

## Midterm 1- Economics 105 – Fall 2000

You will have 45 minutes to complete this exam. It is divided into 90 points.

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**Multiple Choice:** (30 points total, 3 points each) Mark your answers on the scantron sheet.

- 1) Suppose the Airbus company builds a plane in Europe, which it sells to American airlines. This transaction will have what effect on U.S. national income accounts?
  - a) lower net exports
  - b) raise investment
  - c) not affect U.S. GDP
  - d) all of the above
- 2) What has been the approximate growth rate in U.S. GDP in the past year?
  - a) less than zero
  - b) 1-2%
  - c) 5-6%
  - d) 8-9%
- 3) Which of the following would not be included in this year's U.S. GDP:
  - a) Ford cars produced in the U.S. this year and sold to the City of Davis as police cars.
  - b) Ford cars produced this year in the U.S. and sold next year in the U.S.
  - c) Steel made in the U.S. and purchased by Ford to make cars sold in the U.S.
  - d) Tow truck service when your Ford breaks down along U.S. highway 80.
- 4) All the following are true about the CPI and the GDP deflator except:
  - a) Both give a measure of inflation.
  - b) The CPI tends to overstate inflation relative to the GDP deflator.
  - c) The CPI updates its weights each year.
  - d) The GDP deflator considers producer goods ignored by the CPI.
- 5) Assume that the supply of saving is fixed. According to the neoclassical model, when government spending falls, the interest rate \_\_\_\_\_ and the level of investment \_\_\_\_\_.
  - a) rises, falls
  - b) falls, rises
  - c) falls, falls
  - d) rises, rises
- 6) Assume now that the level of saving increases with the interest rate. According to the neoclassical model, when investment demand rises for any interest rate, the equilibrium interest rate \_\_\_\_\_ and the level of investment \_\_\_\_\_.
  - a) rises, does not change
  - b) falls, rises
  - c) falls, does not change
  - d) rises, rises
- 7) If factor markets are competitive and firms maximize profits using a production function with constant returns to scale, then immigration:
  - a) raises the real rental rate on capital.
  - b) raises the real wage.
  - c) raises economic profits.
  - d) both a and c.
- 8) The Solow growth model suggests that if a country has a population growth rate of 3% and a depreciation rate of 2%, then in steady state the total level of output (not per person):
  - a) Is constant
  - b) Grows at the rate 1%
  - c) Grows at the rate 2%
  - d) Grows at the rate 3%
- 9) The Solow growth model suggests all the following except:
  - a) A country with a higher population growth rate (all else the same) will have a lower level of output per person in the long run.
  - b) Poor countries will tend to catch up with rich countries in output per-person, if they have similar rates of saving, depreciation, and population growth
  - c) The growth rate in output per person is higher if a country is farther away from its steady state.
  - d) If a country raises its saving rate, it will have a higher growth rate permanently.

- 10) If capital can be accumulated without its marginal product diminishing (ie.  $Y=AK$  is the production function), then with constant saving and depreciation rates:
- a) there is no steady state level of capital per person.
  - b) this can explain sustained growth in output levels, but not growth in output per person.
  - c) There is no Golden Rule level of capital per person, because a higher level of capital per person always means more consumption per person.
  - d) both a and c.

Write your answers for the following two problems in your blue book.

**Problem 1: Neoclassical Theory** (30 points total, 10 points each part).

Suppose the following neoclassical model characterizes the U.S. economy:

$$\begin{array}{ll}
 Y^s = 8000 & \\
 G = 3000 & T = 3000 \\
 C = 500 + 0.6(Y-T) & I = 2000 - 5000r
 \end{array}$$

- a) Compute the equilibrium level of the real interest rate and investment. (Assume a closed economy.)
- b) Both presidential candidates have proposed a tax cut. Use the neoclassical theory to discuss the effects of this fiscal policy on the economy. In particular, state whether the following variables would rise, fall or not change in the model above: investment, real interest rate, private saving, government saving, total saving. (No calculations are necessary.)
- c) Now suppose that one of the candidates does not wish this policy to worsen the budget deficit again, so he proposes to cut government spending and taxes both by the same amount. Now discuss whether this joint fiscal policy will cause the following variables to rise, fall, not change, or if the net effect is ambiguous: investment, real interest rate, private saving, government saving, total saving.

**Problem 2: Solow Growth Theory** (30 points total, 10 points each part)

Suppose that a country has the following production function  $y = 10k^{1/2}$  (in per worker terms). Suppose also that the saving rate is 10 percent, the depreciation rate is 5 percent, and the population growth rate is 5 percent (with no technological progress).

- a) Compute the steady state level of capital stock and consumption per person.
- b) If you were a policy maker and you wanted this country to enjoy the highest level of consumption per person that was possible, what saving rate would you try to achieve? Discuss briefly what things the government can do to help the economy achieve this saving rate.
- c) Assume you achieve this saving rate and you reach the steady state with the maximum level of consumption per person. Will the following variables be higher than under the saving rate from part (a), lower, the same, or is it impossible to tell: the real wage, real rental rate on capital, the share of total income paid to workers, and the share of total income paid to the owners of capital? Discuss briefly the distributional implications of this policy: which parts of the population benefit more from this public policy than others?