ECON 201: Introduction to Macroeconomics
Professor Robert Gordon
Final Exam:
March 18, 2016

NAME ______________________________________________________

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.

<p>| | | | | | |</p>
<table>
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<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
</tbody>
</table>
1. John Maynard Keynes believed that the government should:
   A) actively try to mitigate the effects of recessions by using fiscal and monetary policies.
   B) not interfere with the economy but let the economy self-correct.
   C) intervene only when there is a boom but let the recession run its course.
   D) not use fiscal and monetary policies, as these policies have long-term adverse effects.

2. Use of fiscal policy involves changes in:
   A) interest rates.
   B) government spending.
   C) the quantity of money.
   D) the quantity of money and interest rates.

3. An increase in the nation's _____ is generally accepted as a long-run indicator of a rising standard of living.
   A) output per person
   B) unemployment rate
   C) inflation rate
   D) trade deficit

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. The United States has a lower life expectancy than most other developed countries. This tends to reduce the position of the U.S. on international rankings of
   A) GDP
   B) freedom
   C) happiness
   D) growth of income per capita

6. Which of the following is included in GDP?
   A) sale of steel to an auto firm
   B) sale of auto to a steel firm
   C) sale of stock by president of auto firm
   D) sale of bond by U. S. government
Use the following to answer question 7:

**Figure: Circular-Flow Model**

7. (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 investment 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

8. Goods that are produced in a particular period but NOT sold in that period:
   A) go into inventory and are called consumption.  
   B) end up in inventory and are included in investment.  
   C) are finally included in depreciation when they are sold.  
   D) are classified as intermediate goods.

9. If nominal GDP of 2012 was higher than nominal GDP of 2011:
   A) production in 2012 was higher than production in 2011, while prices remained unchanged.  
   B) production or prices or both were higher in 2012 than in 2011.  
   C) prices in 2012 were higher than prices in 2011, while production remained unchanged.  
   D) production in 2012 went down and prices increased.
10. Spending on inputs is _____ of GDP, and investment spending is _____ of GDP.
   A) part; part
   B) not a part; part
   C) part; not a part
   D) not a part; not a part

11. 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.

12. If a worker becomes unemployed because of an increase in the minimum wage, that worker is:
   A) frictionally unemployed.
   B) structurally unemployed.
   C) cyclically unemployed.
   D) engaged in job search.

13. A course packet article describes the economic situation of young people since 2007 as having ________ real wealth, __________ home foreclosures, and a _________ percentage living in their parents’ homes
   A) less, more, larger
   B) more, less, larger
   C) less, more, smaller
   D) more, less, smaller

14. Jane wants a job and looked for one two months ago, but since then she has stopped looking. In the labor market statistics she is considered
   A) cyclically unemployed
   B) structurally unemployed
   C) frictionally unemployed
   D) marginally unemployed
15. The introduction of ATMs reduced the:
   A) menu costs of inflation.
   B) shoe-leather costs of inflation.
   C) unit-of-account costs of inflation.
   D) seignorage.

16. When labor unions successfully bargain for wage rates that are _____ than the equilibrium wage rate, they may cause _____.
   A) lower; frictional unemployment.
   B) equal to; shortages in that labor market.
   C) higher than; an increase in structural unemployment.
   D) higher than; shortages in that labor market.

17. The ____ in an economy whose aggregate real output is growing faster than the total population.
   A) real GDP per capita is rising
   B) standard of living is declining
   C) national income is falling
   D) nominal GDP per capita is decreasing

Use the following to answer question 18:

<table>
<thead>
<tr>
<th>Table: Kenya's Economy in 2010</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate output at the beginning of the year</td>
<td>$31 billion</td>
</tr>
<tr>
<td>Population at the beginning of the year</td>
<td>40 million</td>
</tr>
<tr>
<td>Output growth</td>
<td>5.2%</td>
</tr>
<tr>
<td>Population growth</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

18. (Table: Kenya's Economy in 2010) Look at the table Kenya's Economy in 2010. During 2010, assuming no changes in the price level, aggregate output per capita in Kenya grew at a rate of:
   A) 0.6%.
   B) 2.6%.
   C) 5.2%.
   D) 7.8%.

19. Which of the following does not use chain weights in its calculation?
   A) Consumer Price Index
   B) real GDP
   C) real consumption expenditures
   D) GDP deflator
20. One of the course packet readings used the acronym “NEETs” to describe a situation related to
   A) housing loans
   B) youth unemployment
   C) economic growth
   D) money multiplier

21. Which of the following countries is NOT characterized by abundant farmland and mineral deposits?
   A) United States
   B) Canada
   C) Argentina
   D) Japan

22. A negative externality:
   A) is not as costly as a positive externality.
   B) is a cost that individuals or firms impose on others without having to offer compensation.
   C) is immune to economic incentives.
   D) is an unavoidable consequence of budget deficits.

Use the following to answer question 23:

**Figure: The Market for Loanable Funds III**
23. (Figure: The Market for Loanable Funds III) Look at the figure The Market for Loanable Funds III. If the government in a closed economy is running a budget balance of zero when it decides to increase defense spending by $200 billion and then finances the spending by selling bonds, the government will crowd out a maximum of _____ in private investment spending.
A) $200 billion
B) $100 billion
C) $50 billion
D) $10 billion

24. 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.

25. Banks are financial intermediaries that:
A) have customer deposits as the primary asset and loans to borrowers as the primary liability.
B) provide liquid assets to lenders and long-term financing to borrowers.
C) are types of mutual funds.
D) have customer deposits as the primary asset and that provide liquid assets to lenders.

26. If capital inflow is negative, then a country:
A) borrows more than it lends to other countries.
B) lends more than it borrows from other countries.
C) has balanced trade.
D) imports more than it exports.

27. According to the efficient markets hypothesis, if you are trying to find out what a stock is really worth, you should:
A) look up the current stock price.
B) study past trends in the stock price.
C) study the underlying determinants of the company's future profits.
D) examine its recent price changes.
28. The marginal propensity to consume equals the:
   A) proportion of consumer spending as a function of aggregate disposable income.
   B) change in savings divided by the change in aggregate disposable income.
   C) ratio of the change in consumer spending to the change in aggregate disposable income.
   D) change in savings divided by the change in consumer spending.

29. Assuming no taxes and no trade, the multiplier equals:
   A) \( \frac{MPC}{MPS} \).
   B) \( \frac{1}{1 - MPS} \).
   C) \( MPC + MPS \).
   D) \( \frac{1}{1 - MPC} \).

30. If the stock market crashes:
   A) the aggregate consumption function will shift up.
   B) the aggregate consumption function will shift down.
   C) unplanned inventory investment will be negative.
   D) GDP will increase.

31. An unplanned fall in inventories leads to:
   A) prices falling.
   B) production falling.
   C) production increasing.
   D) interest rates increasing.

32. When consumers receive more disposable income, their spending:
   A) will increase.
   B) will decrease.
   C) will stay the same, but their savings will decrease.
   D) and their savings will both decrease.

33. Whenever planned aggregate spending exceeds real GDP, unplanned inventory investment is:
   A) negative.
   B) zero.
   C) positive.
   D) unpredictable.
34. If real GDP is $1,000 billion and the planned aggregate expenditure is $850 billion, then the unplanned change in inventories will be:
   A) $150 billion.
   B) $1,850 billion.
   C) $150 billion.
   D) $1,850 billion.

35. In general, a change in the price level, all other things unchanged, causes:
   A) a movement along the aggregate demand curve.
   B) a shift of the aggregate demand curve.
   C) both a movement along the aggregate demand curve and a shift in the curve.
   D) no change in the purchasing power of assets.

36. Increasing the quantity of money in circulation shifts the _____ curve to the _____.
   A) aggregate demand; left
   B) long-run aggregate supply; right
   C) aggregate demand; right
   D) short-run aggregate supply; right

37. Suppose that the U.S. government doubles its spending on health care. The _____ curve shifts _____, output _____, and prices _____.
   A) short-run aggregate supply; right; increases; decrease
   B) short-run aggregate supply; left; decreases; increase
   C) aggregate demand; left; decreases; decrease
   D) aggregate demand; right; increases; increase

38. The course packet readings described a labor-market shortage of
   A) restaurant workers
   B) carpenters
   C) long-distance truck drivers
   D) retail sales clerks
   E) B) and C)
   F) C) and D)

39. When transfers increase by 50 and the marginal propensity to consume is 0.8, aggregate expenditures change by how much?
   A) -50
   B) 50
   C) 200
   D) 250
40. (Figure: Policy Alternatives) Look at the figure Policy Alternatives. If the economy is in equilibrium at \(Y_1\) in panel (a), it is in:
   A) a recessionary gap.
   B) an inflationary gap.
   C) simultaneous short-run and long-run equilibrium.
   D) full employment.

41. When wages rise, \(AS\) shifts _____ and aggregate price levels _____.
   A) left; fall.
   B) right; fall
   C) right; rise
   D) left; rise

42. Starting from its potential output, an economy's government increases spending. In the long run, this economy will produce at:
   A) an output level above its potential output.
   B) its potential output.
   C) an output level below its potential output.
   D) its potential output level at a lower aggregate price level.

43. The 2009 U.S. stimulus was a(n) _____ fiscal policy that _____ aggregate demand.
   A) expansionary; increased
   B) expansionary; decreased
   C) contractionary; increased
   D) contractionary; decreased
44. Some argue that budget deficits will lead to reduced private spending because:
   A) the government will purchase so many goods and services that it will lead to a shortage of consumer goods and services.
   B) budget deficits will reduce interest rates on savings and decrease consumers' wealth.
   C) consumers, anticipating higher taxes, will reduce consumption to save money to pay the future taxes.
   D) the government will have to increase transfer payments to finance the deficit.

45. Discretionary fiscal policy may fail to stabilize the economy or may even make the economy less stable because of:
   A) its ineffectiveness.
   B) government waste.
   C) lags in deciding on and implementing a policy change.
   D) the business cycle.

46. If the government's revenues are less than its expenditures, then it has a budget:
   A) deficit.
   B) surplus.
   C) balance.
   D) equality.

47. If the marginal propensity to consume is 0.75 and government purchases of goods and services decrease by $30 billion, real GDP will:
   A) increase by $30 billion.
   B) increase by $22.5 billion.
   C) decrease by $30 billion.
   D) decrease by $120 billion.

48. All of the following are examples of fiscal policy EXCEPT:
   A) increasing Medicaid reimbursements.
   B) reducing the money supply to raise the interest rate.
   C) increasing personal income tax deductions for home ownership.
   D) reducing federal subsidies to state universities.

49. A recessionary gap can be closed with:
   A) contractionary monetary policy.
   B) an increase in taxes.
   C) a decrease in government purchases.
   D) expansionary fiscal policy.
50. The acronym “NINJA” was used in class to describe what topic?
   A) structural unemployment
   B) open-market operations
   C) housing finance
   D) fiscal policy stimulus of 2009

51. The course packet article where Mr. Smith lost his job served as an example of
   A) the multiplier
   B) marginal propensity to consume
   C) structural unemployment
   D) cyclical unemployment

52. If during 2007 the interest rate on one-month Treasury bills was 2.5% and during 2008
   it was 2%, the opportunity cost of holding money:
   A) decreased.
   B) became negative.
   C) increased.
   D) did not change.

53. The money demand curve shows the relationship between the _____ and the _____ of
    money demanded.
   A) money supply; quantity
   B) aggregate price level; nominal quantity
   C) interest rate; nominal quantity
   D) real GDP; nominal quantity

54. An increase in the demand for money with no change in supply will lead to _____ in the
    equilibrium quantity of money and _____ in the equilibrium interest rate.
   A) no change; a rise
   B) no change; a fall
   C) a decrease; a rise
   D) an increase; a fall

55. To lower the short-term interest rate, the Federal Reserve can:
   A) buy Treasury bills.
   B) sell Treasury bills.
   C) tell the banks to make more loans.
   D) tell the banks to make fewer loans.
56. When actual output is above potential output over time:
   A) nominal wages will increase, and the short-run supply curve will shift to the right.
   B) nominal wages will increase, and the short-run supply curve will shift to the left.
   C) the aggregate demand curve will shift to the right.
   D) the short-run aggregate supply curve will shift to the right.

57. Expansionary monetary policy _____ the money supply, _____ interest rates, and _____
    consumption and investment spending.
   A) increases; increases; increases
   B) decreases; decreases; decreases
   C) increases; decreases; increases
   D) decreases; increases; decreases

58. The Taylor rule:
   A) provides guidance for setting a federal funds rate target.
   B) says that interest rates often should be negative.
   C) provides guidance on timing of monetary policy with fiscal policy.
   D) refers to a discretionary fiscal policy rule.

59. Which of the following have had the most real GDP growth since 2007?
   A) Chicago metropolitan area
   B) United States
   C) western Europe
   D) Japan

60. The course packet reading on the Fed’s current dilemma emphasizes the link between
    _______ interest rates, a _______ dollar, and _________ net exports
   A) higher, weaker, lower
   B) lower, stronger, higher
   C) lower, weaker, higher
   D) higher, stronger, lower
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%.

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<td>Price</td>
<td>Quantity</td>
<td>Price</td>
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<tr>
<td>Cards Against Humanity</td>
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<td>9</td>
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<tr>
<td>Jenga</td>
<td>10</td>
<td>5</td>
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<tr>
<td>Nominal GDP</td>
<td>1.155</td>
<td>2.190</td>
<td></td>
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<tr>
<td>Real GDP in 2014 prices</td>
<td>3.155</td>
<td>4.270</td>
<td>5.55.50</td>
</tr>
<tr>
<td>Real GDP in 2015 prices</td>
<td>6.160</td>
<td>7.190</td>
<td>8.17.19</td>
</tr>
</tbody>
</table>

a) Fill in the blanks above. (4 points; 0.5 points per blank)

b) Calculate the percentage growth in chain-weighted GDP. (2 points)

36.34

c) Calculate the GDP deflator with 2015 prices for 2014 and 2015. (2 points)

For 2014: 96.88
For 2015: 100
Problem 2 (12 points)

Consider the following long-term investment strategies:

1. Strategy A:
   - For every 100 dollars invested on 01.01.2016, it pays $190 on 01.01.2022
   - For every 100 dollars invested on 01.01.2022, it pays $160 on 01.01.2025

2. Strategy B:
   - For every 100 dollars invested on 01.01.2016, it pays a bonus of $10 (which is immediately reinvested for the whole period) and offers an annual growth rate of 10% for 01.01.2016-01.01.2025.

a) Calculate the annual returns (growth rates) to Strategy A for 2016-2022 and 2022-2025
   (Hint: treat two periods separately). (2 points)

   2016-2022: 10.7
   2022-2025: 15.67

b) How many dollars does an investor have at the beginning of 2025 after investing $100 in Strategy B. (2 points)

   270.55

c) Which of the two strategies should the investor choose if she has $200? (2 points)

   A: 608.15
   B: 541.11

d) How big should the bonus offered in strategy B be for both strategies to bring the same profit in 2025? Express the bonus per 100 dollars. (6 points)

   23.62
### Problem 3 (6 points)

<table>
<thead>
<tr>
<th>Age</th>
<th>Full Time workers</th>
<th>Part Time workers</th>
<th>Don't have a job but are looking for one</th>
<th>Don't have a job and are not looking for one</th>
<th>Total</th>
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<td>0</td>
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<td>345</td>
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<td>51-70</td>
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<td>165</td>
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<tr>
<td>&gt;70</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>120</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>210</td>
<td>235</td>
<td>475</td>
<td>1200</td>
</tr>
</tbody>
</table>

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

\[
68.40\% 
\]

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

\[
32.41\% 
\]

c) The US Census Bureau informed that 30 adults passed away (assume that nothing changed with respect to other people). At the same time the US. Bureau of Labor Statistics announced that labor force participation increased to 0.70. How many of the people who died were out of labor force? _______________(4 points)

\[
0.7 = (725-x)/1030, x = 26 \\
30 – 26 = 4 
\]
Problem 4 (12 points)

You are given the following information:

- Money supply: 100
- Currency-to-deposits ratio: 0.25
- Required reserve ratio: 0.05

a) Solve for the value of deposits in this economy. (2 points)

\[ M = C + D, \quad \text{so} \quad \frac{M}{D} = \frac{C}{D} + 1 = c + 1 \]

\[ D = \frac{M}{c+1} = 80 \]

b) Solve for the value of currency in circulation. (2 points)

\[ M = C + D, \quad \text{so} \quad C = M - D = 100 - 80 = 20 \]

c) Solve for the level of bank reserves in this economy. (2 points)

\[ R = rrD = 0.05 \times 80 = 4 \]

d) Solve for the monetary base level in this economy. (2 points)

\[ B = C + R = c*D + R = 0.25 \times 80 + 4 = 24 \]

e) Suppose that the value of deposits decreased by 20. Find the new value of required reserve ratio to keep monetary base at the level you solved for in part D. (4 points)

\[ D' = 80 - 20 = 60, \quad C' = c*D' = 0.25 \times 60 = 15 \]

\[ B = C' + R', \quad rr'D' = B - C', \quad \text{so} \quad rr' = \frac{(B - C')}{D'} = \frac{(24 - 15)}{60} = 0.15 \]
Problem 5 (10 points)

Consider the following model economy:

- Autonomous consumption: 200
- Investment: 200
- Government spending: 300
- Exports: 200
- Imports: 100
- Taxes: 100

(a) Suppose that consumption is a linear function of disposable income. If the multiplier for this economy is 5, what is the marginal propensity to consume and marginal propensity to save? (2 points)

MPC = 0.8; MPS = 0.2

(b) Write an expression for aggregate expenditure and aggregate autonomous expenditure. (2 points)

\[ AE = 200 + 0.8(Y - 100) + 200 + 300 + 200 - 100 \]
\[ AAE = 200 - 0.8 \times 100 + 200 + 300 + 200 - 100 = 720 \]

(c) What is the equilibrium level of output? (2 points)

\[ Y^* = k \times AAE = 5 \times 720 = 3600 \]

d) Draw the Keynesian cross diagram for this economy. Mark the equilibrium and label the axis carefully. (4 points)
Problem 6 (12 points)

Consider the following model economy:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>450</td>
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<tr>
<td>Government spending</td>
<td>200</td>
</tr>
<tr>
<td>Exports</td>
<td>100</td>
</tr>
<tr>
<td>Imports</td>
<td>100</td>
</tr>
<tr>
<td>Taxes</td>
<td>350</td>
</tr>
<tr>
<td>Transfers to households</td>
<td>200</td>
</tr>
</tbody>
</table>

a) Suppose that consumption is a linear function of disposable income. You have been told that when GDP is equal to 2800, household consumption expenditure amounts to 1725, and if GDP is 1500 then consumption is 1075. Solve for marginal propensity to consume and autonomous consumption. (2 points)

\[
C = A + MPC(Y-T+Tr) = A + MPC(Y-350+200) = A + MPC(Y-150)
\]

\[
1725 = A + MPC(2800-150) \\
1075 = A + MPC(1500-150) \\
MPC = 0.5, A = 400
\]

b) Using the information provided and the solution to a), calculate the multiplier. (1 point)

\[
k = \frac{1}{0.5} = 2
\]

c) Using the information provided and the solutions to a) and b), calculate the equilibrium output. (2 points)

\[
AAE = 400 - 0.5 \times (150) + 450 + 200 = 975 \\
Y = k \times AAE = 2 \times 975 = 1950
\]

d) Suppose the companies expect the country to experience an increase in demand for domestic goods and decided to increase investment today, therefore I increases from 450 to 475. Find the new GDP. (3 points)

\[
\text{deltaAAE} = 25; \text{deltaY} = k \times \text{deltaAAE} = 2 \times 25 = 50 \\
Y = 2000
\]

e) [For this part disregard what happened in d)] Suppose that the newly elected president decided to balance the budget and decreased government spending by 50. Find the change in equilibrium consumption. (4 points)

\[
\text{deltaAAE} = -50; \text{deltaY} = k \times \text{deltaAAE} = 2 \times -50 = -100 \\
\text{deltaC} = \text{MPC} \times (\text{deltaY}) = -50
\]
Answer Key

1. A
2. B
3. A
4. D
5. C
6. B
7. C
8. B
9. B
10. B
11. B
12. B
13. A
14. D
15. B
16. C
17. A
18. B
19. A
20. B
21. D
22. B
23. B
24. A
25. B
26. B
27. A
28. C
29. D
30. B
31. C
32. A
33. A
34. C
35. A
36. C
37. D
38. E
39. C
40. A
41. D
42. B
43. A
44. C
45. C
46. A
47. D
48. B
49. D
50. C
51. A
52. A
53. C
54. A
55. A
56. B
57. C
58. A
59. B
60. D