are formed adaptively ($EP_t = P_{t-1}$). [If you are unable to answer parts (a) and (b) assume that the policy shifts both the AD and the AS curve to the right and that \bar{Y} is not affected.] (16 points)

4. Phillips-Curve (26 points)

The Phillips-Curve of a country (in the absence of supply shocks) is given by the equation

$$\pi = E\pi - 0.5(u - u^n)$$

where π is the inflation rate, $E\pi$ the expected inflation rate, u is the unemployment rate and u^n is the natural rate of unemployment. Suppose that the expected inflation rate is 5% and that the natural rate of unemployment is equal to 8%.

- (a) Which level of π will lead to an unemployment rate of 8%? (5 points)
- (b) Suppose the government of this country unexpectedly wants to reduce the unemployment rate by 50% below the natural level. What will happen to the inflation rate in the next period? (6 points)
- (c) How can the government achieve this change in the inflation rate? (4 points)
- (d) What do you expect will be the long-run unemployment rate and the long-run inflation rate of this economy, assuming that no further stimulation of the economy will be taking place? Explain why you would expect this. (6 points)
- (e) Discuss what the result from (d) implies for economic policy and the difficulty of conducting economic policy in more general. (5 points)

5. Debt Dynamics (21 points)

Consider a country with a primary deficit ratio ($g - t$) of 20%, a GDP growth rate n of 5% and a real interest rate r of 3%. The debt ratio of this economy evolves according to the following equation:

$$\Delta b = (g - t) + (r - n)b.$$

- (a) What is the equilibrium debt ratio of this country? (6 points)
- (b) Show graphically in a b - Δb diagram the dynamics of the debt ratio and show that the debt ratio you calculated in part (a) is stable. Make sure that you label your graph properly. (8 points)
- (c) Assume now that in period t this country suddenly eliminates once and for all its primary deficit (i.e. the value of $(g - t)$ suddenly becomes zero). The country achieves this by cutting down on government investment, which lowers the country's GDP growth rate n to 2%. Also, assume that at the time these events happen, the country's debt ratio is equal to 40%. Will the elimination of the primary deficit immediately stabilize the country's debt ratio or will the debt ratio continue to grow or shrink? Explain your answer. (7 points)

6. Money Supply (17 points)

The monetary base B of a country is equal to 8 Billion Dollars. The reserve-deposit ratio rr is 0.20 and the currency-deposit ratio cr is 0.15.

- (a) Compute the money multiplier and the money supply of this country. (6 points)
- (b) Suppose that due to increasing mistrust in the banking system, the currency deposit ratio increases to 0.18. What will be the effect of this on the money supply? (5 points)
- (c) What does the model of the money supply imply for the difficulty of conducting monetary policy? Discuss. (6 points)