

UNIVERSITY OF MINNESOTA  
PRINCIPLES OF MACROECONOMICS 1102-033  
SPRING 2008  
SAMPLE MIDTERM  
INSTRUCTOR: ALEXANDER VOSTROKNUTOV

NAME: .....

INSTRUCTIONS

- Exam has **100 points and 8 pages**. There are two sections with 5 Multiple Choice Questions in the first section and 6 problems in the second one.
- Please read all questions and instructions carefully before answering and remember to label all graphs.
- Answer all questions in the space assigned for them.
- Show all your work for full credit.
- **You have 50 minutes to finish this exam.**

**Good Luck!**

### Section 1: Multiple Choice Questions (2 points each)

Choose the best answer. Only one answer is correct.

- 1) If an economy is operating at “potential GDP” then:
  - a) Frictional unemployment is zero
  - b) Frictional plus structural unemployment is zero
  - c) Cyclical unemployment is zero
  - d) Cyclical plus structural unemployment is zero
  
- 2) An increase in disposable income will
  - a. lead to an upward movement along the consumption function.
  - b. lead to a downward movement along the consumption function.
  - c. shift the consumption function upward.
  - d. shift the consumption function downward.
  
- 3) If you, as a lender, want an increase in purchasing power of 4 percent from making a loan and you set the nominal interest rate at 9 percent, then
  - a. your real rate of interest is 13 percent.
  - b. your expected rate of inflation is 5 percent.
  - c. your expected rate of inflation is 13 percent.
  - d. your real rate of interest is 36 percent.
  
- 4) If the MPC increases, what will happen to the slope of the consumption function?
  - a. It will decrease
  - b. It will increase
  - c. none of the above, MPC is not affected
  - d. more information is needed to answer this question
  
- 5) Residential construction (new houses and apartments) are included in which component of GDP?
  - a. government purchases
  - b. investment spending
  - c. consumption spending
  - d. net exports

**Part II: Problems (90 points).**

Please show all your work for full credit

- 1) Ann has recently accepted a job with the following salary structure per week:
- \$ 100 in 2000
  - \$ 110 in 2001
- a.) If the inflation rate in 2001 = 2%, what is Ann's % increase in nominal salary (per week) from 2000 to 2001?  
**(4 pts)**

- b.) Now consider Bob, who receives a 2000 weekly salary = \$ 200.  
CPI in 2000 = 100 and CPI in 2001 = 102  
In 2001 he receives a 0% real salary increase. Solve for Bob's nominal salary in 2001.  
**(8 pts)**

Now consider Cathy, who is going to start a new business. She borrows money in 2000, to be paid back a year later in 2001, at a nominal interest rate of 7 %.

- c.) Suppose Cathy believes that inflation between 2000 and 2001 will be 3%. What does Cathy believe the CPI will be equal to in 2001 (give/ solve for a number, not a formula). **( 4 pts)** (CPI in 2000 is 100)

d.) When the inflation rate between 2000 and 2001 turns out to be 2 %, does Cathy gain unexpectedly or lose unexpectedly? Briefly explain. ( 6 pts)

2) Give an example that indicates that the official unemployment rate figure, might underestimate the true unemployment problem. (8 pts)

3) Suppose the MPC of a country is 0.75. No one in the country buys imports, and all taxes are fixed.

Then investment in the economy increases, but nothing else changes.

Suppose that, after the increase in I , equilibrium real GDP ( on the demand side ) increases from 3200 to 3600. By how much did investment increase? (12 pts)

4) Suppose the following data is true for an economy (all numbers are in billions of dollars):

$$C = 15 + 0.5 * DI \quad (\text{consumption function})$$

$$T = 20 \quad (\text{taxes})$$

$$Tr = 0 \quad (\text{transfer payments})$$

$$G = 20 \quad (\text{government spending})$$

$$I = 40 \quad (\text{investment})$$

$$X = 50 \quad (\text{exports})$$

$$IM = 10 \quad (\text{imports})$$

Suppose the CPI is currently equal to 115 .

a.) Solve for the equilibrium real GDP ( on the demand side) . **(8 pts)**

b.) Show how this equilibrium GDP could have been found on an income-expenditure diagram. **(6 pts)**

c.) Solve for the “oversimplified “ multiplier in this economy. **(6 pts)**

d.) Now suppose that the CPI in the economy decreases to 110 (from 115). Will this lead to an increase or a decrease in equilibrium real GDP ( on the demand side)? Prove your answer by showing what happens on an AE graph after the price level decreases. **(6 pts)**

e) After the events of September 11, the Congress approved an increase of 40 billion dollars in government expenditure (G). What will be the effect of the increase in government expenditure on the equilibrium GDP? In other words what will be the new equilibrium GDP (on the demand side)? You need to report the new equilibrium GDP on the demand side. **(6 pts)**

f) Show the effect of part e) on an income and expenditure diagram. **(4 pts)**

5) Consider a model economy like that described by the circular flow of Chapter 8. You have the following data ( in billions):

National Income	\$6,000
Taxes	\$2,000
Transfer Payments	\$ 500
Consumption	\$ 4,000
Investment	\$ 400
Govt. Spending	\$ 1,800
Imports	\$ 600

Solve for the following values, showing all your work. **(4 pts each)**

a.) Disposable Income

b.) Exports

c.) Gross Domestic Product