**Problem 1**

1. If GDP = $500; Consumption (C) = $350; Transfers minus Taxes (TR – TA) = $20; Investment (I) = $150; and the Budget Deficit (BD) = $120; what is the dollar value of Net Exports (NX)?
2. Assume the following national income data (in billions $):

Consumption $900

Transfers 40

Investment 300

Net exports -31

Government purchases 410

Capital consumption (Depr.) 120

Indirect business taxes 95

What is the value of net domestic product (NDP)? What is the value of national income (NI)?

**Problem 2**

Assume you are a typical consumer and expect to work for 40 years (from this point onward) and to live for 10 years beyond retirement. Assume as well that you have perfect foresight, and, if necessary, have the ability to borrow to support future consumption (i.e., you have no liquidity constraints). How much does consumption change this year in absolute dollars ($ ΔC) as a result of a $5,000 annual tax cut to your income, if the tax cut:

1. is permanent, and will begin immediately (this year)?
2. will last only for the current year (i.e., a 1-year temporary tax cut)?

**Problem 3**

Suppose consumption is of the form:

C = $1,000 + 0.9YP

Where YP is permanent disposable income. Suppose also that consumers estimate their permanent disposable income by a simple average of disposable income in the current and past years:

YP = 0.5YDt + 0.3YDt-1 + 0.2YDt-2

1. Suppose that disposable income YD is equal to $60,000 in 2009, 2010, and 2011. What is consumption in 2011 (C2011) ?
2. Suppose that disposable income YD increases to $75,000 in 2012 and then remains at $75,000 in all future years. What is consumption in 2012 (C2012), and in 2013 (C2013) ?
3. What are the short-run (2-year) and long-run (3-year) marginal propensities to consume?

**Problem 4**

Assume that the demand for the optimal capital stock (K\*) is given by:

K\* = (0.25)Y/rK

Where Y equals income (GDP), and rK equals the rental cost of capital. Recall that the rental cost of capital, rK , is equal to the real interest rate (iR) plus the rate of depreciation, d. Note also that in this model, rK , is expressed in percent terms (not in $). That is,

rK = iR + d

Assume as well than the nominal rate of interest, iN, is 11%, the expected rate of inflation, πe, to be 6%, and capital depreciates (d) at a rate of 4% per year.

1. If income (Y) or GDP is initially $50,000, what is the optimal capital stock (K\*)?
2. Briefly explain how the concept of the accelerator model applies to the theory of investment. Assume the level of GDP(Y) increases to $150,000. What is the new level of the optimal capital stock (K\*’)?
3. Given the new optimal level of the capital stock obtained in Part (b) above, what is the dollar amount of investment in Year 1 (in dollars, $I1 ) if firms can add 75% of the difference between desired capital (K\*’) and actual capital (Kt) if the actual capital stock at the beginning of the year was $75,000 (i.e., Kt = $75,000)?

**Problem 5**

Evaluate the following project, based upon NPV analysis, and should the project be accepted or rejected? Assume that the market interest rate remains at i = 13% and present the project’s NPV.

Year 0 Year 1 Year 2 Year 3

Costs $3,700 $605 $363 $0

Revenues $0 $2,640 $2,420 $400

**Problem 6**

What are the three major tools that the FED uses to control monetary policy in the United States? How are they used?