ECON 311 - Intermediate Macroeconomics (Professor Gordon)
First Midterm Examination: Winter 2017
Answer sheet

YOUR NAME: _____

Student ID: _____

Circle the **TA session** you attend:

	Bence – 3PM	Burke - 3PM	Chris - 3PM
	Bence - 4PM	Burke - 4PM	Chris - 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 (4 points)

GDP per capita in 2013 was $ 7,575 in Belarus, and $ 14,611 in Russia. The Belarusian State Planning Committee comes up with an ambitious 5-year plan to catch up to its big neighbor. What's the annual growth rate they have to achieve to meet this goal if Russia grows at 1% per year?

Show your work!

$14,611*e^{(5*0.01)} = 7,575*e^{(5g)}$
$g = 14.14\%$

QUESTION 2 (4 points)

This question is about the connection of two key concepts of IS-LM theory: total income (GDP) and personal disposable income.

Item	Value
Depreciation (consumption of fixed capital)	100
Government spending	500
Consumption	1500
Investment	700
Exports	150
Imports	200
Personal Income Taxes	50
Business Taxes	150
Transfers to households	70
Undistributed profits of firms	120

(a) Calculate GDP. (1point)

$Y = C + G + I + X - M$
= 1500 + 500 + 700 + 150 - 200
= 2650

(b) Instead of calculating personal disposable income, just indicate for each item on the list above whether it enters positively (+), negatively (-), or not at all (0) into personal disposable income. (3 points)

(+): C, G, I, X, TR (just listing just GDP here is fine, too)
(-): imports, depreciation, taxes, undistributed profits
(0): nothing

QUESTION 3 (8 points)

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

	2014	2015
Prices		
Coffee	3	6
Ramen	5	4
Quantities		
Coffee	10	8
Ramen	3	15

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

	2014	**2015**
Nominal GDP	3*10+5*3 =45	6*8+4*15 = 108

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: 3*8+5*15=99 Index = 99/45 = 2.2
index for 2015 using 2015 prices	2014 in 2015 prices: 6*10+4*3 = 72 Index = 108/72 = 1.5

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	sqrt(2.2*1.5) = 1.81659 =~ 1.817

d) Using 2014 as the base year, calculate real GDP in 2015. *(1 point)*

Chain weighted real GDP in 2015 (2014 as base year)	45*1.817= 81.765

QUESTION 4 (14 points)

Consider an economy described by the following equations:

$C = 115 - 3*r + 0.8*(Y - T)$

$I_P = 150 - 7*r$

$T = 50 + 0.2*Y$

$G = 70$

$NX = 50 - 0.14*Y$

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

$M^s/P = 120$

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	$Ap = Ca - c*Ta + Ip + G + NXa = 345 - 10*r$
The value of the multiplier	$k = 1/((1-c)*(1-t)+t+nx) = 2$
IS curve	The IS curve : $Y = k*Ap = 690 - 20*r$

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

$Md/P = Ms/P$

$0.5*Y - 5*r = 120$ or $Y = 240 + 10*r$

c) Find the equilibrium values of **income** and **interest rate**. (Hint: if you found equations for income 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 income using the IS and LM curves separately.) *(2 points)*

690 – 20*r = 240 + 10*r

30*r = 450 --> r = 15

Y = 690 - 20*10 = 390.

d) A popular new widget is released in a foreign country. There is very high domestic demand for this widget, which causes the **nx** coefficient to increase from **0.14** to **0.44** as imports soar. What is the new level of **GDP** and **interest rates**? What is the new **government surplus**? (3 points)

Autonomous spending is unchanged at Ap = 345 – 10r. The multiplier falls from k=2 to k=1.25. As a result, the new IS curve is Y = 431.25 – 12.5r. The LM curve remains the same at Y = 240 + 10r. Setting the two curves equal to each other gives us 431.25 – 12.5r = 240 + 10r, so r = 191.25/22.5 = 8.5. Plugging into the LM curve gives Y = 240 + 10*8.5 = 325. Thus, (Y,r) = (325, 8.5).

The government surplus is T – G = 50 + 0.2*325 – 70 = 45.

e) Suppose the government decides to boost spending in order to raise GDP back to its previous level, before the introduction of widget imports. What is the **change in government spending**? What is the **change in government surplus** (compared to before government spending increased but after the introduction of widget imports)? *Hint: the multiplier remains the same as in part d, because the import coefficient nx remains at 0.44 (4 points)*

Note that government spending only changes autonomous spending. Let G be the new level of gov't spending. Then IS: Y = 1.25*(275 + G – 10r) = 343.75 + 1.25G – 12.5r and LM: Y = 240 + 10r. We want to find the G such that Y = 390, the previous level of GDP. Thus, we have 390 = 343.75 + 1.25G – 12.5r and 390 = 240 + 10r. Clearly r=15 as our LM is identical to part c, so 390 = 343.75 + 1.25G – 12.5*15 = 343.75 + 1.25G – 187.5 = 156.25 + 1.25G and G = (390 – 156.25)/1.25 = 187. The government surplus is T – G = 50 + 0.2(390) – 187 = -59.

Since G=70 before the increase in spending and G=187 after the increase in spending, the change in government spending is 187-70=117. Government surplus before the increase in spending was 45 and government surplus after the increase in spending was -59, so the change in government surplus is -59 -45 = -104.

PART A: Multiple Choice Problems

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

1) "Natural" real GDP is defined as the total output
        A) that causes an inflation rate of zero.
        B) at business cycle peaks.
        C) that causes the inflation rate to remain constant.
        D) at business cycle troughs.
        E) produced when all of our resources are being used to their maximum capacity.

2) At a business cycle peak, we usually have _____ real Gross Domestic Product.
        A) an all-time low level of
        B) accelerating growth of
        C) an all-time high level of
        D) the maximum growth rate of
        E) an historically average level of

3) In policy discussions macroeconomic aggregates (inflation, unemployment, and productivity) are called
        A) fiscal variables.
        B) target variables.
        C) interest variables.
        D) monetary variables.

4) Any policy that seeks to influence the level of aggregate demand is called
        A) stabilization policy.
        B) aggregate policy.
        C) productivity policy.
        D) employment policy.

5) The first lecture suggested several obstacles to President Trump's aim of raising economic growth substantially through expansionary fiscal policy. Which of the following was NOT on the list of obstacles?
        A) higher interest rates
        B) high labor force participation
        C) low unemployment
        D) crowding-out effect

6) In the lecture's comparison of the standard of living in Europe and the United States, several factors were listed that make the standard of living in Europe higher relative to the U.S. than is suggested by Europe's GDP per person. Which of the following was NOT on that list?
        A) higher consumer expenditures per person
        B) less extreme climate
        C) fewer people in prison
   D) lower expenditures per person on medical care

7) The real income per capita is a measure of the
        A) well-being of the average employed person in the nation.
        B) well-being of every individual in the nation.
        C) total well-being of the nation.
        D) well-being of the average individual in the nation.

8) In the simple circular flow model containing just households and business firms, all income is received by households in exchange for
A) wages.
B) product.
C) labor services.
D) consumer expenditures.

9) Suppose that steel produced this year is used to produce a car sold next year. The value of the steel _____ included in GDP this year as _____.
A) is not; an intermediate good
B) is; an adjustment to inventories
C) is; an intermediate good
D) is not; an adjustment to inventories

10) A farmer sells raw milk for 50 cents to a dairy, who sells cheese made from it for $1.50 to a grocery wholesaler, who sells it for $1.90 to a supermarket, who sells it to the final consumer for $2.19. These transactions increase the GDP by
A) $2.19 − $1.50 = $0.69.
B) $0.50 + $1.00 + $0.40 + $0.29 = $2.19.
C) $0.50 + $1.00 + $1.90 + $2.19 = $5.59.
D) $0.50 + $1.00 = $1.50.
E) $2.19 − $0.50 = $1.69.

11) If a the government of Country Z is running a budget deficit and net exports are zero, then
A) saving is greater than investment.
B) investment and saving are equal.
C) investment is greater than saving.
D) none of the above.

12) Economic magnitudes measured at the prices actually paid are referred to as _____ magnitudes.
A) "gross"
B) "nominal"
C) "unadjusted"
D) "actual"
E) "real"

13) During the 20th century, the highest savings rates in the U.S. were observed during
A) World War II.
B) the late 1980s and 1990s.
C) the Great Depression.
D) none of the above.

14) The multiplier measures the
A) marginal propensity to invest.
B) rise in equilibrium GDP resulting from a one dollar rise in planned autonomous expenditures.
C) number of steps it takes to move from one equilibrium to another.
D) rise in saving resulting from a rise in income.

15) Saving is positive for all levels of disposable income
 A) above zero.
 B) above where the consumption function intersects the vertical axis.
 C) below where the consumption line intersects the 45–degree line.
 D) above autonomous consumption.
 E) above where the consumption line intersects the 45–degree line.

16) Since income tax revenues will rise (fall) as expenditures and output increase (decrease) the income tax results in
 A) a reduction in the multiplier effect on GDP of autonomous expenditures.
 B) automatic stabilization of GDP.
 C) A and B.
 D) None of the above.

17) Economic model building begins with the construction of greatly oversimplified "benchmark" models, which are brought closer to reality by gradually removing the simplifying assumptions. In this process, more and more _____ variables become _____.
 A) long–run, short–run
 B) nominal, real
 C) exogenous, endogenous
 D) endogenous, exogenous
 E) short–run, long–run

18) When interest rate rise consumers will
 A) wait to borrow funds when interest rates fall.
 B) compare loan payments with the desirability of goods today and increase consumption.
 C) compare loan payments with the desirability of goods in the future and increase consumption.
 D) none of above.

19) The textbook and the course packet each provided one example of a hyperinflation. In what two countries did that occur?
 A) Germany; Russia
 B) Russia; Zimbabwe
 C) Germany; Zimbabwe
 D) Germany; Hungary
 E) Russia; Hungary

20) As of January, 2017, the current economic expansion has lasted how many months?
 A) 30
 B) 60
 C) 90
 D) 120

21) Following housing market collapse, U.S. personal saving rates have
 A) increased.
 B) data not yet available.
 C) decreased.
 D) remained the same.

22) Autonomous planned spending includes five components of which two are dependent on the interest rates. These are
    A) the demand for exports and the demand for imports.
    B) government spending and autonomous tax revenue.
    C) government spending and investment.
    D) autonomous consumption and planned investment.

23) The money supply consists of
    A) checking accounts alone.
    B) currency and checking accounts.
    C) currency alone.
    D) currency and checking and savings accounts.
    E) checking and savings accounts.

24) Which of the following statements about the financial situation of households since the Great Recession is FALSE?
    A) the percentage of families owning homes has declined
    B) household debt service has declined as a percentage of income
    C) household liabilities have declined as a percentage of income
    D) bank criteria for granting loans have become easier

25) In the course packet study of household spending in response to a government shutdown, the authors found that the households who lost income because of the shutdown did what in response?
    A) they cut consumption by the same amount as income was reduced
    B) they reduced the balances in their savings accounts
    C) they increased borrowing on their credit cards
    D) they delayed payments on mortgages

26) At all points below the current LM curve,
    A) the supply of output falls short of output demand.
    B) the supply of output exceeds output demand.
    C) the supply of money falls short of money demand.
    D) the supply of money exceeds money demand.

Figure 4–5
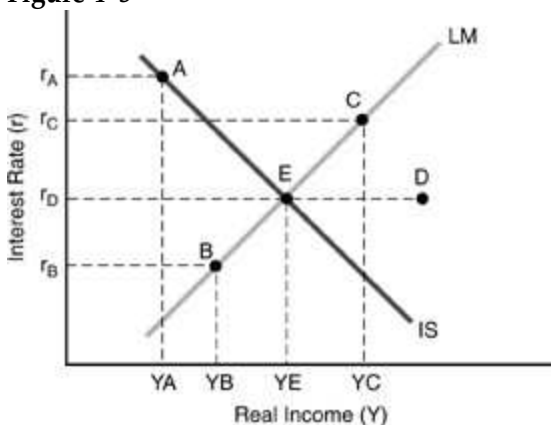
27) In Figure 4-5, the commodity market is in equilibrium
    A) at points A and E.
    B) at points A, B, E, and C.
    C) at points E and D.
    D) only at point E.
    E) at points B, C, and E.

Figure 4–6
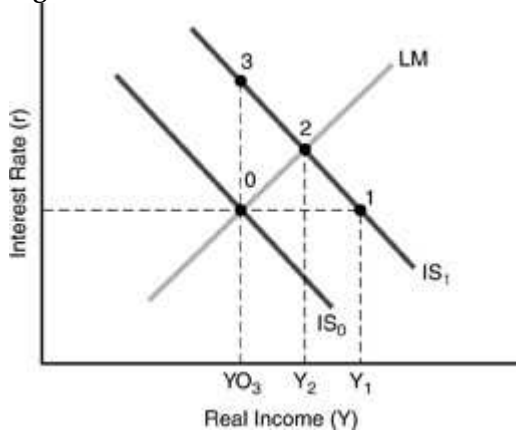
28) In Figure 4–6 above, suppose we are initially at point 2. A reduction in government spending causes income to change by _____ and the interest rate to change by _____ than would be the case in the Chapter 3 model.
    A) more, more
    B) more, less
    C) less, less
    D) less, more

29) A steep IS curve implies that
    A) an increase in money supply will change output by a relatively small amount.
    B) changes in money supply will have large multiplier effects on output.
    C) a decrease in taxes will change output by a relatively small amount.
    D) A and B.

30) The course packet article on the IS-LM model explains the observed combination of output and interest rates in 2005 as reflecting:
    A) a rightward shift of the LM curve along a fixed IS curve
    B) a leftward shift of the LM curve along a fixed IS curve
    C) a rightward shift of the IS curve along a fixed LM curve
    D) a leftward shift of the IS curve along a fixed LM curve

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