Economics 102   Name _____
Fall 2017   TA Name_____
Second Midterm with Answers   Section_____
Date: Thursday, November 16, 2017

The exam consists of three parts: (1) 11 Binary Choice Questions worth 2.5 points each (27.5 points total); (2) 20 Multiple Choice Questions worth 3.5 points each (70 points total); (3) Administrative Points worth 2.5 points that are awarded to you for correctly filling out the required information on your scantron and your exam booklet. Please accurately and completely provide your name, student ID number and section number on the provided scantron as well as on the exam booklet. Answer all questions on the scantron sheet with a #2 pencil.

NO CELL PHONES, CALCULATORS, OR FORMULA SHEETS ARE ALLOWED FOR THIS EXAM.

PICK THE BEST ANSWER FOR EACH QUESTION.

Section	Time and Location	TA
340	Fri. 9:55 AM - 10:45 AM, Social Science 5322	Steven Zhang
341	Thurs. 3:30 PM - 4:20 PM, Social Science 5322	Lois Miller
342	Thurs. 2:25 PM - 3:15 PM, Social Science 4314	Lois Miller
343	Fri. 2:25 PM - 3:15 PM, Social Science 6203	Lois Miller
344	Fri. 11:00 AM - 11:50 AM, Van Hise 140	Lois Miller
345	Fri. 12:05 PM - 12:55 PM, Ingraham 116	Yunhan Shin
346	Fri. 8:50 AM - 9:40 AM, Ingraham 214	Yunhan Shin
347	Fri. 1:20 PM - 2:10 PM, Ingraham 222	Yunhan Shin
348	Fri. 2:25 PM - 3:15 PM, Social Science 6102	Yunhan Shin
350	Fri. 11:00 AM - 11:50 AM, Van Hise 595	Steven Zhang

Worksheet
DO NOT REMOVE FROM EXAM BOOKLET!!

I, _____, agree to neither give nor receive any help on this exam from other students. Furthermore, I understand that use of a calculator on this exam is an academic misconduct violation. I also understand that failure to cover my answers is academic misconduct: it is important that I maintain the integrity of my work and that I do not make it available to other students.
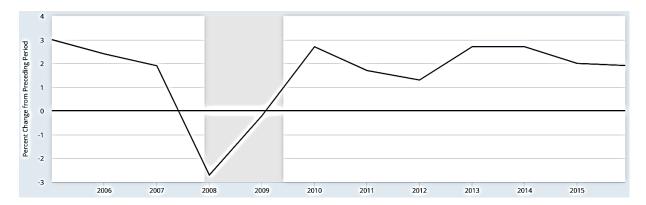
Signed _____

Part I. Binary Choice Questions (11 questions each worth 2.5 points = 27.5 points)

1. Given the following information and holding everything else constant, what will be the effect on an economy's GDP if its government spending increases by $1 billion, its consumption decreases by $2 billion, and its self-employment income increases by $1 billion?

a. GDP decreases.
b. GDP stays the same.

2. If the central bank commits to a fixed nominal interest rate policy (that is, the central bank will insure through its policies that the market interest rate stays constant), what does the Fisher Equation predict about the real interest rate when the expected inflation suddenly rises.
a. The real interest rate decreases.
b. The real interest rate increases.

3. In 2016, Joe Landlord buys an apartment building that has 5 apartments for $200,000. In 2017, Joe rents each apartment for $500/month, and hires a cleaning company to clean the apartment building for $50/month. How much do Joe's activities add to 2017 GDP?

a. $30,000
b. $30,600

4. Are discouraged workers included in the unemployment rate?

a. Discouraged workers are not included in any measure of unemployment.
b. Discouraged workers are not included in the U-3 unemployment rate, but they are included in the U-6 unemployment rate.

5. The following graph describes U.S. real GDP in terms of the **percentage change** from the preceding period. The source of this data is the U.S. Bureau of Economic Analysis.

From the above graph, we can see that there was an _____ between 2008 and 2009.

a. economic boom
b. economic recession

6. Suppose that we know the value of the CPI in 2015 is 150 measured on a 100 point scale and the inflation rate, based upon this CPI, between 2014 and 2015 was 25%. Given this information and holding everything else constant, then the base year must be 2014. Is this argument true or false?

a. True
b. False

7. There are a lot of ways to measure a price level. We studied two examples: the GDP deflator and the CPI. In order to calculate the GDP deflator, we need to utilize the same _____ from the base year. To calculate the CPI, we need to utilize the same _____ defined as the market basket.

a. quantities; prices
b. prices; quantities

8. Consider an economy whose aggregate production function can be described by the following equation where Y is real GDP, K is units of capital, and L is units of labor:

$$Y = 2K^{0.4}L^{0.6}$$

Given this information and holding everything else constant, what happens to the productivity of labor in this economy if the amount of labor (L) increases?

a. The productivity of labor increases.
b. The productivity of labor decreases.

4

9. An economy uses capital (K) and labor (L) as inputs of production. If the adaptation of automation technology increases the amount of outputs at *every* level of capital (K) and labor (L) inputs, what happens to the productivity of capital and labor? Given this information and holding everything else constant, the

a. Productivity of labor and the productivity of capital increases.
b. Productivity of labor decreases and the productivity of capital increases.

10. Suppose that real GDP in Arcadia is $1000 in 1970 and $16,000 in 2010. Furthermore, real GDP in Arcadia grows at a constant annual rate. Given this information and holding everything else constant, real GDP must be growing at:

a. 7% a year
b. 10% a year

11. The demand for loanable funds measures which aspect of savings? The

a. Sources of savings
b. Uses of savings

Part II. Multiple Choice Questions (20 questions each worth 3.5 points = 70 points)

Use the following information to answer the next TWO (2) questions.

Suppose the economy of Goodstown's production for 2016 is characterized by the following table:

Good	Pretzels	Sweaters	Chairs
Price of good	$5/unit of pretzels	$20/sweater	$10/chair
Quantity of good	100 units of pretzels	70 sweaters	20 chairs

12. Given the above information and holding everything else constant, what is Goodstown's GDP in 2016?

a. $2,100
b. $1,800
c. $190
d. $2,500

13. Now, suppose that in Goodstown in 2016, the value of exports is $700, the value of imports is $1000, consumption spending is $1,500, and investment spending is $500. Given this information and holding everything else constant, what is the value of Goodstown's government spending in 2016?

a. $600
b. $1000
c. $100
d. $400

Use the following information to answer the next <u>TWO</u> (2) questions.

The small, closed economy of Youngstown has 3 firms: Mike's Dairy, Pepperoni Inc., and Pizza Palace. Mike's Dairy produces cheese and Pepperoni Inc. produces pepperoni, and both sell all their goods to Pizza Palace, who produces pizza.

	Mike's Dairy	Pepperoni Inc.	Pizza Palace
Interest Payments	$700	$1000	$4,000
Rent	$200	$700	$1,000
Profit	$3000	$200	$2,000
Total Sales	$4,500	$3,000	$20,000

14. Given the above information and holding everything else constant, what is the value of GDP in Youngstown?

a. $20,000
b. $27,500
c. $12,500
d. $40,300

15. Given the above information and holding everything else constant, what is the sum of the wages paid by Mike's Dairy, Pepperoni Inc., and Pizza Palace?

a. $14,700
b. $13,000
c. $7,200
d. $5,500

16. In Waysville, painted wooden toys are produced. Timber Inc. produces $6000 of wood and it sells this wood to Toy Shapers. Toy Shapers uses the wood to make wooden toys, and then sells all of these toys to Paints Inc. for $9000. Paint Inc. paints the toys and then sells them to the public for a total of $15,000. What is the value added by each firm?

a. Timber Inc: $6000; Toy Shapers: $9000; Paint Inc: $6000
b. Timber Inc: $6000; Toy Shapers: $3000; Paint Inc: $6000
c. Timber Inc: $0; Toy Shapers: $6000; Paint Inc: $9000
d. Timber Inc: $3000; Toy Shapers: $6000; Paint Inc: $15,000

17. Suppose the economy of Bluetown has a population of 20,000, of which 2,500 people are less than 16 years old. Of the remaining population that is 16 years or older, 1,500 people are not in the labor force. If 8,000 people are employed in Bluetown, what is the unemployment rate?

a. 45%
b. 56%
c. 50%
d. 40%

18. Raymond, a Hollywood actor, is actively seeking new acting opportunities after the release of his debut movie. This is an example of which of the following?

a. Structural unemployment
b. Frictional unemployment
c. Cyclical unemployment
d. None of above

19. Which of the following is an example of cyclical unemployment?

a. The manufacturing plant Anton was working for shut down due to foreign competition.
b. Beverly quit her current job to reunite with her boyfriend who lives in another state.
c. Charlie lost his job as a truck driver because his company switched to using self-driving trucks.
d. During the U.S. recession, Daqing, a manufacturing worker in China, was laid off from his manufacturing job due to the decrease in U.S. demand for the product he manufactured.

Use the following information to answer the next <u>THREE</u> (3) questions. [Caution: this set of problems does entail numerous calculations - be careful about your time management here.]

Suppose that the Wisconsin economy produces only two goods: cheese (C) and waffles (W). An economist in Wisconsin, Dr. Badger reported the following data to the Madison Macroeconomics Research Center. Use this data to answer the questions below.

Wisconsin Data				
Year	Price of C per unit of cheese	Quantity of units of C	Price of W per waffle	Quantity of W per waffle
2013	$5	5	$10	5
2014	$5	10	$15	10
2015	$10	10	$15	5
2016	$10	15	$20	10

20. Dr. Gopher, a friend of Dr. Badger, received a paper report describing the recent economic conditions in Wisconsin. While reading the report, Dr. Gopher spilled his coffee on the report and part of the paper were blurred. Help him fill in the following blanks:

Using the quantities from 2014 for the market basket, and 2014 as the base year, the CPI for 2013, 2015, and 2016 are _____, 125, and _____ respectively. When it comes to an inflation rate based upon this CPI, the inflation rates of 2014, 2015 and 2016 are 33.3%, 25%, and _____ respectively.

a. 80; 150; 20%
b. 80; 125; 15%
c. 75; 150; 20%
d. 75; 150; 15%

21. Dr. Badger calls Dr. Gopher and clarifies that the true price of a unit of cheese in 2014 is not $5, but $10 and that the true price of a waffle in 2016 is not $20, but $25. Using the corrected data and the quantities from 2014 for the market basket, and 2014 as the base year, what are the correct numbers for the CPI in 2013 and the inflation rate in 2016?

a. 50; 33%
b. 50; 40%
c. 60; 33%
d. 60; 40%

22. After updating the table with the correct data (those provided to you in the last question), Dr. Gopher now uses the quantities from 2015 for the market basket, and 2015 as the base year. He finds that some numbers from his calculation are equal to the case when he uses the quantities from 2014 for the market basket, and 2014 as the base year. Among the following measures, which numbers are the same between the two different base years?

        I. CPI in 2014
        II. CPI in 2015
        III. Inflation rate from 2014 to 2015

a. I
b. I and II
c. II and III
d. I, II, and III

23. Suppose people in Wakanda consume 3 different goods. The following table shows the prices and quantities of each good consumed in 2014, 2015, and 2016.

Year	Price per Apple	Quantity of Apples	Price per Banana	Quantity of Bananas	Price per Melon	Quantity of Melons
2014	$3	10	$4	5	$8	10
2015	$5	20	$5	8	$10	5
2016	$7	15	$6	10	$6	5

Black Panther, the great prince of Wakanda, calculates the GDP deflator in 2015 using three different base years.

        I. GDP deflator in 2015 when the base year is 2014
        II. GDP deflator in 2015 when the base year is 2015
        III. GDP deflator in 2015 when the base year is 2016

What is the correct rank of these three GDP deflators going from the largest numeric value to the smallest numeric value?

a. I > II > III
b. I > III > II
c. III > II > I
d. III > I > II

24. You are provided the following information: the CPI in four different states in 2015; each state's 2016 inflation rate based upon the CPI; and each state's nominal monthly salary in 2016.

State	CPI in that State in 2015	Inflation rate in 2016	Nominal Monthly Salary in 2016
Minnesota	120	20 %	$7,200
Wisconsin	110	10 %	$5,445
Illinois	90	10 %	$5,445
Michigan	130	0 %	$6,500

Given the above information, which state has the highest real monthly salary in 2016?

a. Minnesota
b. Wisconsin
c. Illinois
d. Michigan

25. If a country is experiencing fast economic growth in terms of its GDP growth rate, then this implies which of the following?

a. The population size of the country is growing.
b. The income level is rising for everyone in the country.
c. The quality of goods and services produced in the country is improving.
d. None of the above statements are undeniably true given the provided information.

Use the following information to answer the next <u>TWO</u> (2) questions.

The city of Gotham has an aggregate production function described by the following factors:

> The level of technology is determined by Lucius Fox.
> The current level of technology in Gotham is 10.
>
> Capital is only supplied by Bruce Wayne, the richest man in the city.
> The level of capital is constant and equal to 64 units of capital.
>
> Labor supply is determined by the people living in Gotham.
> Currently, the people in Gotham supply 16 units of labor.
>
> Aggregate Production Function: $Y = \varepsilon\, K^{1/2} L^{1/2}$
>
> Where Y is real GDP, K and L are the number of units of capital and labor, respectively.
> Finally, ε denotes the level of technology which is currently equal to 10.

Bruce Wayne consults with Lucius Fox about how to boost the level of real GDP in Gotham. Suppose that Bruce Wayne decides to supply more capital and at the same time Lucius Fox succeeds in developing a new machine which increases the level of technology.

26. Given this information and holding everything else constant, capital productivity will _____ and labor productivity will _____.

a. decrease; be indeterminate
b. increase; be indeterminate
c. be indeterminate; decrease
d. be indeterminate; increase

Over time, the economic condition in Gotham returns to its initial situation. Suppose that Joker then invades Wayne Manor and destroys 28 units of the capital supplied by Bruce Wayne. At the same time 12 units of labor decide to work in another city because these workers have serious concerns about the safety of working in Gotham.

27. In this new situation, capital productivity will _____. Labor productivity will _____ by _____ relative to the initial situation.

a. decrease; increase; 5 units of output per unit of labor
b. decrease; increase; 10 units of output per unit of labor
c. increase; decrease; 5 units of output per unit of labor
d. increase; decrease; 10 units of output per unit of labor

Use the following information to answer the next <u>TWO</u> (2) questions.

Consider an economy where the demand for loanable funds from businesses and the supply of loanable funds from households (private savings) are given by the following equations where Q is the quantity of loanable funds and r is the interest rate:

Demand for loanable funds from businesses: Q = 1,000 - 100r
Supply of loanable funds from households: Q = 200r - 500

In both the demand and supply for loanable funds equations the interest rate is expressed as a percentage (thus, if the interest rate is 3%, then the r in the equation would be 3).

28. Initially assume that this economy is a closed economy and that the government in this economy has a balanced budget. Holding everything else constant, if the government decides to run a surplus of $600 we know that:

a. The equilibrium interest rate in the loanable funds market will be greater than 3% and that the level of private investment will be equal to $700.
b. The equilibrium interest rate in the loanable funds market will be equal to 3% and that the equilibrium level of private saving will be equal to $700.
c. The equilibrium interest rate in the loanable funds market will be equal to 3% and that the equilibrium level of private investment will be equal to $700.
d. The equilibrium interest rate in the loanable funds market will be less than 3% and that the level of consumption spending will decrease.

29. Starting from the initial case with the balanced budget, if the government decides to run a deficit of $900 we know, holding everything else constant, that:

a. Private saving will increase by $600.
b. Consumption spending will increase by $300.
c. Private investment will be crowded out by $900.
d. Private investment will decrease by $100.

30. It is never too early to think about retirement plans. Your financial service provider gives you the following plans for growing your retirement portfolio:

> Plan i) Invest $10,000 today in the form of a bond that earns 5% per year
> Plan ii) Invest $6,000 today in the form of a bond that earns 7% per year
> Plan iii) Invest $3,000 today in the form of a bond that earns 10% per year

Suppose your goal is to have at least **$100,000** in your portfolio by the year 2057, which investment plans meet this goal?

a. Only Plan (i) meets the goal.
b. Only Plan (ii) meets the goal.
c. Only Plan (iii) meets the goal.
d. None of these plans meets the goal.

31. The current nominal interest rate is 0.5%. The central bank pledges that it will raise the nominal interest rate by 30 basis points (1 basis point = 0.01%) each year for the next five years. Inflation is expected to be 2% over the next five years. Given this information and holding everything else constant, what is the level of real interest rate five years from now?

a. -1.5 %
b. 0 %
c. 1.5 %
d. 2 %

End of Exam! Thank you!

Work Space:

Work Space:

Work Space: