Name:
Student No.:

SPP/Econ 556
Macroeconomics
Midterm Exam No. 2

March 29, 1999

Answer all questions, on these sheets in the spaces or blanks provided. In questions where it is appropriate, **show your work**, if you want partial credit for an incorrect answer. Point values of the questions are shown; there are a total of 70 points possible.

1. (11 points) Explain, derive, and apply Mankiw's equation for the steady-state rate of unemployment,

$$u = \frac{s}{s + f} \tag{1}$$

as follows:

a. First, define each of the terms in this equation

u =

s =

f =

b. Derive the equation (1) above:

c. Finally, suppose that a government job exchange were created that had the effect of tripling the rate at which the unemployed find jobs, but also of causing the employed to become more optimistic about finding other jobs and thus doubling the rate at which they quit. What would this do to the steady state rate of unemployment? Does it matter that job separations are a mixture of workers who quit, the rate of which is doubled here, and workers who are laid off, the rate of which is presumably unchanged?

2. (8 points) NEWSFLASH!!! Ned Gramlich, Governor of the Federal Reserve System, has just gone nuts. He has secretly kidnapped the granddaughter of Fed Chairman Alan Greenspan and is threatening her dire harm (something about making her watch CSPAN) if Greenspan does not increase the rate of monetary expansion from its current average of 4% to 10% a year, as Ned has been advocating unsuccessfully ever since he joined the board. The nation's real GDP has been growing at 3% a year recently and is expected to continue to do that indefinitely. Based **solely** on the Quantity Theory of Money with a constant velocity, answer the following questions.

   a. What, according to the theory, must be the current rate of inflation and why?

   b. What will this increase in monetary expansion do to the following?

      - The real growth rate of the economy

      - The nominal interest rate

      - The real interest rate

      - The rate of inflation

   c. What do you think has gotten into Ned? Using your knowledge of how money and inflation affect different groups within the economy, speculate what it may be about Ned's personal economic situation that would motivate him to do this.

3. (15 points) Mankiw's Open-Economy Long-Run Model is

$Y = F(\overline{K}, \overline{L})$	(1) Production Function, fixed factor endowments
$C = C(Y - \overline{T})$	(2) Consumption Function, fixed taxes, $0<C'<1$
$I = I(r)$	(3) Investment Function, $I'<0$
$Y = C + I + \overline{G} + NX$	(4) Supply and demand for goods
$r = r^*$	(5) Real interest rate pegged to world capital market
$NX = NX(\varepsilon)$	(6) Net exports depend negatively on real exchange rate, $NX'<0$

a. Using this model, determine the effect of the following changes on the equilibrium level of net exports, *NX*. Indicate the reasoning that led you to your conclusions.

i. Decrease in government purchases, $\overline{G}$.

ii. Increase in the labor force, $\overline{L}$.

iii. Increase in foreigners' desire to buy our exports at any given real exchange rate.

b. To what extent does this model predict or assume Purchasing Power Parity (PPP)? Do any of your answers in part (a) depend on whether PPP holds or not? Why, or why not?

c. To what extent does this model help you to explain the changes in the U.S. trade balance that were reported in the assigned article in the Wall Street Journal for 1998? That is, first, how did the U.S. trade balance compare in 1998 to previous years, and also how did it compare in December 1998 to previous months? Second, what reasons were offered in the newspaper account to explain these changes? And third, how well to these reasons accord with the predictions of this model?

4. (10 points) Suppose that the Marginal Propensity to Consume is 0.85.

   a. What is the government purchases multiplier?

   b. What is the tax multiplier?

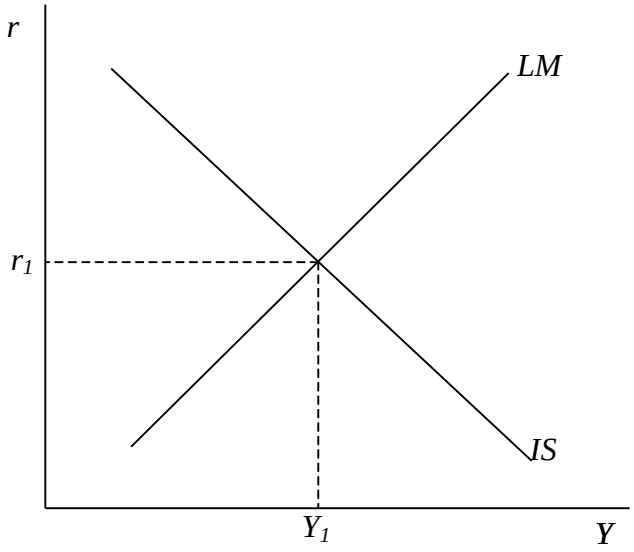
   c. Suppose that a rise in the interest rate causes desired investment to decrease by $1 billion. If the government wishes to use a change in government purchases to prevent this drop in investment from shifting the planned expenditure curve in the Keynesian cross, in what direction and by how much should it change purchases?

   d. How would your answer to (c) change if it were taxes, not government purchases, that was to be used?

   e. How, again, would your answer to (c) change if it were transfer payments (to the poor, for example), not government purchases, that was to be used?

5. (16 points) In each case below, you are given the IS-LM diagram with an initial equilibrium. Show how one or both of the curves change for the following exogenous changes in the model. Then, from that and the rest of the model, determine the qualitative changes (+,–,0,?) in the indicated variables. Give reasons for your results, where asked.

   a. A cut in taxes. (S below refers to *national savings*, not just private savings.)



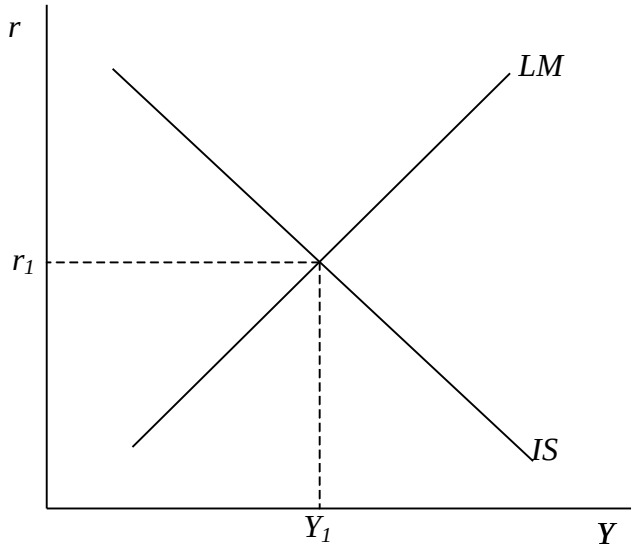
Y _____

r _____

S _____ Why?

L _____ Why?

b. A downward shift in the demand for money, less being demanded at any given interest rate and income.



Y _____

r _____

I _____ Why?

L _____ Why?

6. (10 points) Using the AD-AS model with its IS-LM foundation, and starting from a long-run equilibrium as shown, show in the diagrams below how the economy will respond to a sustained cut in taxes. In the space below that, write enough of an explanation so that we can tell that you know what is going on, such as when various curves shift, and why. Be sure that you identify clearly the corresponding equilibria in both short run and long run in both diagrams.