Name _____ Student ID _____ TA or section_____

Midterm 1 - Economics 101 (Spring 2013)
You will have 45 minutes to complete this exam. There are 54 points.

<u>Multiple Choice:</u> (18 points total, 2 points each) Choose the best answer. Write on your scantron.

For questions 1-2, assume the following information for an economy that produces two goods. Use **2012** as your base year.

	2012	2013
energy drinks:		
price	$3	$4
quantity	8	10
pizza:		
price	$5	$6
quantity	3	2

MC#1) The GDP deflator for 2013 is:
a) 40/52.
b) 40/50.
c) 50/39
d) 52/40.
e) 39/50.

MC#2) The CPI for 2013 is:
a) 40/52.
b) 40/50.
c) 50/39
d) 52/40.
e) 39/50.

MC#3) If nominal GDP is rising faster over time than real GDP, this is due to:
a) capital accumulation
b) inflation
c) population growth
d) Okun's law

MC#4) President Obama's budget plan reduces future spending on transfers (like social security) because
a) He dislikes old people.
b) It adjusts the price index for substitution bias.
c) The GDP deflator overstates inflation.
d) GNP can be greater than GDP.

MC#5) Which of the following could explain a drop in the measured unemployment rate:
a) rise in the number of employed people.
b) drop in the labor force participation rate.
c) both a and b.
d) neither a nor b.

MC#6) In the neoclassical model, which of the following adjusts to make supply equal demand in the goods market:
a) real interest rate
b) goods price level
c) real wage
d) real rental rate

MC#7) Which of the following properties does this production function exhibit:
$Y = 2K + 3L$
a) constant returns to scale
b) diminishing marginal product of labor
c) diminishing margin product of capital
d) all of the above.
e) none of the above

MC#8) Euler's Theorem says
a) real wage equals marginal product of capital.
b) real wage equals real rental rate on capital.
c) total labor income equals total capital income.
d) total labor income plus total capital income equals total national income.

MC#9) According to the Solow model, which of the following could help explain why India has a fast <u>growth rate</u> of <u>total GDP</u> (not per person) in steady state?
a) high saving rate
b) high population growth rate
c) both of the above
d) neither a nor b

Problem 1: Solow Growth Model: (16 points total)
Suppose an economy can be characterized by the production function in per person terms:
$y = 10k^{0.5}$. Suppose the depreciation rate is 10%, the saving rate is 12%, and the population
growth rate is 2%. (Assume there is no technological progress.)

a) (6 points) Using the Solow growth model, compute the steady state values of <u>the capital stock
    and consumption</u> (both in per person terms): Show your work.

b) (3 points) Suppose a change in immigration policy raises the population growth rate. What will
    happen to the steady state values of the following (in per person terms):
    MC#10) Capital stock   (a) rise   (b) fall   (c) no change   (d) insufficient information
    MC#11) GDP   (a) rise   (b) fall   (c) no change   (d) insufficient information
    MC#12) Consumption   (a) rise   (b) fall   (c) no change   (d) insufficient information

c) (3 points) Given that the saving rate of 12% is below the level needed to achieve the Gold Rule,
    suppose the saving rate is raised by some amount. What will happen to the steady state values
    per person of the following: (Be careful, as I am not being specific about how much the saving
    rate goes up.)
    MC#13) Capital stock   (a) rise   (b) fall   (c) no change   (d) insufficient information
    MC#14) GDP   (a) rise   (b) fall   (c) no change   (d) insufficient information
    MC#15) Consumption   (a) rise   (b) fall   (c) no change   (d) insufficient information

d) (4 points) Explain in a few sentences how an excessively high saving rate theoretically could be a bad thing in the Solow model.
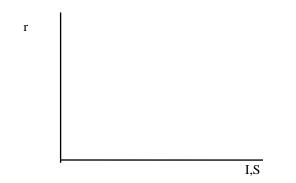

Problem 2: Neoclassical Model (20 points total)

Suppose the U.S. macroeconomy is characterized as follows:

Production:	$Y = 5K^{0.5}L^{0.5}$
Factor supplies:	$K = 100$ $L = 100$
Government:	$G = 100$ $T = 100$
Consumer behavior	$C = 200 + 0.5(Y\text{-}T) - 1000r$
Investment behavior	$I = 200 - 1000r$

 (Y is real GDP, K capital, L labor, G government purchase, T taxes, C consumption, I investment, r real interest rate. Assume a closed economy.)

a) (6 points) Compute the equilibrium values of the following variables: Show your work.
    real interest rate   real rental rate on capital

b) (8 points) Suppose that the government raises the level of government purchases, G. Graph the supply and demand functions in the financial market on the axes below. Label each curve, and show with an arrow any curve shift.

r

I,S

What effect will this have on the variables listed below? Mark the answer on your scantron. No computations required.

MC#16) national saving   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#17) real interest rate   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#18) investment   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#19) consumption   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#20) private saving   (a) rise   (b) fall   (c) no change   (d) insufficient information

c) (6 points) Suppose instead that there is a rise in labor supply due to immigration (no change in G now). What effect will this have on the variables listed below? Mark the answer on your scantron. No computations required.

MC#21) real wage   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#22) real rental rate   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#23) output   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#24) real interest rate   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#25) consumption   (a) rise   (b) fall   (c) no change   (d) insufficient information
MC#26) private saving   (a) rise   (b) fall   (c) no change   (d) insufficient information

(Note: The last question, private saving, is hard, and will require you to work through some mathematics in order to reach an answer. But you are not required to show your work in this case.)

This page can be used as scratch. It will not be graded.