ECON 201: Introduction to Macroeconomics
Professor Robert Gordon
Midterm Exam 2:
November 7, 2016

NAME _____

Circle the **TA session** you attend: Bence - 3PM   Bence - 4PM

                                            Cagri - 3PM   Cagri - 4PM

                                            Chris - 3PM   Chris - 4PM

Directions: This test is in two parts, a multiple choice question part and a short-answer part. Use this answer packet to complete the exam. Calculators are permitted. Books, notes, reference materials, etc. are prohibited. Good luck!

Part 1: Referring to the questions in the Multiple Choice Questions Packet, choose the one alternative that best completes the statement or answers the question. Each question is worth one point. There is no penalty to guessing, so be sure to answer all of them. Write your answers in the following table using 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 1:

1. An independent panel of economic experts at the _____ analyzes the macroeconomy and determines when recessions begin and end.
   A) Bureau of the Census
   B) President's Council of Economic Advisers
   C) Treasury Department
   D) National Bureau of Economic Research

2. Long-run economic growth is best measured by:
   A) a sustained rise in the production of goods and services.
   B) the growth of the money supply.
   C) trade surpluses in the long run.
   D) the rate of private saving.

3. The paradox of thrift highlights:
   A) the role of investment in the macroeconomy.
   B) how individual decisions to save more may worsen a recession.
   C) how an increase in spending occurs during recessions.
   D) irrational behavior on the part of households.

4. An economic recovery encompasses all of the following EXCEPT:
   A) sustained economic growth.
   B) a short-run increase in aggregate production.
   C) a time of increasing employment.
   D) the end of the business cycle.

5. In the circular-flow diagram, households:
   A) supply goods.
   B) supply services.
   C) buy resources.
   D) buy goods and services.

6. In the course packet article by two Stanford economists (Jones and Klenow), "welfare" is measured by all of the following except:
   A) Consumption
   B) Life expectancy
   C) Happiness
   D) Leisure

7. In class and in the course packet, "Baumol's cost disease" was cited as one reason for
   A) The growing trade deficit
   B) The rising relative price of college tuition
   C) The paradox of thrift
   D) The rise in the natural rate of unemployment

Use the following to answer question 8:

Figure: Circular-Flow Model
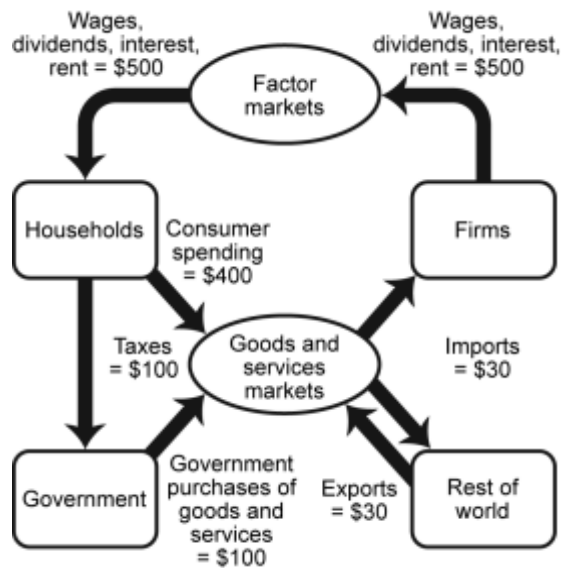
8. (Figure: Circular-Flow Model) Look at the figure Circular-Flow Model. If the circular-flow model is in equilibrium (the sum of money flowing into each box is equal to the sum of the money flowing out of it) and there is a decrease in consumer spending, which of the following is likely to happen?
   A) an increase in the nominal GDP
   B) an increase in the real GDP
   C) an increase in the unemployment rate
   D) an increase in the inflation rate

9. Boeing buys $3 million worth of steel, $2.5 million worth of computer hardware and software, and $1 million worth of mechanical tools to manufacture a certain model of aircraft. Boeing sells this particular model at $10 million. The value added by Boeing is equal to:
   A) $3.5 million.
   B) $16.5 million.
   C) $13 million.
   D) $15.5 million.

10. A rise in the quit rate is consistent with
    A) A tighter labor market
    B) A looser labor market
    C) A growing labor market
    D) A shrinking labor market

11. The course packet contained articles describing shortages of which types of workers?
    A) Computer programmers
    B) Skilled construction workers
    C) Long-distance truck drivers
    D) A) and C)
    E) B) and C)

Use the following to answer question 12:

Table: Real and Nominal Output

Year	Units of Output	Price per Unit
1	40	$1
2	30	2
3	50	2
4	70	4
5	60	6
6	60	8

12. (Table: Real and Nominal Output) Look at the table Real and Nominal Output. Assuming year 3 is the base year, real output in year 3 is:
    A) $100.
    B) $120.
    C) $140.
    D) $200.

13. A survey reveals that on a small island initially 100 people have jobs, 25 people don't have jobs but are looking for jobs, and 45 people are neither working nor looking for work. Suppose that 15 of the 45 people who weren't looking for work now begin looking for work. There are now 40 people looking for work and 100 people working. The unemployment rate:
    A) falls to 20%.
    B) rises to 28.6%.
    C) rises to 50%.
    D) Nothing happens to the unemployment rate, because these people weren't working before and they aren't working now.

14. A recent college graduate with a major in economics attends a job fair but has not yet found a job. This graduate is counted as a _____ unemployed worker.
    A) structurally
    B) seasonally
    C) cyclically
    D) frictionally

15. Last month Brent lost his job at the auto parts factory because the factory relocated to Asia. Brent and his former coworkers have been looking for similar jobs, but they have found no openings. In Brent's town the _____ labor has _____.
    A) supply of; fallen
    B) supply of; risen
    C) demand for; risen
    D) demand for; fallen

16. When the unemployment rate is high, there is political demand to increase the benefit period for unemployment compensation. In a standard analysis, this will lead to:
    A) reductions in unemployment.
    B) increases in the unemployment rate.
    C) more job creation.
    D) more job destruction.

17. Annie's credit union charges a fee for transferring funds from her money market account to her checking account. The rate of inflation has been 12% lately, so Annie has transferred funds from her money market account to her checking account more often than usual. This cost is an example of the _____ cost of high inflation.
    A) unit-of-account
    B) menu
    C) shoe-leather
    D) redistributive

Use the following to answer question 18:

Scenario: Employment in Xenia
Xenia has 10,000 people. Of this population, 1,000 residents are below age 16, and 2,000 have given up looking for work. Currently, 500 people are unemployed but are actively looking for work; 2,500 work part-time, and the rest are fully employed.

18. (Scenario: Employment in Xenia) Look at the scenario Employment in Xenia. Suppose some of those who had given up looking for work start looking again. The unemployment rate will:
    A) increase.
    B) decrease.
    C) not be affected.
    D) rise, fall, or stay the same.

19. Which of the following will NOT increase the productivity of labor?
    A) technological improvements
    B) an increase in the capital stock
    C) improvements in education
    D) an increase in the size of the labor force

20. During the latter half of the twentieth century, the Soviet Union made more physical capital available to its workers, but this increase resulted in successively smaller increases in productivity. This is an example of:
   A) diminishing returns to human capital.
   B) a decline in technology.
   C) a declining standard of living.
   D) diminishing returns to physical capital.

Use the following to answer question 21:

Scenario: Productivity
Real GDP has grown by 4% per year over the past 30 years. During the same period the labor force has grown by 1% per year and the quantity of physical capital has grown by 5% per year. Each 1% increase in physical capital per worker is estimated to increase productivity by 0.4%. Assume that human capital has not changed during the past 30 years.

21. (Scenario: Productivity) Look at the scenario Productivity. How much has growing physical capital per worker contributed as a percentage of total productivity growth?
   A) 80%
   B) 53%
   C) 30%
   D) 9%

22. Government spending has the same effect on GDP as investment in each of the following cases EXCEPT when:
   A) it goes to help pay for education.
   B) it helps provide infrastructure for the economy.
   C) it is used for public health measures.
   D) it is used for a personal income tax rebate.

23. According to the bar graph shown in class, the growth rate of total factor productivity was fastest during which of these time intervals?
   A) 1860-1890
   B) 1890-1920
   C) 1920-1970
   D) 1970-2014

24. Thomas Malthus:
   A) was President Reagan's primary economic adviser.
   B) successfully predicted the nationalization of the insurance company AIG.
   C) predicted that limited land supplies would prevent large increases in real incomes per capita.
   D) wrote *The Limits to Growth* in 1972.

Use the following to answer question 25:
Scenario: Closed Economy *S* = *I*
GDP is $12 trillion this year in a closed economy. Consumption is $8 trillion and government spending is $2 trillion. Taxes are $0.5 trillion.

25. (Scenario: Closed Economy *S* = *I*) Look at the scenario Closed Economy *S* = *I*. How much is national saving?
    A) $3.5 trillion
    B) $3 trillion
    C) $2.5 trillion
    D) $2 trillion

26. In an open economy government spending was $30 billion, consumption was $70 billion, taxes were $20 billion, GDP was $100 billion, and investment spending was $10 billion. As a result, there was:
    A) a net capital inflow of $10 billion.
    B) capital inflows of $10 billion and capital outflows of $20 billion.
    C) a trade surplus of $20 billion and a financial deficit of $20 billion.
    D) a net capital outflow of $10 billion.

Use the following to answer question 27:

Figure: Loanable Funds
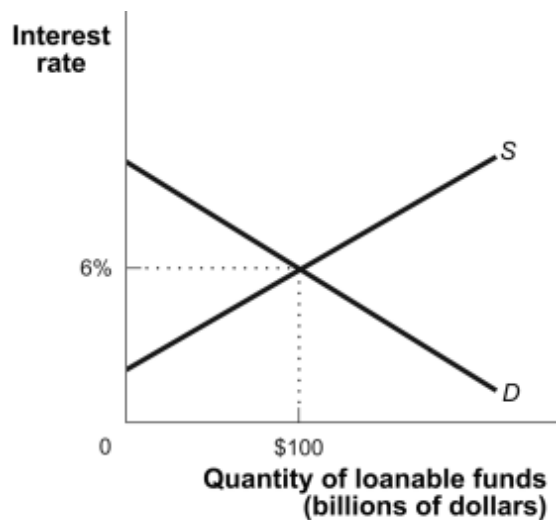
27. (Figure: Loanable Funds) Look at the figure Loanable Funds. Which of the following might produce a new equilibrium interest rate of 8% and a new equilibrium quantity of loanable funds of $150 billion?
    A) Consumption as a fraction of disposable income increases.
    B) Businesses become more optimistic about the return on investment spending.
    C) The federal government has a budget surplus rather than a budget deficit.
    D) There is an increase in capital inflows from other nations.

28. Which of the following assets is the LEAST liquid?
    A) cash
    B) checking account balance
    C) corporate bond
    D) ownership of one fourth of a privately held company

29. Germany is featured both in the textbook and in the course packet readings. Which of the following is not a characteristic of the current German economy?
    A) High youth unemployment
    B) Shorter working hours during recessions
    C) Vocational apprenticeships
    D) Trade surplus

30. In May, 2016, John sells his used 2005 Chevrolet Impala to the auto dealer "Ripoff Chevrolet" for $2,000. Ripoff sells the car on its used car lot to Sally for $3,000. This transaction contributes the following amount to 2016 GDP:
    A) $0
    B) $1,000
    C) $2,000
    D) $3,000

Part 2: Solve the following problems in the provided space. *Show all your work clearly.*

Problem 1 (8 points)

Complete the blanks using the following table. ***Round all values to the nearest two decimal places, including percentages. That is, answers should look like 13,300.72 or 29.87%.***

(Parts 1-13: 0.5 points per blank + 0.5 bonus for no mistakes)

	2014		2015		Annual Percentage Change between 2014-2015
	Price	Quantity	Price	Quantity	
Apple	2	3	5	7	(LN formula)
Banana	11	13	17	19	

Nominal GDP	149	358	87.66%
Real GDP in 2014 prices	149	223	40.32%
Real GDP in 2015 prices	236	358	41.67%
GDP Deflator with base year 2014	100	160.54	47.34%
GDP Deflator with base year 2015	63.14	100	45.98%

14. What is the percentage growth rate in chain-weighted GDP deflator? _____ (1 point)

46.66%

Problem 2 (10 points)

We have the real GDP of Angola and Belgium in 2010 and 2016:

	2010	2016
Angola	100	140
Belgium	500	560

Round all values to the nearest two decimal places, including percentages. **Use the LN formulas shown in class. Use the assumption given in each part only for that part.**

1. Calculate the average **annual** growth rate of *Angola and Belgium.* _____ (1 point)

S_A= 100/6 x ln(140/100) = 5.61%

S_B= 100/6 x ln(560/500) = 1.89%

2. **Assume that the average annual growth rate of Angola doubles after 2016 but the growth rate of Belgium decreases by half.** How many years would it take for Angola's GDP to catch Belgium's GDP, starting from 2016? _____ (3 points)

Exp(2 x 5.61 x N/100) x 140=Exp((1.89/2) x N/100) x 560 then N = 13.50

3. **Assume that the average annual growth rate of Angola decreases to -2% after 2016.** How many years would it take for Angola to shrink to one third of its real GDP in 2016?_____ (3 points)

-2 = 100/N x ln(1/3) then N=54.94

4. **We know the growth rate of Angola is three times the growth rate of Belgium after 2016. In addition to that we know it takes 20 years for Angola's GDP to catch up to Belgium's GDP.** What is the growth rate Angola after 2016? _____ (3 points)

Exp(3s x 20/100) x 140=Exp(s x 20/100)x560 then s = 3.47 and s_A=10.40

Problem 3 (8 points)

The following table shows the population of a fictional country by age and employment status. The units are thousand people.

Age	Full-time workers	Part-time workers	Don't have a job but are looking for one	Want a job but aren't searching because believe jobs are hard to find	Don't want a job now	Total
<16	0	0	0	0	250	250
16-24	90	75	20	2	155	342
25-54	300	40	30	4	235	609
>55	300	10	50	2	475	837
Total	690	125	100	8	1115	2038

1. Calculate the **Labor Force Participation Rate** for this economy. *Report as a percentage to two decimal places.* _____ (1 point)

51.17%

2. Calculate the **Unemployment Rate** for this economy. *Report as a percentage to two decimal places.* _____ (1 point)

10.93%

3. What is the **Employment to Working-Age Population Ratio**? *Report as a percentage to two decimal places.* _____ (1 point)

45.58%

4. What is the **Unemployment Rate for People Aged 25-54**? *Report as a percentage to two decimal places.* _____ (1 point)

8.11%

5. The economy starts to recover and people are getting more optimistic. First, half of the previously unemployed people who were looking for a job managed to find one. Second, nobody thinks that finding a job is impossible anymore: the previously discouraged are all searching for a job now. Third, half of the part-time workers believe they can get a full-time job now: they quit and devote more of their time to search for a better job.

   What is the new unemployment rate? _____ (4 points)

   FTW = 690 + 50=740, PTW = 125/2 = 62.5, U = 62.5 + 50+8 = 120.5

   UR = 13.06%

Problem 4 (4 points)

You have the following information:

GDP	$100 million
Consumption	$60 million
Investment	$15 million
Total tax revenues	$40 million
Transfers	$20 million
Net capital inflow	-$5 million

1. Net export is _____(1 point)
   X – M = -NCI = $5 million
2. Government spending is _____(2 points)
   Y = C + I + G + X – M
   Can solve for G = $20 million
3. Public saving is _____(1 point)
   S_pub = T – TR – G = $0 million

Answer Key

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