

ECON 311 - Intermediate Macroeconomics (Professor Gordon)
First Midterm Examination: Winter 2018
Answer sheet

YOUR NAME: _____

Student ID: _____

Circle the TA session you attend: Mackenzie – 3PM Riccardo - 3PM Chris - 3PM Kristina - 3PM
Mackenzie - 4PM Riccardo - 4PM Chris - 4PM Kristina - 4PM

INSTRUCTIONS:

1. The exam lasts **1 hour**.
2. The exam is worth 60 points in total: 30 points for the multiple choice questions (Part A) and 30 points for the four analytical problems (Part B).
3. **Write your answers for part A (the multiple choice section) in the blanks below.** You won't get credit for circled answers in the multiple choice section.
4. **Place all of your answers for part B in the space provided.**
5. You must show your work for part B questions. There is no need to explain your answers for the multiple choice questions.
6. **You must turn in both the answers and the multiple-choice questions. DO NOT PULL THEM APART.**

Good luck!

PART A: Multiple Choice Problems

Answer multiple choice questions in the space provided below.

USE CAPITAL LETTERS.

1		6		11		16		21		26	
2		7		12		17		22		27	
3		8		13		18		23		28	
4		9		14		19		24		29	
5		10		15		20		25		30	

PART B: Analytic Problems

QUESTION 1 (3 points)

World GDP per capita in 2016 was \$ 10,191, and \$ 5,805 in Colombia. The Colombian Government aims to catch up with the world in 5 years. What's the annual growth rate of GDP per capita Colombia has to achieve to meet this goal if world grows at the current rate of 1.3% per year?

Show your work!

$$10,191 * e^{(5 * 0.013)} = 5,805 * e^{(5g)}$$
$$g = 12.56\%$$

QUESTION 2 (4 points)

Nominal GDP of Fantasia was 500 in 2015. Real GDP in 2015 using 2010 as base year was 700. Using the GDP Deflator, what was the average annual inflation rate between 2010 and 2015?

Show your work!

$$\text{GDP deflator in 2015: } 500/700 = 0.7143$$
$$\text{Growth rate between 2010 and 2015: } \ln(0.7143/1) = -0.336452 = -33.6452\%$$
$$\text{Annualized growth rate} = -33.6452\%/5 = -6.72904\%$$

QUESTION 3 (8 points)

Suppose there is an economy that only produces burgers and fries. The following table lists prices and production for the years 2014 and 2015:

	2014	2015
Prices		
Burgers	5	7
Fries	3	2
Quantities		
Burgers	3	4
Fries	6	10

a) What was nominal GDP for the years 2014 and 2015? (2 points)

	2014	2015
Nominal GDP	$5*3+3*6=33$	$7*4+2*10=48$

b) Calculate two indices for real GDP in 2015 if 2014 is normalized to 1 - one based on 2014 prices, one based on 2015 prices. Mark your results clearly. (4 points)

Index for 2015 using 2014 prices	2015 in 2014 prices: $5*4+3*10=50$ Index = $50/33 = 1.5152$
index for 2015 using 2015 prices	2014 in 2015 prices: $7*3+2*6 = 33$ Index = $48/33 = 1.4545$

c) Using (b), calculate the chain-weight index of real GDP in 2015 (if 2014 is normalized to 1). (1 point)

Chain-weight index of real GDP in 2014	$\text{sqrt}(1.5152*1.4545) = 1.4845$
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d) Suppose chain weighted real GDP continues to grow at the same rate that it grew from 2014 to 2015. What will real GDP be in 2020? (2 points)

Chain weighted real GDP in 2020 (2014 as base year)	$100*\ln(33*1.4845/33)= 39.51$ $33*\exp(39.51/100*6)= 353.23$ Or $33*1.4845^6 = 353.18$
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QUESTION 4 (14 points)

Consider an economy described by the following equations:

$$C = 130 - 4*r + 0.7*(Y - T)$$

$$I_p = 128 - 6*r$$

$$T = 40 + 0.2*Y$$

$$G = 50$$

$$NX = 70 - 0.06*Y$$

$$(M/P)^d = 0.5*Y - 5*r$$

$$M^s/P = 110$$

- a) Using the above numbers: write on three separate lines the equation showing the relationship of autonomous planned spending to the interest rate; the value of the multiplier; and the equation for the IS curve with all the specific numbers plugged in. (3 points)

Autonomous planned spending	$A_p = C_a - c^*T_a + I_p + G + NX_a = (130-4*r)-0.7*40+128-6*r+50+70=350-10*r$
The value of the multiplier	$k = 1/(1-c^*(1-t)+nx) = 1/(1-0.7*(1-0.2)+0.06)=2$
IS curve	The IS curve : $Y = k*A_p = 700 - 20*r$

- b) Derive the **LM curve**, using the ingredients listed above. (2 points)

$$M_d/P = M_s/P$$

$$0.5*Y - 5*r = 110 \quad \text{or} \quad Y = 220 + 10*r$$

- c) Find the equilibrium values of **real GDP** and **interest rate**. (Hint: if you found equations for real GDP above, then calculate the interest rate by combining the IS and LM curves separately; if you found equations for the interest rate above, then calculate the level of real GDP using the IS and LM curves separately.) (2 points)

$$700 - 20*r = 220 + 10*r$$

$$30*r = 480 \rightarrow r = 16$$

$$Y = 220 + 16*10 = 380.$$

- d) The government decides to increase government spending to **G=80**. What is the new level of **real GDP** and **interest rate**? How will that affect **consumption**? (Hint: G given is the new level of government spending not the increment) (4 points)

Now, $A_p = C_a - c*T_a + I_p + G + N X_a = (130 - 4*r) - 0.7*40 + 128 - 6*r + 80 + 70 = 380 - 10*r$
 And The IS curve : $Y = k*A_p = 760 - 20*r$ (k is the same)
 LM curve is the same $Y = 220 + 10*r$

So, finding r and Y: $220 + 10*r = 760 - 20*r$
 So, $r=18, Y=400$

$C = 130 - 4*r + 0.7*(Y - T)$ and $T = 40 + 0.2*Y$
 $C=254$

Credit should be given for finding r and Y. (-1 point for missing **$4*r$** in C)

- e) The increase in government spending described in (e) caused a change in autonomous planned spending. The central bank wants to get real GDP back to its previous value by changing the money supply. Should the money supply be **expanded or contracted**? What is the new **real money supply**? (3 points)

$Y = 380$, so use IS to back out the interest rate:
 $380 = 760 - 20*r$, so $r=19$
 Finally, $(M/P)^d = 0.5*Y - 5*r = 95 = \text{money supply}$.
CB needs to contract money supply.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) GDP can be measured by the
 - A) total value of all intermediate goods produced in the economy.
 - B) total market value of final goods and services produced in the economy.
 - C) total value of all sales in the economy.
 - D) net national product plus investment.

- 2) A low unemployment rate implies that
 - A) job offers are plentiful and wages are high.
 - B) job offers are scarce and inflation is high.
 - C) jobs are difficult to find, and wages are low.
 - D) jobs are permanent and job offers are plentiful.

- 3) A rising inflation rate tends to injure the following types of people:
 - A) retirees and students with savings accounts.
 - B) landowners and borrowers.
 - C) homeowners with mortgages and students with student loans.
 - D) borrowers and homeowners.

- 4) We are told that over the past year actual real GDP has risen by three percent. This fact alone is enough to tell us that
 - A) the unemployment rate has fallen.
 - B) the actual real GDP is above natural real GDP.
 - C) productivity has grown.
 - D) the inflation rate has risen.
 - E) none of the above.

- 5) The recession of 1990–1992 _____ the trend set over 1965–1990 of _____ unemployment rates at each successive cyclical trough.
 - A) continued, lower
 - B) broke, higher
 - C) continued, higher
 - D) broke, lower

- 6) According to the 2017 *Wall Street Journal* article and the chart shown in class, housing construction in 2016 was
 - A) at a record high level
 - B) higher than during the housing bubble of 2005–2006
 - C) equal to the postwar historic average
 - D) below the postwar historic average

- 7) Which of the following increased the most from 2009 to 2016?
 - A) share buybacks
 - B) dividends
 - C) fixed investment
 - D) the unemployment rate

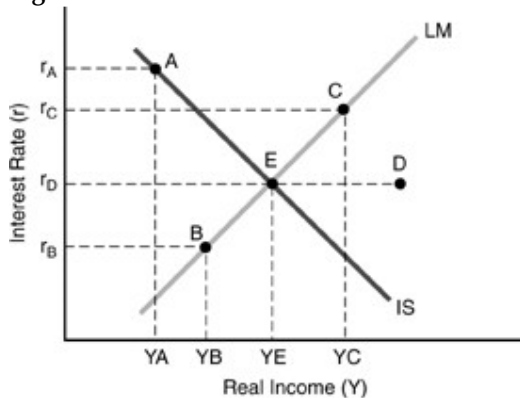
- 8) The proper short-run goal of macroeconomic policymakers is to
 - A) dampen the business cycle.
 - B) maintain low economic growth.
 - C) promote high economic growth.
 - D) amplify the business cycle.

- 9) Job openings are plentiful when the
- A) natural real GDP is increasing rapidly.
 - B) natural real GDP is above the actual real GDP.
 - C) actual real GDP is above the natural real GDP.
 - D) None of the above.
- 10) One of the shortcomings of the government's method of measuring unemployment tends to make the official unemployment rate an overestimate of the unemployment problem:
- A) people seeking part-time jobs are counted as fully unemployed.
 - B) "discouraged workers" aren't counted as unemployed.
 - C) people who have given up looking for work are counted as fully unemployed.
 - D) people working less than twenty hours a week are counted as unemployed.
- 11) A restaurant purchases a package of sandwich buns for 50 cents. The buns are _____ good in this case, and thus its purchase _____ a transaction that is included in GDP.
- A) an intermediate, is
 - B) a final, is not
 - C) a final, is
 - D) an intermediate, is not
- 12) The difference between gross investment and net investment is
- A) equal to capital consumption allowances.
 - B) equal to the government deficit.
 - C) equal to the difference between gross and net exports.
 - D) equal to the difference between GDP and disposable income.
- 13) The term "twin deficits" refers to
- A) exports and imports deficits.
 - B) government budget and trade deficits.
 - C) saving and investment deficits.
 - D) production and expenditure deficit.
- 14) Economic magnitudes measured at the prices actually paid are referred to as _____ magnitudes.
- A) "gross"
 - B) "actual"
 - C) "unadjusted"
 - D) "nominal"
 - E) "real"
- 15) Which of the following is a possible reason for the improved economic performance between 1985 and 2007?
- A) Demand Shocks have become smaller and less important.
 - B) Change in conditions that make monetary and/or fiscal policy more powerful.
 - C) Monetary and fiscal policy have become more effective.
 - D) All of the above
- 16) Suppose that in producing a GDP of 3000, goods worth 200 go unsold and are unintentionally added to business inventories. These goods
- A) are classified as net exports and are subtracted from total expenditures.
 - B) are nonetheless part of the consumption component of expenditure.
 - C) are part of the investment component of expenditure.
 - D) are not counted in total expenditure.

- 17) In equilibrium, with exports equal to imports it must be the case that
- A) leakages equal injections.
 - B) total expenditures equal GDP.
 - C) saving plus taxes equal government expenditures plus investment.
 - D) All of these.
- 18) According to the IS-LM graphs in the *Economist* article, why was the interest rate so low when the article was written?
- A) IS shifted to the left due to low investment
 - B) IS shifted to the left due to low saving
 - C) LM shifted to the right due to high money supply
 - D) LM shifted to the right due to low money supply
- 19) When a household is said to be “under water”, this means that
- A) household expenses are greater than income
 - B) credit card debt has exceeded the credit limit on the credit cards
 - C) market value of home is below mortgage debt
 - D) house was inundated by Houston’s Hurricane Harvey flood
- 20) If E_p is 2500 and Y is 3000, then
- A) unplanned inventory accumulation is 500.
 - B) planned inventory accumulation is 500.
 - C) planned inventory depletion is 500.
 - D) unplanned inventory decumulation is 500.
- 21) The establishment of an income tax, ceteris paribus, will result in
- A) no change in the size of the multiplier.
 - B) a lower expenditure multiplier.
 - C) a higher expenditure multiplier.
 - D) None of the above.
- 22) If both autonomous imports and autonomous taxes decrease by \$100B we expect that equilibrium income will
- A) increase by more than \$200B.
 - B) decrease by more than \$200B.
 - C) increase by \$200B.
 - D) remain unchanged.
- 23) The inauguration of a new President often increases the degree of optimism in business firms and households, causing A_p to
- A) fall and IS to increase.
 - B) rise and IS to shift rightward.
 - C) fall and IS to shift leftward.
 - D) rise and IS to shift leftward.
- 24) The economy is in short-run equilibrium
- A) only at the natural level of GDP.
 - B) at any point on the LM curve.
 - C) at any point on the IS curve.
 - D) only at a point that is on both the IS and LM curves.
- 25) The *Wall Street Journal* article titled “A Layoff in the Smith Family” provides an example of which economic concept?
- A) the multiplier
 - B) the balanced budget multiplier
 - C) the interest responsiveness of autonomous spending
 - D) the interest responsiveness of the demand for money

- 26) Since the velocity of money increases as interest rates rise the
- A) IS curve is negatively sloped.
 - B) IS curve is positively sloped.
 - C) LM curve is positively sloped.
 - D) LM curve is negatively sloped.

Figure 4-5



27) In Figure 4-5 above, at what point do we find the commodity market in equilibrium while the money market is not?

- A) A
 - B) B
 - C) C
 - D) D
 - E) E
- 28) The "crowding-out" effect refers to the fact that
- A) there may be a liquidity trap.
 - B) fiscal policy cannot be used to shift the IS curve.
 - C) rising interest rates tend to accompany an expansionary fiscal policy.
 - D) All of these.
- 29) Compared to the recovery from the 1981-82 recession, an important difference in the recovery from the 2007-09 recession has been
- A) higher interest rates
 - B) higher long-term unemployment
 - C) higher inflation
 - D) higher ratio of saving to income
- 30) The article by Shapiro on the effects of tax cuts and rebates finds a marginal propensity to consume of only 0.25 to 0.33. This is so low because many households react to a tax cut by
- A) taking a vacation to a foreign country that is not counted in domestic consumption
 - B) buying imports which are not included in domestic consumption
 - C) adding to their saving account balances
 - D) paying off their credit card balances

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