

Economics 2102G Midterm

Instructor: Dana Galizia
Carleton University
Winter 2018

PLEASE WRITE YOUR NAME AND STUDENT NUMBER BELOW, AND ON THE TOP OF EACH PAGE IN THE PROVIDED SPACE.

Last (Family) Name: _____
First (Given) Name: _____
Student #: _____

GRADES

Part A: _____ / 70
Part B: _____ / 30
TOTAL: _____ / 100

FINAL ADJUSTED GRADE: _____ / 100

A Multiple choice (70 marks total)

(2 marks each) For each multiple choice question beginning on the following page, write the letter corresponding to the correct answer in the space provided on this page. If you think more than one answer may be correct, choose the one you think is **most** correct.

- | | | |
|-------|-------|-------|
| 1) D | 13) D | 25) A |
| 2) D | 14) D | 26) D |
| 3) C | 15) C | 27) A |
| 4) D | 16) C | 28) D |
| 5) A | 17) B | 29) D |
| 6) B | 18) C | 30) D |
| 7) A | 19) B | 31) B |
| 8) D | 20) C | 32) D |
| 9) A | 21) C | 33) D |
| 10) A | 22) C | 34) C |
| 11) C | 23) A | 35) C |
| 12) C | 24) D | |

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1. The production function feature called “constant returns to scale” means that if we:
 - (a) increase capital and labour by 5 percent each, we increase output by 10 percent.
 - (b) multiply capital by z_1 and labour by z_2 , we multiply output by z_3 .
 - (c) increase capital by 10 percent and increase labour by 5 percent, we increase output by 7.5 percent.
 - (d) increase capital and labour by 10 percent each, we increase output by 10 percent.
2. Assume that total output consists of 4 apples and 6 oranges and that apples cost \$1 each and oranges cost \$0.50 each. In this case, the value of GDP is:
 - (a) \$8.
 - (b) 10 pieces of fruit.
 - (c) \$10.
 - (d) \$7.
3. The reduction in investment brought about by the increase in the interest rate caused by increased government spending is called:
 - (a) fiscal policy.
 - (b) the identification problem.
 - (c) crowding out.
 - (d) a budget deficit.
4. The CPI is determined by computing:
 - (a) the price of a basket of goods and services that changes every year, relative to the same basket in a base year.
 - (b) nominal GDP relative to real GDP.
 - (c) an average of prices of all goods and services.
 - (d) the price of a fixed basket of goods and services, relative to the price of the same basket in a base year.
5. Over the business cycle, investment spending _____ consumption spending.
 - (a) is more volatile than
 - (b) has about the same volatility as
 - (c) is less volatile than
 - (d) is inversely correlated with

6. In a closed economy, GDP is all of the following except the total:
- (a) output of the economy.
 - (b) expenditure of everyone in the economy.
 - (c) income of everyone in the economy.
 - (d) expenditure on the economy's output of goods and services.
7. To reduce the money supply, the Bank of Canada:
- (a) sells government bonds.
 - (b) creates demand deposits.
 - (c) destroys demand deposits.
 - (d) buys government bonds.
8. In the short run an adverse supply shock causes:
- (a) both prices and output to fall.
 - (b) prices to fall and output to rise.
 - (c) both prices and output to rise.
 - (d) prices to rise and output to fall.
9. In the classical model, according to the quantity theory and the Fisher equation, an increase in money growth increases:
- (a) the nominal interest rate.
 - (b) output.
 - (c) the real interest rate.
 - (d) velocity
10. If the money supply increases, then in the IS-LM analysis the _____ curve shifts to the _____.
- (a) LM; right
 - (b) IS; right
 - (c) LM; left
 - (d) IS; left

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11. Most economists believe that the classical dichotomy:
- (a) does not hold even approximately in either the long run or the short run.
 - (b) holds approximately in both the short run and the long run.
 - (c) holds approximately in the long run but not at all in the short run.
 - (d) holds approximately in the short run but not at all in the long run.
12. In the long run, according to the quantity theory of money and the classical macroeconomic theory, if velocity is constant, then _____ determines real GDP and _____ determines nominal GDP.
- (a) the money supply; the productive capability of the economy
 - (b) the money supply; velocity
 - (c) the productive capability of the economy; the money supply
 - (d) velocity; the money supply
13. According to the analysis underlying the Keynesian cross, when planned expenditure exceeds income:
- (a) planned expenditure rises.
 - (b) unplanned inventory investment is positive.
 - (c) planned expenditure falls.
 - (d) unplanned inventory investment is negative.
14. When $MPC = 0.75$, if T decreases by 100, then the IS curve for any given interest rate shifts to the right by:
- (a) 200.
 - (b) 400.
 - (c) 100.
 - (d) 300.
15. If the long-run aggregate supply curve is vertical, then in the long run changes in aggregate demand affect:
- (a) level of output but not prices.
 - (b) neither prices nor level of output.
 - (c) prices but not level of output.
 - (d) both prices and level of output.

16. In the long run, the level of national income in an economy is determined by its:
- (a) rate of economic and accounting profit.
 - (b) government budget surplus or deficit.
 - (c) factors of production and production function.
 - (d) real and nominal interest rate.
17. In the long-run model of chapter 3, the equation $\bar{Y} = C(\bar{Y} - \bar{T}) + I(r) + \bar{G}$ may be solved for the equilibrium level of:
- (a) government purchases.
 - (b) the interest rate.
 - (c) consumption.
 - (d) income.
18. The IS curve shifts when any of the following economic variables change except:
- (a) government spending.
 - (b) the marginal propensity to consume.
 - (c) the interest rate.
 - (d) tax rates.
19. The investment function slopes _____ because there are _____ investment projects that are profitable as the interest rate decreases.
- (a) downward; fewer
 - (b) downward; more
 - (c) upward; more
 - (d) upward; fewer
20. An increase in the price of goods bought by firms and the government will show up in:
- (a) both the CPI and the GDP deflator.
 - (b) neither the CPI nor the GDP deflator.
 - (c) the GDP deflator but not in the CPI.
 - (d) the CPI but not in the GDP deflator.

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21. The inflation tax is paid:
- (a) equally by every household.
 - (b) only by the central bank.
 - (c) by all holders of money.
 - (d) only by government bond holders.
22. The value added on an item produced means:
- (a) the value of a firm's output less the value of its costs.
 - (b) a firm's profits on the item sold.
 - (c) the value of a firm's output less the value of the intermediate goods that the firm purchases.
 - (d) the value of the labor inputs in the production of an item.
23. All of the following transactions that took place in 2014 would be included in GDP for 2014 except the purchase of a:
- (a) 2001 Jeep Cherokee.
 - (b) ticket to see the movie 2001.
 - (c) book printed in 2014, entitled The Year 3000.
 - (d) year 2015 calendar printed in 2014.
24. The IS curve plots combinations of the interest rate and _____ that are consistent with equilibrium in the market for _____.
- (a) the price level; goods and services
 - (b) national income; money
 - (c) the price level; money
 - (d) national income; goods and services
25. An assumption of _____ is more plausible for studying the short-run behaviour of the economy, while an assumption of _____ is more plausible for studying the long-run, equilibrium behaviour of the economy.
- (a) sticky prices; flexible prices
 - (b) deflation; inflation
 - (c) inflation; deflation
 - (d) flexible prices; sticky prices

26. If an increasing proportion of the adult population is retired, then the labour force participation rate:
- (a) will remain constant.
 - (b) will increase.
 - (c) may increase, decrease, or remain constant.
 - (d) will decrease.
27. If the nominal interest rate is 1 percent and the inflation rate is 5 percent, the real interest rate is:
- (a) -4 percent.
 - (b) 1 percent.
 - (c) -5 percent.
 - (d) 6 percent.
28. A competitive, profit-maximizing firm hires labour until the:
- (a) nominal wage equals the rental price of capital.
 - (b) real wage equals the real rental price of capital.
 - (c) marginal product of labour equals the nominal wage.
 - (d) price of output multiplied by the marginal product of labour equals the nominal wage.
29. In the Keynesian-cross model with a given MPC, the government-expenditure multiplier _____ the tax multiplier (in absolute value).
- (a) equals
 - (b) is smaller than
 - (c) is the inverse of the
 - (d) is larger than
30. In examining the impact of fiscal policy, it is assumed that:
- (a) government purchases, taxes, and interest rates are endogenous variables.
 - (b) government purchases, taxes, and interest rates are exogenous variables.
 - (c) consumption, investment, and the interest rate are exogenous variables.
 - (d) consumption, investment, and the interest rate are endogenous variables.

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31. The ex post real interest rate will be greater than the ex ante real interest rate when the:
- (a) actual rate of inflation is greater than the expected rate of inflation.
 - (b) actual rate of inflation is less than the expected rate of inflation.
 - (c) rate of inflation is decreasing.
 - (d) rate of inflation is increasing.
32. The total income of everyone in the economy adjusted for the level of prices is called:
- (a) an inflation.
 - (b) a business fluctuation.
 - (c) a recession.
 - (d) real GDP.
33. In the Keynesian-cross model, a decrease in the interest rate _____ planned investment spending and results in _____ in the level of income that puts the goods market in equilibrium.
- (a) decreases; a decrease
 - (b) decreases; an increase
 - (c) increases; a decrease
 - (d) increases; an increase
34. If the GDP deflator in 2009 equals 1.25 and nominal GDP in 2009 equals \$1.5 trillion, what is the value of real GDP in 2009?
- (a) \$1.875 trillion
 - (b) \$1.5 trillion
 - (c) \$1.2 trillion
 - (d) \$1.25 trillion
35. A country that is on a gold standard primarily uses:
- (a) fiat money.
 - (b) the barter system.
 - (c) commodity money.
 - (d) credit money.

B Problems (30 marks total)

Answer each part of the following question. NOTE: BLANK ANSWERS WILL RECEIVE AN AUTOMATIC 20% OF THE AVAILABLE MARKS FOR THAT PART OF THE QUESTION.

1. (15 marks total) Consider the long-run model discussed in Chapters 3 and 4. Suppose you're given the following information.

- The production function is $F(K, L) = 200 \frac{KL}{K+L}$.
- The factor supplies are $\bar{K} = 40$, $\bar{L} = 60$.
- The consumption function is $C(Y - T) = 1,320 + 0.4(Y - T)$.
- The investment function is $I(r) = 1,420 - 100r$
- Money demand is given by $\left(\frac{M}{P}\right)^d = 0.01Y$.
- Government spending and taxation are $\bar{G} = 1,200$, $\bar{T} = 900$.
- The money supply is given by $M = 30,000$.

(a) (2 marks) Find the long-run level of output, \bar{Y} .

We have

$$\bar{Y} = F(\bar{K}, \bar{L}) = 200 \times \frac{40 \times 60}{40 + 60} = 4,800$$

(b) (3 marks) Find the long-run level of consumption.

We have $C = C(\bar{Y} - \bar{T}) = 1,320 + 0.4(\bar{Y} - \bar{T})$. Substituting in for \bar{Y} and \bar{T} , we get $C = 2,880$.

(c) (6 marks) Write down the goods market-clearing condition, and use it to solve for the equilibrium levels of investment, I , and the real interest rate, r .

The goods market-clearing condition is $\bar{Y} = C(\bar{Y} - \bar{T}) + I + \bar{G}$. Substituting in for \bar{Y} , $C(\bar{Y} - \bar{T})$, and \bar{G} , we get

$$4,800 = 2,880 + I + 1,200$$

which can be solved to obtain the equilibrium level of investment $I = 720$. Since $I = 1,420 - 100r$, the interest rate then ensures $I = 720$ (i.e., that puts the goods market into equilibrium) can be solved for to get $r = 7$.

(d) (4 marks) Solve for the long-run equilibrium price level \bar{P} .

Demand for real balances is given by $\left(\frac{M}{P}\right)^d = 0.01\bar{Y} = 48$. In equilibrium, we must have $\left(\frac{M}{P}\right)^d = \frac{M}{P}$. Substituting in for $\left(\frac{M}{P}\right)^d$ and M , we can solve to obtain $\bar{P} = 625$.

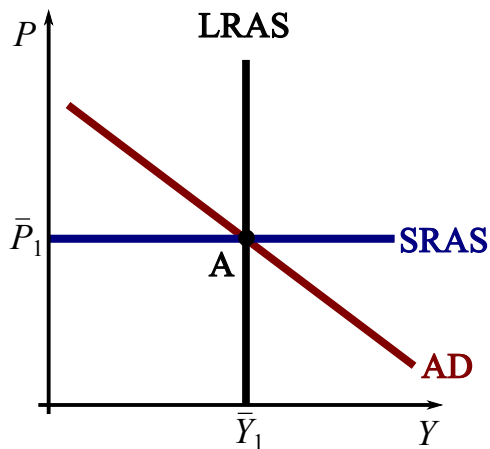
2. (15 marks total) Consider the AD-AS model discussed in Chapter 9. In particular, recall that demand for real balances was given by $\left(\frac{M}{P}\right)^d = kY$.

(a) (3 marks) Find an equation characterizing the AD curve. That is, find an equation that gives demand for output Y as a function of the price level P . (HINT: Remember that the money market must be in equilibrium).

In equilibrium, demand for and supply of real balances must be equal, i.e., $\left(\frac{M}{P}\right)^d = \frac{M}{P}$. Substituting in $\left(\frac{M}{P}\right)^d = kY$ and rearranging, we can get $Y = \frac{M}{kP}$. ($P = \frac{M}{kY}$ is also acceptable, as are $Y = \frac{MV}{P}$, and $P = \frac{MV}{Y}$ as long as it's clear that $V = 1/k$.)

(b) (3 marks) Let \bar{P}_1 and \bar{Y}_1 denote the long-run equilibrium levels of P and Y . Draw an AD-AS diagram showing an economy in long-run equilibrium. Be sure to label all axes, and also show the location of \bar{P}_1 and \bar{Y}_1 .

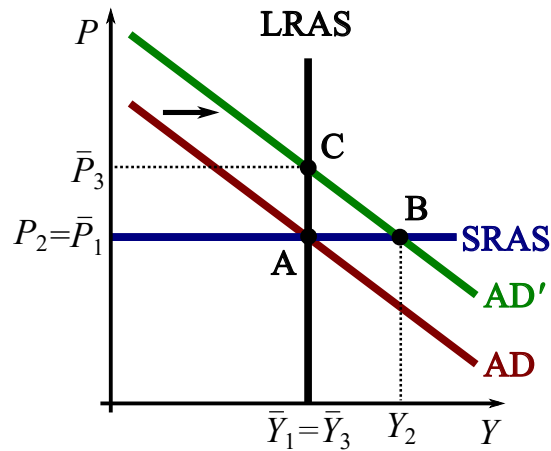
In long-run equilibrium, the AD, LRAS, and SRAS curves must all intersect at the long-run level of output \bar{Y}_1 and the long-run price level \bar{P}_1 . This is shown in the following diagram as point A.



(c) (5 marks) Using an AD-AS diagram, show graphically the effect of a fall in k in the short-run. Be sure to show how any of the curves shift, and point out the new short-run equilibrium. Letting Y_2 and P_2 denote the new short-run equilibrium, is Y_2 bigger, smaller, or the same as \bar{Y}_1 ? Is P_2 bigger, smaller, or the same as \bar{P}_1 ?

The fall in k leads to a rise in velocity V . Since the AD curve is given by $Y = MV/P$, a rise in V corresponds to rightward (or upward) shift in the AD curve. This is shown in the

following diagram as a shift in the AD curve from AD to AD' . The new short-run equilibrium is at point B, and we see that $Y_2 > \bar{Y}_1$, while $P_2 = \bar{P}_1$.



- (d) (4 marks) Let \bar{Y}_3 and \bar{P}_3 denote the new long-run equilibrium levels of Y and P following the change from part (c). Show this point in the diagram you drew in part (c) (or you can draw a new diagram if you wish). Is the new long-run level of output \bar{Y}_3 bigger, smaller, or the same as the old long-run level \bar{Y}_1 ? Is the new long-run level of prices \bar{P}_3 bigger, smaller, or the same as the old long-run level \bar{P}_1 ?

The new long-run equilibrium is shown as point C in the figure from part (c). The new long-run equilibrium has $\bar{Y}_3 = \bar{Y}_1$, while $\bar{P}_3 > \bar{P}_1$.