1. The natural rate of unemployment is:
   A) the average rate of unemployment around which the economy fluctuates.
   B) about 10 percent of the labor force.
   C) a rate that never changes.
   D) the transition of individuals between employment and unemployment.

2. If the number of employed workers equals 200 million and the number of unemployed workers equals 20 million, the unemployment rate equals ______ percent (rounded to the nearest percent).
   A) 0
   B) 9
   C) 10
   D) 20

3. In a steady state:
   A) no hiring or firings are occurring.
   B) the number of people finding jobs equals the number of people losing jobs.
   C) the number of people finding jobs exceeds the number of people losing jobs.
   D) the number of people losing jobs exceeds the number of people finding jobs.

4. If \( s \) is the rate of job separation, \( f \) is the rate of job finding, and both rates are constant, then the unemployment rate is approximately:
   A) \( f/(f + s) \).
   B) \((f + s)/f\).
   C) \( s/(s + f) \).
   D) \((s + f)/s\).

5. If the fraction of employed workers who lose their jobs each month (the rate of job separation) is 0.01 and the fraction of the unemployed who find a job each month is 0.09 (the rate of job findings), then the natural rate of unemployment is:
   A) 1 percent.
   B) 9 percent.
   C) 10 percent.
   D) about 11 percent.
6. In the IS-LM model, which two variables are influenced by the interest rate?
   A) supply of nominal money balances and demand for real balances
   B) demand for real balances and government purchases
   C) supply of nominal money balances and investment spending
   D) demand for real money balances and investment spending

7. The IS-LM model takes ______ as exogenous.
   A) the price level and national income
   B) the price level
   C) national income
   D) the interest rate

8. The variable that links the market for goods and services and the market for real money 
   balances in the IS-LM model is the: 
   A) consumption function. 
   B) interest rate. 
   C) price level. 
   D) nominal money supply.

9. Planned expenditure is a function of:
   A) planned investment. 
   B) planned government spending and taxes. 
   C) planned investment, government spending, and taxes. 
   D) national income and planned investment, government spending, and taxes.

10. The equilibrium condition in the Keynesian-cross analysis in a closed economy is:
    A) income equals consumption plus investment plus government spending. 
    B) planned expenditure equals consumption plus planned investment plus government 
        spending. 
    C) actual expenditure equals planned expenditure. 
    D) actual saving equals actual investment.

11. When firms experience unplanned inventory accumulation, they typically:
    A) build new plants. 
    B) lay off workers and reduce production. 
    C) hire more workers and increase production. 
    D) call for more government spending.
12. In the Keynesian-cross model, if government purchases increase by 250, then the equilibrium level of income:
   A) increases by 250.
   B) increases by more than 250.
   C) decreases by 250.
   D) increases, but by less than 250.

13. In the Keynesian-cross model, if taxes are reduced by 250, then the equilibrium level of income:
   A) increases by 250.
   B) increases by more than 250.
   C) decreases by 250.
   D) increases, but by less than 250.

14. Along any given IS curve:
   A) tax rates are fixed, but government spending varies.
   B) government spending is fixed, but tax rates vary.
   C) both government spending and tax rates vary.
   D) both government spending and tax rates are fixed.

15. An increase in government spending generally shifts the IS curve, drawn with income along the horizontal axis and the interest rate along the vertical axis:
   A) downward and to the left.
   B) upward and to the right.
   C) upward and to the left.
   D) downward and to the right.

16. One argument in favor of tax cuts over spending on infrastructure to increase production is that:
   A) tax cuts increase the MPC by a larger amount than spending on infrastructure.
   B) tax cuts increase planned spending, but spending on infrastructure offsets private spending.
   C) the tax multiplier is larger than the government spending multiplier.
   D) it takes longer to implement spending on infrastructure than to implement tax cuts.

17. When the LM curve is drawn, the quantity that is held fixed is:
   A) the nominal money supply.
   B) the real money supply.
   C) government spending.
   D) the tax rate.
18. The theory of liquidity preference implies that:
   A) as the interest rate rises, the demand for real balances will fall.
   B) as the interest rate rises, the demand for real balances will rise.
   C) the interest rate will have no effect on the demand for real balances.
   D) as the interest rate rises, income will rise.

19. A decrease in the real money supply, other things being equal, will shift the \( LM \) curve:
   A) downward and to the left.
   B) upward and to the left.
   C) downward and to the right.
   D) upward and to the right.

20. A decrease in the price level, holding nominal money supply constant, will shift the \( LM \) curve:
   A) upward and to the right.
   B) downward and to the right.
   C) downward and to the left.
   D) upward and to the left.

21. One reason for unemployment is that:
   A) it takes time to match workers and jobs.
   B) all jobs are identical.
   C) the labor market is always in equilibrium.
   D) a laid-off worker can immediately find a new job at the market wage.

22. *All* of the following are reasons for frictional unemployment *except*:
   A) workers have different preferences and abilities.
   B) unemployed workers accept the first job offer that they receive.
   C) the flow of information is imperfect.
   D) geographic mobility takes time.

23. Sectoral shifts:
   A) lead to wage rigidity.
   B) explain the payment of efficiency wages.
   C) depend on the level of the minimum wage.
   D) make frictional employment inevitable.
24. Frictional unemployment is inevitable because:
   A) different sectors do not shift.
   B) the economy needs to be lubricated.
   C) workers never quit their jobs to change careers.
   D) the demand for different goods always fluctuates.

25. When there is structural unemployment, the real wage is:
   A) rigid at a level below the market-clearing level.
   B) rigid at the market-clearing level.
   C) rigid at a level above the market-clearing level.
   D) flexible.

26. Wage rigidity:
   A) forces labor demand to equal labor supply.
   B) is caused by sectoral shifts.
   C) prevents labor demand and labor supply from reaching the equilibrium level.
   D) increases the rate of job finding.

27. Workers unemployed as a result of wage rigidity are:
   A) actively searching for a job to match their skills.
   B) not eligible to receive unemployment insurance benefits.
   C) waiting for a job to become available.
   D) relocating to another part of the country as a result of sectoral shifts.

28. All of the following are causes of structural unemployment except:
   A) minimum-wage laws.
   B) the monopoly power of unions.
   C) unemployment insurance.
   D) efficiency wages.

29. All of the following statements about minimum-wage workers in the United States are correct except:
   A) Minimum-wage workers are more likely to be male.
   B) Minimum-wage workers are more likely to work part time.
   C) Minimum-wage workers are more likely to be less educated.
   D) Minimum-wage workers are more likely to be young.
30. Paying efficiency wages helps firms reduce the problem of adverse selection by:
   A) generating additional profits that can be used to pay for more proficient hiring managers.
   B) keeping labor unions from organizing workers in the firm.
   C) encouraging unsupervised workers to maintain a high level of productivity.
   D) providing an incentive for the best-qualified workers to remain with the firm.

31. All of the following are possible explanations for the trends in the U.S. unemployment rate in the last half of the twentieth century and early twenty-first century except:
   A) the changing composition of the U.S. work force.
   B) sectoral shifts.
   C) a generally increasing real value of the minimum wage.
   D) the links between unemployment and productivity.

32. Discouraged workers are individuals who:
   A) have jobs that do not match their skills (e.g., a PhD driving a taxi cab).
   B) have been unemployed for more than 26 weeks.
   C) call themselves unemployed but are not seriously looking for a job.
   D) want a job but have given up looking for one.

33. Much of the difference in unemployment rates across Europe is attributable to differences in:
   A) short-term unemployment.
   B) long-term unemployment.
   C) frictional unemployment.
   D) the natural rate of unemployment.

34. The Solow growth model describes:
   A) how output is determined at a point in time.
   B) how output is determined with fixed amounts of capital and labor.
   C) how saving, population growth, and technological change affect output over time.
   D) the static allocation, production, and distribution of the economy's output.

35. The consumption function in the Solow model assumes that society saves a:
   A) constant proportion of income.
   B) smaller proportion of income as it becomes richer.
   C) larger proportion of income as it becomes richer.
   D) larger proportion of income when the interest rate is higher.
36. In the Solow growth model of Chapter 7, the saving rate determines the allocation of output between:
   A) saving and investment.
   B) output and capital.
   C) consumption and output.
   D) investment and consumption.

37. In the Solow growth model of Chapter 7, investment equals:
   A) output.
   B) consumption.
   C) the marginal product of capital.
   D) saving.

38. In the steady state, the capital stock does not change because investment equals:
   A) output per worker.
   B) the marginal product of capital.
   C) depreciation.
   D) consumption.

39. In the Solow growth model of Chapter 7, the economy ends up with a steady-state level of capital:
   A) only if it starts from a level of capital below the steady-state level.
   B) only if it starts from a level of capital above the steady-state level.
   C) only if it starts from a steady-state level of capital.
   D) regardless of the starting level of capital.

40. An economy in the steady state will have:
   A) investment exceeding depreciation.
   B) no depreciation.
   C) saving equal to consumption.
   D) no change in the capital stock.

41. In the Solow growth model of an economy with no population growth and no technological progress, the higher the steady capital-per-worker ratio, the higher the steady-state:
   A) growth rate of total output.
   B) level of total output.
   C) growth rate of output per worker.
   D) level of output per worker.
42. If the per-worker production function is given by \( y = k^{1/2} \), the saving ratio is 0.3, and the depreciation rate is 0.1, then the steady-state ratio of capital to labor is:
   A) 1.
   B) 2.
   C) 4.
   D) 9.

43. If a war destroys a large portion of a country's capital stock but the saving rate is unchanged, the Solow model predicts output will grow and that the new steady state will approach:
   A) a higher output level than before.
   B) the same output level as before.
   C) a lower output level than before.
   D) the Golden Rule output level.

44. If the national saving rate increases, the:
   A) economy will grow at a faster rate forever.
   B) capital-labor ratio will increase forever.
   C) economy will grow at a faster rate until a new, higher, steady-state capital-labor ratio is reached.
   D) capital-labor ratio will eventually decline.

45. The Solow model shows that a key determinant of the steady-state ratio of capital to labor is the:
   A) level of output.
   B) labor force.
   C) saving rate.
   D) capital elasticity in the production function.

46. The Golden Rule level of capital accumulation is the steady state with the highest level of:
   A) output per worker.
   B) capital per worker.
   C) savings per worker.
   D) consumption per worker.
47. The Golden Rule level of the steady-state capital stock:
   A) will be reached automatically if the saving rate remains constant over a long period of time.
   B) will be reached automatically if each person saves enough to provide for his or her retirement.
   C) implies a choice of a particular saving rate.
   D) should be avoided by an enlightened government.

48. If an economy with no population growth or technological change has a steady-state MPK of 0.125, a depreciation rate of 0.1, and a saving rate of 0.225, then the steady-state capital stock:
   A) is greater than the Golden Rule level.
   B) is less than the Golden Rule level.
   C) equals the Golden Rule level.
   D) could be either above or below the Golden Rule level.

49. To determine whether an economy is operating at its Golden Rule level of capital stock, a policymaker must determine the steady-state saving rate that produces the:
   A) largest MPK.
   B) smallest depreciation rate.
   C) largest consumption per worker.
   D) largest output per worker.

50. When an economy begins below the Golden Rule, reaching the Golden Rule:
   A) produces lower consumption at all times in the future.
   B) produces higher consumption at all times in the future.
   C) requires initially reducing consumption to increase consumption in the future.
   D) requires initially increasing consumption to decrease consumption in the future.

51. Monetary neutrality is a characteristic of the aggregate demand–aggregate supply model in:
   A) both the short run and the long run.
   B) in neither the short run nor the long run.
   C) in the short run, but not in the long run.
   D) in the long run, but not in the short run.
52. In the Solow growth model of an economy with population growth but no technological change, if population grows at rate \( n \), total output grows at rate ______ and output per worker grows at rate ______.
A) \( n \); \( n \)
B) \( n \); 0
C) 0; 0
D) 0; \( n \)

53. In the Solow growth model, if two countries are otherwise identical (with the same production function, same saving rate, same depreciation rate, and same rate of population growth) except that Country Large has a population of one billion workers and Country Small has a population of ten million workers, then the steady-state level of output per worker will be ______ and the steady-state growth rate of output per worker will be ______.
A) the same in both countries; the same in both countries
B) higher in Country Large; higher in Country Large
C) higher in Country Small; higher in Country Small
D) higher in Country Large; higher in Country Small

54. The Solow growth model of an economy with population growth but no technological progress can explain:
A) persistent growth in output per worker.
B) persistent growth in total output.
C) persistent growth in consumption per worker.
D) persistent growth in the saving rate.

55. Assume that a war reduces a country's labor force but does not directly affect its capital stock. Then the immediate impact will be that:
A) total output will fall, but output per worker will rise.
B) total output will rise, but output per worker will fall.
C) both total output and output per worker will fall.
D) both total output and output per worker will rise.

56. If a larger share of national output is devoted to investment, then living standards will:
A) always decline in the short run but rise in the long run.
B) always rise in both the short and long runs.
C) decline in the short run and may not rise in the long run.
D) rise in the short run but may not rise in the long run.
57. The efficiency of labor is a term that does not reflect the:
   A) high output that comes from labor cooperating with a large amount of capital.
   B) health of the labor force.
   C) education of the labor force.
   D) skills of the labor force acquired through on-the-job training.

58. The number of effective workers takes into account the number of workers and the:
   A) amount of capital available to each worker.
   B) rate of growth of the number of workers.
   C) efficiency of each worker.
   D) saving rate of each worker.

59. Assuming that technological progress increases the efficiency of labor at a constant rate is called:
   A) endogenous technological progress.
   B) the efficiency-wage model of economic growth.
   C) labor-augmenting technological progress.
   D) the Golden Rule model of economic growth.

60. Business cycles are:
   A) regular and predictable.
   B) irregular but predictable.
   C) regular but unpredictable.
   D) irregular and unpredictable.

61. Over the business cycle, investment spending ______ consumption spending.
   A) is inversely correlated with
   B) is more volatile than
   C) has about the same volatility as
   D) is less volatile than

62. Leading economic indicators are:
   A) the most popular economic statistics.
   B) data that are used to construct the consumer price index and the unemployment rate.
   C) variables that tend to fluctuate in advance of the overall economy.
   D) standardized statistics compiled by the National Bureau of Economic Research.
63. Most economists believe that prices are:
   A) flexible in the short run but many are sticky in the long run.
   B) flexible in the long run but many are sticky in the short run.
   C) sticky in both the short and long runs.
   D) flexible in both the short and long runs.

64. Most economists believe that the classical dichotomy:
   A) holds approximately in both the short run and the long run.
   B) holds approximately in the long run but not at all in the short run.
   C) holds approximately in the short run but not at all in the long run.
   D) does not hold even approximately in either the long run or the short run.

65. The results of Alan Blinder's survey of firms suggest all of the following are true except that:
   A) there is only one theory of price stickiness.
   B) coordinating wage and price setting could improve welfare.
   C) reasons for price stickiness vary by industry.
   D) activist monetary policy can be used to cure recessions.

66. Along an aggregate demand curve, which of the following are held constant?
   A) real output and prices
   B) nominal output and velocity
   C) the money supply and real output
   D) the money supply and velocity

67. When the Federal Reserve increases the money supply, at a given price level the amount of output demanded is ______ and the aggregate demand curve shifts ______.
   A) greater; inward
   B) greater; outward
   C) lower; inward
   D) lower; outward

68. The vertical long-run aggregate supply curve satisfies the classical dichotomy because the natural rate of output does not depend on:
   A) the labor supply.
   B) the supply of capital.
   C) the money supply.
   D) technology.
69. If the short-run aggregate supply curve is horizontal, then changes in aggregate demand affect:

A) level of output but not prices.
B) prices but not level of output.
C) both prices and level of output.
D) neither prices nor level of output.

70. The short run refers to a period:

A) of several days.
B) during which prices are sticky and unemployment may occur.
C) during which capital and labor are fully employed.
D) during which there are no fluctuations.

71. If the short-run aggregate supply curve is horizontal and the Fed increases the money supply, then:

A) output and employment will increase in the short run.
B) output and employment will decrease in the short run.
C) prices will increase in the short run.
D) prices will decrease in the short run.

72. In the Solow growth model with population growth and technological change, the steady-state growth rate of income per person depends on:

A) the rate of population growth.
B) the saving rate.
C) the rate of technological progress.
D) the rate of population growth plus the rate of technological progress.

73. With population growth at rate \( n \) and labor-augmenting technological progress at rate \( g \), the Golden Rule steady state requires that the marginal product of capital (\( MPK \)):

A) net of depreciation be equal to \( n + g \).
B) net of depreciation be equal to the depreciation rate plus \( n + g \).
C) plus \( n \) be equal to the depreciation rate plus \( g \).
D) plus \( g \) be equal to the depreciation rate plus \( n \).
74. 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 actual worker grows at a ______ percent rate.
   A) 0  
   B) 2  
   C) 3  
   D) 5  

75. In the Solow model with technological progress, the steady-state growth rate of output per (actual) worker is:
   A) 0.  
   B) $g$.  
   C) $n$.  
   D) $n + g$.  

76. The balanced-growth property of the Solow growth model with population growth and technological progress predicts which of the following sets of variables will grow at the same rate in the steady state?
   A) output per effective worker, capital per effective worker, real wage  
   B) output per worker, capital per worker, real wage  
   C) real rental price of capital, real wage, output per worker  
   D) capital-output ratio, output per worker, capital per worker  

77. If two economies are identical (including having the same saving rates, population growth rates, and efficiency of labor), but one economy has a smaller capital stock, then the steady-state level of income per worker in the economy with the smaller capital stock:
   A) will be at a lower level than the steady state of the high capital economy.  
   B) will be at a higher level than the steady state of the high capital economy.  
   C) will be at the same level as the steady state of the high capital economy.  
   D) will be proportional to the ratio of the capital stocks in the two economies.  

78. Hypotheses to explain the positive correlation between factor accumulation and production efficiency include each of the following except:
   A) the quality of a nation's institutions influences both factor accumulation and production efficiency.  
   B) capital accumulation causes greater production efficiency.  
   C) efficient economies make capital accumulation unnecessary.  
   D) an efficient economy encourages capital (including human capital) accumulation.
79. 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.

80. A possible externality associated with the process of accumulating new capital is that:
   A) a reduction in labor productivity may occur.
   B) new production processes may be devised.
   C) old capital may be made more productive.
   D) the government may need to adopt an industrial policy.

81. Increases in the rate of growth of income per person in the United States in the mid-1990s was most likely the result of:
   A) increases in human capital.
   B) increases in physical capital.
   C) advances in information technology.
   D) an increase in the saving rate.

82. The endogenous growth model's assumption of constant returns to capital is more plausible if capital is defined to include:
   A) plant and equipment.
   B) knowledge.
   C) depreciation.
   D) technology.

83. In the two-sector endogenous growth model, the saving rate \( s \) affects the steady-state:
   A) level of income.
   B) growth rate of income.
   C) level of income and growth rate of income.
   D) growth rate of the stock of knowledge.

84. In the two-sector endogenous growth model, income growth persists because:
   A) the production function shifts exogenously.
   B) the saving rate exceeds the rate of depreciation.
   C) the creation of knowledge in universities never slows down.
   D) the fraction of the labor force in universities is large.
85. Schumpeter's thesis of “creative destruction” is an explanation of economic progress resulting from:
   A) using up scarce natural resources to create new products.
   B) breaking down barriers to trade and development.
   C) new product producers driving incumbent producers out of business.
   D) creating new methods to destroy the environment.

86. Total factor productivity may be measured by:
   A) subtracting the rate of growth of capital input and the rate of growth of labor input from the rate of growth of output.
   B) subtracting the rate of growth of capital input, multiplied by capital's share of output, plus the rate of growth of labor input, multiplied by labor's share of output, from the rate of growth of output.
   C) adding the rate of growth of capital input to the rate of growth of labor input.
   D) adding the rate of growth of capital input, multiplied by capital's share of output, to the rate of growth of labor input, multiplied by labor's share of output.

87. The Solow residual equals the percentage change in output:
   A) plus the percentage change in inputs.
   B) minus the percentage change in prices.
   C) minus the percentage change in inputs.
   D) plus the percentage change in costs.

88. In a steady state with population growth and technological progress:
   A) the capital share of income increases.
   B) the labor share of income increases.
   C) in some cases the capital share of income increases and sometimes the labor share increases.
   D) the capital and labor shares of income are constant.

89. The rate of growth of labor productivity \( (Y/L) \) may be expressed as the rate of growth of total factor productivity:
   A) plus the capital share multiplied by the rate of growth of the capital-labor ratio.
   B) minus the capital share multiplied by the rate of growth of the capital-labor ratio.
   C) plus the rate of growth of capital productivity.
   D) minus the rate of growth of capital productivity.
90. In year 1, capital stock was 6, labor input was 3, and output was 12. In year 2, capital was 7, labor was 4, and output was 14. If shares of labor and capital were each 1/2, between the two years, total factor productivity:
   A) increased by 1/12.
   B) increased by 1/18.
   C) decreased by 1/12.
   D) decreased by 1/18.