ECO 214: INTERMEDIATE MACROECONOMICS EXAM 1.

- **Credit will not be given unless <u>you show your work/calculations.</u>**
- All answers should be in the blue book. One answer <u>per page</u> (a,b,c etc. should be on same page, if possible) and use the back-pages as well.
- Make sure you label all curves and axis in your graphs.

Total points: xx

1. (12 points). Consider the following production function $Y=AL^{0.5}K^{0.5}$, where Y is GDP, A is technology, L is labor and K is capital,

a) Derive an equation for describing capital demand as a function of technology, labor and the real rental price.

b) If the real rental price of capital is 5, the level of technology is 10 and the labor supply is 16, how many units of capital should the firm employ (to maximize profits)?

c) What would the effects be on the real rental price of capital if the amounts of labor <u>and</u> capital decreased? Show this graphically and mathematically for the <u>capital market</u>.

2. (18 pts) Consider the following long-run model:

Real GDP (Y) = 1200 Consumption (C) = 100 + 0.8(Y-T)
Investment (I) = 300 -40r where r is the real interest rate.
Taxes (T) are 140 and government spending (G) is 120

a) Compute the equilibrium values for consumption, national savings and the real interest rate. (6 pts)

b) Compute the effects on the real interest rate when government expenditure increases from 120 to 140. (4 pts).

c) Compute the effects on the real interest rate when taxes are decreased from 140 to 120 (and G is 120). (4 pts).

d) Explain why the increase in the real interest rate is greater in (b) than in (c). (4 pts).

3. (5 points). Explain what "supply-side" economics is all about and how this might alter your answer in 2(c).

4. (15 pts). Consider the long-run model in the question (2) but now assume the consumption function is:

C= 151 + 0.8(Y-T) - 10r.

a) Derive an equation for national savings (i.e. an equation which describes how national savings depend on disposable income and the real interest rate).

b) Compute the real interest rate given this consumption function. Also, show how the real interest rate is determined graphically (using the market for loanable funds).

c) If government expenditure increased from 120 to 140, would the <u>change</u> in the real interest rate be greater or less than in 2(b) when consumption did not depend on the real interest rate? Carefully explain.

5. (15 points). Consider the following statements and carefully explain whether they are true, false or if the answer depends:

a) "Consumption decreases when the real interest rate increases".

b) "If budget deficits do not increase the real interest rate, we can then conclude that budget deficits do not reduce investment".

c) "The natural rate of unemployment will be reduced if the government makes it more difficult for firms to lay off workers"

6. (8 points) The following quote is from Business Week, Sept. 24, 2001

> Moreover, the bulk of Bush's [tax] cuts, with an estimated price tag of over $2 trillion, will not take effect until after 2004..... In fact, by worsening the long-term budgetary outlook, Bush's tax plan is keeping long-term interest rates stubbornly high and acting as a drag on [economic] growth.

If the government is determined to implement the tax cuts, suggest an <u>additional</u> change in fiscal policy that might prevent long-term interest rates from being "stubbornly high". Explain, verbally and graphically, how this additional policy change reduces the impact on interest rates.
