*Please put name and section on your completed assignment*

1.       Consider a one-period Keynesian model of a closed economy, where government spending (G = 40), fixed investment (I = 50), and lump-sum taxes (T=40) are exogenous.  Model aggregate consumption ($C = c_0 + c_1*Y_d$) as a linear function of disposable income ($Y_d = Y-T$) with autonomous consumption ($c_0 = 100$) and the marginal propensity to consume ($c_1 = 0.75$).
   a.       Derive equilibrium income, consumption, and saving.
   b.       What is the effect on equilibrium variables of an increase in G of 12 to 52?  Alternatively, what is the effect on equilibrium variables of a reduction in T of 12 to 28?  What is the effect of each of these policies on the government budget deficit, assuming exogenous variables are unchanged?  Explain the rationale behind the different response of income to each of these policy changes.
   c.       What is the effect on equilibrium variables of a reduction in $c_1$ from 0.75 to 0.50?  Can you think of any reason why the reduction in the marginal propensity to consume might be in response to the rise in the budget deficit above?  For the case of an increase in G, recalculate the effect on equilibrium variables assuming that there is a simultaneous reduction in $c_1$.  If increases in the budget deficit are typically accompanied by changes in consumer behavior, what are the implications for the effectiveness of fiscal policy?

2.       Again consider a one-period Keynesian model with no government sector and arbitrary values for investment, autonomous consumption, and the marginal propensity to consume.
   a.       Derive equilibrium income, consumption, and saving.
   b.       Assume a government sector is introduced with the sole purpose of maintaining output at level $Y^p$.  Derive a policy rule which maps the exogenous variables and $Y^p$ into government expenditure, assuming no taxes.
   c.       Now derive a policy rule that maps the exogenous variables and $Y^p$ into taxes, assuming no government expenditures.  Compare the two policy rules.  Why are they different?
   d.       Assume the government must balance its budget (so G = T).  Derive policy rules which map the exogenous variables and $Y^p$ into taxes and government expenditure.  Compare with previous policy rules.  Why are they different?

3.       Now consider a dynamic Keynesian model with parameters as in question #1.
   a.       Assume $Y_t = 500$. Derive $Y_{t+1}$, $Y_{t+2}$, and steady-state Y.  Describe in words the behavior of firms and consumers between any two time periods (for example: t and t+1)
   b.       Now assume the economy is initially in steady-state, but autonomous consumption permanently falls by 20 to 80 in time t.  Derive $Y_t$, $Y_{t+1}$ and the new steady-state Y.
   c.       The government wants to avoid a recession by increasing government spending.  Taxes are fixed.  Derive the policy rule that restores equilibrium output to its initial steady-state in every period after the consumption shock.
   d.       Define the stock of government debt as $D_{t+1} = D_t + (G_t-T)$, just the old debt plus additions to debt via the budget deficit.  Assume the initial steady-state stock of debt was zero, and keep track of debt for a few periods.  What is happening?  Is this policy rule sustainable forever?  What is different if the change in autonomous spending is a temporary (for example one-period) shock?