

Econ 302
Fall 2005

Don't forget to download a copy of the Homework Cover Sheet. Mark the location where you handed in your work.

Homework #9; Chapter 3. This homework has three parts (A, B, C). Each part will be separately graded.

Part A, HW #9, Ch #3.

Go to conceptual problems, page 72. Do problem 5. Show your work in as much detail as possible.

Part B, HW#9, Ch #3.

Go to technical problems, page 73. Do problems 4 and 6. Show your work in as much detail as possible.

Part C, HW#9, Ch#3.

MC Quiz, 25 questions, use red score sheet handed out in class or available outside Heady 281.

We will use the following grading scale.

A = 20+
B = 19, 18, 17
C = 16, 15, 14
D = 13, 12, 11
F = < 11

Before answering questions 14 through 25 make sure to study the algebra of the appendix on page 74, and the interpretation of figure 3-3; equations 6, 7, 8, figure 3-4, figure 3-5 and figure 3-6.

Name: _____ Date: _____

1. Growth accounting explains
 - A) how economic decisions control the accumulation of capital
 - B) how the current savings rate affects the stock of capital in the future
 - C) what part of growth in total output is due to growth in different factors of production
 - D) all of the above
 - E) only A) and B)

2. For the U.S. economy, we can assume that
 - A) output grows at the same rate as both capital and labor
 - B) capital is a larger source of growth than labor
 - C) labor is a larger source of growth than capital
 - D) capital and labor both contribute equally to output growth
 - E) both A) and D)

3. Labor productivity
 - A) is the same as total factor productivity
 - B) is unaffected by innovations
 - C) decreases as the amount of capital per worker increases
 - D) is defined as Y/N
 - E) none of the above

4. Which of the following is NOT a source of long-term output growth?
 - A) growth in consumption expenditures
 - B) growth in labor inputs
 - C) growth in capital inputs
 - D) improved technological efficiency
 - E) growth in the stock of knowledge

5. The relationship between the output produced in an economy, the input of factors of production, and the state of technological knowledge is called the
 - A) the aggregate supply function
 - B) aggregate production function
 - C) aggregate investment function
 - D) marginal product of labor
 - E) marginal product of capital

6. Given the production function $Y = AF(K,N)$ and assuming constant returns to scale, the contribution of capital to output growth can be estimated by
- A) adding the growth rate of capital to the term A
 - B) multiplying the growth rate of capital by capital's share in production
 - C) subtracting the growth rate of labor from the rate of technological advancement
 - D) multiplying the capital-labor ratio by the level of output
 - E) multiplying total factor productivity with capital's share in production
7. Which of the following is NOT a source of increased factor productivity?
- A) advances in knowledge
 - B) growth in the labor force
 - C) more efficient resource allocation
 - D) improved methods of production
 - E) technological progress
8. Changes in total factor productivity are also called
- A) changes in labor productivity
 - B) changes in the marginal product of capital
 - C) changes in input costs
 - D) the Cobb-Douglas residual
 - E) the Solow residual
9. Which of the following economists contributed greatly to neoclassical growth theory in the 1950s and 1960s?
- A) Robert Barro
 - B) Robert Lucas
 - C) Gregory Mankiw
 - D) Paul Romer
 - E) Robert Solow
10. The Cobb-Douglas aggregate production function provides a fairly good approximation of the U.S. economy if we assume that
- A) the shares of capital and labor are equal
 - B) the share of capital is 0.65 and the share of labor is 0.35
 - C) the share of capital is 0.45 and the share of labor is 0.55
 - D) the share of capital is 0.25 and the share of labor is 0.75
 - E) the share of capital is 0.15 and the share of labor is 0.85

11. If we assume a Cobb-Douglas production function, where the share of capital is 0.25 and the share of labor is 0.75, then the marginal product of labor is equal to
- A) Y/N
 - B) $3Y/4N$
 - C) $(3/4)N$
 - D) $3K/4N$
 - E) $3N/4Y$
12. If we assume a Cobb-Douglas production function where the share of capital is equal to 0.2 and the share of labor is equal to 0.8, then the marginal product of capital is equal to
- A) $5N/K$
 - B) $5Y/K$
 - C) $Y/4K$
 - D) $Y/5K$
 - E) Y/K
13. Assume a Cobb-Douglas production function where the share of capital is 0.3 and the share of labor is 0.7. If capital grows by 1.5%, labor grows by 2%, and growth of total factor productivity is 1.2%, by how much does total output grow?
- A) 4.70%
 - B) 3.50%
 - C) 3.05%
 - D) 2.85%
 - E) 1.20%
14. Assume a Cobb-Douglas production function, where the share of labor (N) and capital (K) is each 1/2 and $A = 1$. If the growth rate of labor is $n = 0.06$, the rate of depreciation is $d = 0.04$, and the savings rate is $s = 0.2$, what is the value of the steady-state capital-labor ratio?
- A) 0.5
 - B) 1
 - C) 2
 - D) 4
 - E) 5
15. Which of the following countries had the lowest per capita GDP in 1992?
- A) Hong Kong
 - B) Japan
 - C) Norway
 - D) Taiwan
 - E) United States

16. Which of the following countries had the lowest ratio of investment to GDP in 1992?
- A) Japan
 - B) Norway
 - C) Singapore
 - D) Taiwan
 - E) United States
17. If we compare the annual growth rates in the U.S. and Japan, we see that from 1950 to 1992, the difference in average annual growth in GDP per capita between Japan and the U.S. was about
- A) 1.2%
 - B) 2.2%
 - C) 2.8%
 - D) 3.8%
 - E) 5.2%
18. In the neoclassical growth model, an increase in the savings rate
- A) raises the steady-state level of output
 - B) lowers the steady-state level of output
 - C) raises the long-term economic growth rate
 - D) lowers total factor productivity
 - E) both A) and C)
19. In the neoclassical growth model, if the capital-labor ratio is below the (optimal) steady-state level, we should expect that
- A) economic growth will continue to decline unless technological advances are made
 - B) income per capita will decrease since gross investment is not sufficient to supply new workers with adequate capital
 - C) the savings rate will decline due to the lack of economic growth
 - D) all of the above
 - E) none of the above
20. In the neoclassical growth model, an increase in the rate of population growth will
- A) raise the growth rate of output
 - B) increase the level of output per capita
 - C) increase the steady-state capital-labor ratio
 - D) all of the above
 - E) only B) and C)

21. In a neoclassical growth model, a nation with a declining population growth rate will experience
- A) a decrease in living standards
 - B) an increase in living standards
 - C) a lower savings rate
 - D) an increase in long-term growth
 - E) a decrease in the steady-state capital-labor ratio
22. The idea of a steady state is that
- A) the capital-labor ratio grows at a constant rate
 - B) output per capita grows at a constant rate
 - C) output, capital, and labor all grow at the same rate
 - D) an increase in the savings rate will not affect the capital-labor ratio
 - E) real output cannot grow
23. The convergence to a steady-state capital-labor ratio k^* is ensured by the fact that if k is at a level
- A) lower than k^* , saving will exceed the investment required to maintain a constant k , causing k to rise
 - B) lower than k^* , investment will exceed saving, leading to an increase in the capital stock
 - C) lower than k^* , saving will exceed the investment required to maintain a constant k , causing output per capita to decline
 - D) higher than k^* , the rate of depreciation will be higher than the savings rate, causing k to decrease
 - E) higher than k^* , output per capita will continue to increase until a new steady-state equilibrium is reached
24. In the neoclassical growth model, the steady-state capital-labor ratio is determined by the equation
- A) $k = (n + d)y$
 - B) $k = s(n + d)$
 - C) $k = sy/(n + d)$
 - D) $k = y/(n - d)$
 - E) $k = (n + d)/sy$
25. According to neoclassical growth theory which of the following does NOT affect a nation's long-term growth rate?
- A) the savings rate
 - B) technological progress
 - C) the rate of depreciation
 - D) population growth
 - E) both A) and C)