Econ 381: Section 001
Summer 2018
Final Exam
8/15/2018
Time Limit: 1 hr. 50 mins
Instructor: Jacob Orchard

Name (Print): ____________________

This exam contains 10 pages (including this cover page) and 5 parts. Check to see if any pages are missing. Enter all requested information on the top of this page, and put your initials on the top of every page, in case the pages become separated.

You may use a calculator. You may *not* use your books, notes, or any other help on this exam. Do not discuss this exam with anyone until after the end of the exam period (after Saturday).

You are required to show your work on each problem on this exam. If a problem is unclear or ambiguous then state your assumptions and proceed. The following rules apply:

- **Organize your work**, in a reasonably neat and coherent way, in the space provided. This will help us give you all of the credit that you deserve! You may lose points if we are not able to follow your answer.
- **Unsupported answers will not receive full credit**. In the long answer section, back up your answers with calculations and/or reasoning. Even if your answer is incorrect, you may be able to get partial credit for your work.
- If you need more space, use the back of the pages; clearly indicate when you have done this.

Do not write in the table to the right.

Problem	Points	Score
1	20	
2	20	
3	25	
4	15	
5	20	
Total:	100	

Short Answer

1. (20 points) (a) (5 points) What is GDP (Y = ? + ? +...)?

   (b) (5 points) Briefly describe the difference between Exogenous variables, Endogenous variables, and parameters.

   (c) (5 points) What are two reasons that the Aggregate Demand curve is sloped downward?

   (d) (5 points) What is the main difference between the long-run models we discussed in class and the short-term models?

Multiple Choice

2. (20 points) There are 10 multiple choice questions. Each is worth 2 points. Please clearly circle your choice.

1 Which of the following does NOT count towards current GDP?

a A student pays for another year of college tuition.

b The local police station buys new squad cars.

c You buy a used car from your parents.

d A foreign tourist buys BYU football tickets

2 Suppose that the Eurozone nominal GDP in billions of Euros was 12,000 in 2017, while U.S. nominal GDP in billions of dollars was $19,000 that same year. Let the Dollar/Euro exchange rate be $1.10/1 and let the price level ratio be $P_{US}/P_{EZ} = 1.2$. What was the Real GDP for the Eurozone in US prices in 2017?

a $11,000.

b 13,091.

c $15,840.

d None of the above.

3 If the marginal product of capital $MPK > r$, where r is the market rental rate for capital, the firm

a. Should hire more capital until $MPK = r$

b Should hire more labor until $MPK = r$

c Should hire more labor until $MPK = 0$

d Should get rid of capital until $MPK = r$

4 According to the Quantity theory of money, if Output is growing at 3 percent, the money supply is growing at 5 percent, then inflation is:

a -2 percent

b 2 percent

c - 3 percent

d 3 percent

e None of the above

Table 1

Economy of Westeros	**2016**
Civilian population	100,000
# of employed	55,000
# of unemployed	7,000

5 Consider Table 1. What was the Unemployment Rate for the economy of Westeros in 2016?

a 11.29 %
b 12.72%
c 7 %
d 62 %
e 55 %
f 122.22%
g None of the above

6 Consider table 1. What is the labor force participation rate for the economy of Westeros in 2016?

a 11.29 %
b 12.72%
c 7 %
d 62 %
e 55 %
f 122.22%
g None of the above

7 In 1981 the nominal interest rate for the U.S. Economy was approximately 13%, while inflation was approximately 15%. The real interest rate in 1981 was approximately

a 2%
b -2%
c 28%
d None of the above.

8 Which of the following was not a cause of the U.S. recession in 2007-2009?

a Spike in Oil Prices
b Collapse in House Prices
c US government debt crisis
d Bank Failures

9 Which of the following is not part of the impossible trinity?

a Fixed Exchange Rate

b No restrictions on capital flows

c Independent Fiscal Policy

d Independent Monetary Policy

10 If the real exchange rate (in pesos per dollar) between the U.S. and Mexico is greater than one, this would mean

a goods and services are typically more expensive in the U.S.

b goods and services are typically more expensive in Mexico

c the real exchange rate can never be greater than one

d the real exchange rate is always greater than one

Long Answer

3. (25 points) This question asks you to use the open economy aggregate supply/aggregate demand model that we have developed in class, in which you should assume that expectations of the price level are formed adaptively, that is, $EP_t = P_{t-1}$. You are asked to analyze the effect on the U.S. if there is a temporary shock to investor confidence which we model as a change in the exogenous component of investment spending in the U.S., denoted: $\bar{a}_i$. Assume that the economy starts out in period 0 in long-run equilibrium.

   (a) (4 points) Label the variables that are being measured on the horizontal and vertical axis so that the graph would correspond to an AS-AD diagram for the United States. Show the initial position of the SRAS and AD curves before there is any change in investment, labeling these as $SRAS_0$ and AD_0. Also show the initial position of the LRAS curve. Indicate on your graph the values for the variables on the horizontal and vertical axis in the initial equilibrium.

   (b) (4 points) Assume that in period 1 that the exogenous component of investment temporarily increases to a new value $\bar{a}_i'$, but that it then <u>returns</u> to its long-run value in period 2 and then stays there. Draw the SRAS and AD curves for period 1, labeling these as $SRAS_1$ and AD_1. Indicate on your graph the numerical values for the variables on the horizontal and vertical axis in the period 1 equilibrium.

(c) (3 points) In period 1, does output increase by more-than, less-than, or the same percentage as investor-confidence ($\bar{a}_i$) (assume here that AD is modeled using our normal IS/LM curve $\tilde{Y} = \bar{a} - \bar{b}(R_t - \bar{r})$ and that the FED keeps interest rates constant). Justify your answer.

(d) (3 points) How would the rise in output in period 1 change if there were less firms with sticky prices? Justify your answer.

(e) (6 points) Indicate in the spaces below whether the indicated variable is higher, lower, or the same in period 1 compared to period 0.

i. U.S. Real Exchange Rate ________________

ii. U.S. Net Exports ________________

iii. U.S. real Investment ________________

(f) (3 points) Draw the SRAS and AD curves for period 2, labeling these as $SRAS_2$ and AD_2. In comparing period 2 with period 1, does the real exchange rate increase, decrease, or exhibit no change between period 1 and period 2?

(g) (2 points) Draw the SRAS and AD curves for period 3, labeling these as $SRAS_3$ and AD_3. Label the point at which the economy would be in period 3 as point E, making sure it is very clear from your graph where point E is relative to the point at which the economy started out in part (a) on both axes.

4. (15 points) This next question asks you to analyze the economy of Arizona using the G.E. model from class and the Solow model.

   (a) (4 points) The first part of the question involves studying the labor market in Arizona. The production function for all firms is $F(K, L) = AK^{\alpha}L^{1-\alpha}$. Using this common production function, solve the firms optimization problem for the real wage.

   Next recall that households have utility function $U(c, \ell) = c - \frac{1}{2}\gamma\ell^2$ where ℓ is the labor provided to the market by the household and c is household level consumption. The household's budget constraint is $w\ell(1 - \tau) = c$ where τ is the labor income tax rate. Solve the household's problem for the real wage where the household takes wages and the tax rate as given:

   (b) (3 points) Label the variables that are being measured on the horizontal and vertical axis so that the graph would correspond to a graph of the labor market. Use your solution to part (a) to draw the Labor Demand and Labor Supply curves. Make sure to label the labor supply curve, the slope of the labor supply curve, the labor demand curve, the equilibrium real wage, and the equilibrium labor in the economy.

(c) (3 points) Arizona is very hot (have you been there?) and working in the heat is not very fun. Suppose that due to a new environmental regulation, office buildings, factories, etc. are not able to use air conditioning. How can we model the effect of this policy? Show the effect of this policy on the graph above. Make sure to clearly indicate the new equilibrium wage and labor supply.

(d) (5 points) Label the graph below so that it would correspond to the Solow diagram with total output (so total capital, not capital per-worker). How would this policy change affect capital and output over time? Show the transition of the economy using the Solow diagram. Make sure to clearly indicate where the economy is prior to the policy change, right after the policy change, and the new steady state.

True False Questions

Indicate whether the following statements are either True or False. Justify your answer.

5. (20 points) (a) (5 points) It is impossible to have both net capital inflows and a trade surplus.

   (b) (5 points) If income taxes increase then the real wage must also increase to compensate workers for lower take home pay.

   (c) (5 points) A country with a higher savings rate would have higher capital per-worker than a country with a lower savings rate.

   (d) (5 points) If a bank wants to increase their operating capital then they should increase the interest rate they offer for savings accounts so that more people will deposit money at their institution.