

This is a closed book exam. You are required to abide all the rules of the Student Conduct Code of the University of Connecticut.

1. Assume that an economy has the Phillips curve $\pi = \pi_{-1} - 0.5(u - 0.06)$. Then the natural rate of unemployment is:
 - A) 0.5.
 - B) 0.12.
 - C) 0.06.
 - D) 0.03.

2. Assume that an economy's production function is $Y = 1,000L^{1/2}$, so that when the marginal product of capital is equated to the real wage the labor demand curve is $L = 250,000(P/W)^2$. The labor supply curve is $L = 31,250(W/P)$. The real wage that solves these equations is $W/P = 2$. Assume that the expected price level is 10, so that a nominal wage contract setting the wage at 20 is agreed to, making the expected real wage 2. If the price level turns out to be 10, 62,500 workers will be hired and output will be 250,000.
 - a. If the actual price level turns out to be 20, what will the actual real wage be?
 - b. According to the labor demand curve, how much labor will be demanded if the actual real wage is at the level given in part a?
 - c. According to the production function, if the amount of labor given in part b is actually hired, how much will production be?

3. Consider two economies: one operates according to the sticky-wage model and one operates under the sticky-price model. Aggregate demand unexpectedly falls in both countries, leading to a recession and an unexpected decline in price level and the demand for output.
 - a. Use a graph of the labor market in each country to illustrate the impact of the recession on the level of employment and the real wage.
 - b. In which country is the real wage procyclical? In which country is the real wage countercyclical?

4. Assume that an economy is initially operating at the natural rate of output. Use the model of aggregate demand and aggregate supply (using the upward-sloping short-run aggregate supply curve) to illustrate graphically the short-run and long-run effects on price and output of a reduction in government spending that produces a budget surplus.

5. Assume that the sacrifice ratio for an economy is 4. If the central bank wishes to reduce inflation from 10 percent to 5 percent, this will cost the economy _____ percent of one year's GDP.
- 4
 - 5
 - 20
 - 40
6. It rains so much in the country of Tropicana that capital equipment rusts out (depreciates) at a much faster rate than it does in the country of Sahara. If the countries are otherwise identical, in which country will the Golden Rule level of capital per worker be higher? Illustrate graphically.
7. Assume that a country's per-worker production is $y = k^{1/2}$, where y is output per worker and k is capital per worker. Assume also that 10 percent of capital depreciates per year ($= 0.10$).
- If the saving rate (s) is 0.4, what are capital per worker, production per worker, and consumption per worker in the steady state? (*Hint*: Use $sy = \delta k$ and $y = k^{1/2}$ to get an equation in s , δ , k , and $k^{1/2}$, and then solve for k .)
 - Solve for steady-state capital per worker, production per worker, and consumption per worker with $s = 0.6$.
 - Solve for steady-state capital per worker, production per worker, and consumption per worker with $s = 0.8$.
 - Is it possible to save too much? Why?
8. If the U.S. production function is Cobb-Douglas with capital share 0.3, output growth is 3 percent per year, depreciation is 4 percent per year, and the Golden Rule steady-state capital-output ratio is 4.29, to reach the Golden Rule steady state, the saving rate must be:
- 17.5 percent.
 - 25 percent.
 - 30 percent.
 - 42.9 percent.
9. With a per-worker production function $y = k^{1/2}$, the steady-state capital stock per worker (k^*) as a function of the saving rate (s) is given by:
- $k^* = (s/\delta)^2$.
 - $k^* = (\delta/\sigma)^2$.
 - $k^* = s/\delta$.
 - $k^* = \delta/s$.

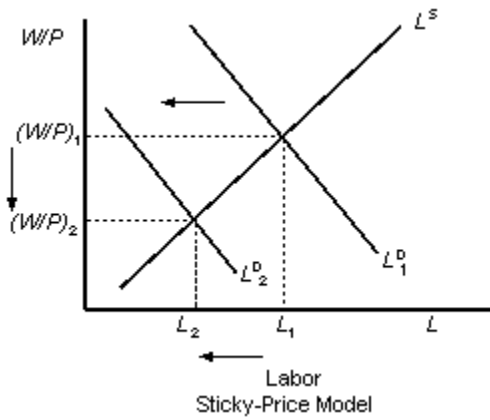
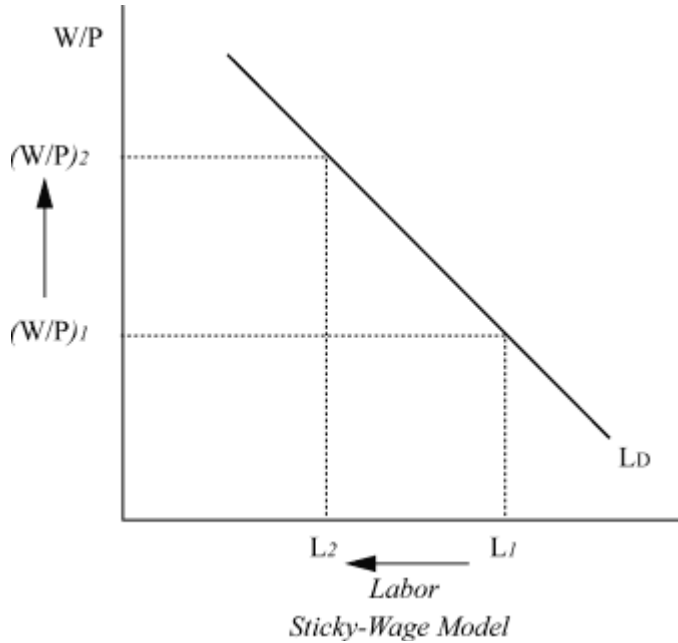
10. Assume that a war reduces a country's labor force but does not directly affect its capital stock. If the economy was in a steady state before the war and the saving rate does not change after the war, then, over time, capital per worker will _____ and output per worker will grow _____ than it did before the war.
- A) decline; faster
 - B) increase; faster
 - C) decline; more slowly
 - D) increase; more slowly
11. Suppose Congress passes significant tax cuts on household income but does not reduce spending, so that the government budget deficit is larger. Use the Solow growth model of Chapter 8 to graphically illustrate the impact of the tax cut on the steady-state capital-labor ratio and the steady-state level of output per worker. Be sure to label the: a. axes; b. curves; c. initial steady-state levels; d. terminal steady-state levels; and e. the direction curves shift.
12. In a Solow model with technological change, if population grows at a 2 percent rate and the efficiency of labor grows at a 3 percent rate, then in the steady state output per worker grows at a _____ percent rate.
- A) 0
 - B) 2
 - C) 3
 - D) 5
13. Assume that an economy described by the Solow model is in a steady state with output and capital growing at 3 percent, labor growing at 1 percent, and technological progress growing at 2 percent. The capital share is 0.3. The growth-accounting equation indicates that the contributions to growth of capital, labor, and total factor productivity are:
- A) 0 percent, 1 percent, and 2 percent, respectively.
 - B) 0.3 percent, 0.7 percent, and 2 percent, respectively.
 - C) 0.9 percent, 0.7 percent, and 1.4 percent, respectively.
 - D) 1.8 percent, 0.3 percent, and 0.9 percent, respectively.
14. Other things being equal, *all* of the following government policies are likely to increase national saving *except*:
- A) decreasing taxes on savings accounts.
 - B) running a budget deficit.
 - C) running a budget surplus.
 - D) retiring part of the national debt.

15. In a steady-state economy with a saving rate s , population growth n , and labor-augmenting technological progress g , the formula for the steady-state ratio of capital per effective worker (k^*), in terms of output per effective worker ($f(k^*)$), is (denoting the depreciation rate by δ):
- A) $sf(k)/(\delta + n + g)$.
 - B) $s/((f(k))(\delta + n + g))$.
 - C) $f(k)/((s)(\delta + n + g))$.
 - D) $(s - f(k))/(\delta + n + g)$.
16. According to the real business cycle theory, it is a good time to work when the wage is _____ high or the interest rate is _____.
- A) permanently ; low
 - B) permanently; high
 - C) temporarily; low
 - D) temporarily; high
17. Critics of the real business cycle theory contend that:
- A) everyone who wants a job at the prevailing wage can find one.
 - B) employment is very sensitive to the real wage and the real interest rate.
 - C) in recessions, people voluntarily choose not to work.
 - D) if people were voluntarily choosing not to work in recessions, they would not call themselves unemployed.
18. Real business cycle theory assumes wages and prices are _____, while New Keynesian research assumes wages and prices are _____.
- A) sticky; flexible
 - B) flexible; sticky
 - C) neutral; nonneutral
 - D) nonneutral; neutral
19. Monetary policy is predicted to influence real economic variables:
- A) in real business cycle models.
 - B) in new Keynesian models.
 - C) in both real business cycle and new Keynesian models.
 - D) in neither real business cycle nor new Keynesian models.

20. According to New Keynesian economists, prices are likely to be sticky for *all* of the following reasons *except* that:
- A) people expect prices to be sticky, even though stickiness is in no one's best interest.
 - B) staggered price adjustment makes the overall level of prices sticky even when individual prices change frequently.
 - C) in the presence of aggregate demand externalities, small menu costs make prices sticky.
 - D) large technological shocks increase intertemporal substitution resulting in sticky prices.

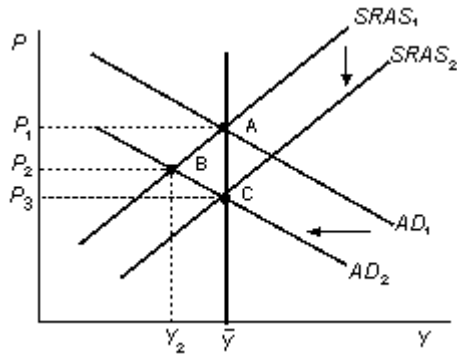
Answer Key

1. C
2. a. 1 b. 250,000 c. 500,000
3. a.

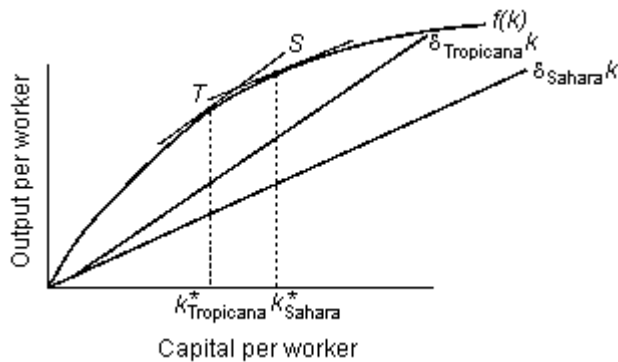


b. The real wage is procyclical (declines) in the country that follows the sticky-price model. The real wage is countercyclical (increases) in the country that follows the sticky-wage model.

4. In the short run output and prices decrease. In the long run output increases to restore full employment, but at a lower price level.

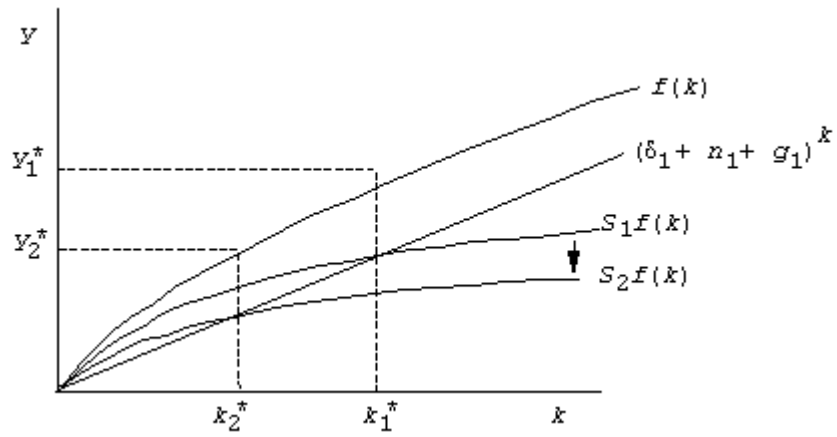


5. C
6. The Golden Rule level of capital per worker will be higher in Sahara.



7. a. $k = 16$; $y = 4$; Consumption per worker is 2.4.
b. $k = 36$; $y = 6$; Consumption per worker is 2.4.
c. $k = 64$; $y = 8$; Consumption per worker is 1.6.
d. Yes. If the capital stock gets so big that the extra output produced by more capital is less than the extra saving needed to maintain it, extra capital reduces consumption per worker. The saving rate exceeds the Golden Rule rate.
8. C
9. A
10. C

11.



- 12. C
- 13. C
- 14. B
- 15. A
- 16. D
- 17. D
- 18. B
- 19. B
- 20. D