**MULTIPLE CHOICE.  Choose the one alternative that best completes the statement or answers the question. 35 questions, each 1.5 points**

1) Capital goods are       1) _____
   A) produced in the same year as the related final good, whereas intermediate goods are produced in different years.
   B) produced in one year, whereas final goods are produced over a period of more than one year.
   C) a type of intermediate good.
   D) final goods, because they are not used up during a given year.

2) If $C = \$500$, $I = \$150$, $G = \$100$, $NX = \$40$, and GNP = $800, how much is $NFP$?       2) _____
   A) –$10        B) $5        C) $10        D) –$5

3) Monica grows coconuts and catches fish. Last year she harvested 1500 coconuts and 600 fish. She values one fish as having a worth of three coconuts. She gave Rachel 300 coconuts and 100 fish for helping her to harvest coconuts and catch fish, all of which were consumed by Rachel. Monica consumed the remaining fish and coconuts. In terms of fish, total consumption by both Monica and Rachel would equal       3) _____
   A) 700 fish.        B) 1100 fish.        C) 2700 fish.        D) 900 fish.

4) An increase in the real wage rate will cause       4) _____
   A) a movement along the labor demand curve.
   B) the labor demand curve to shift to the left.
   C) the labor demand curve to shift to the right.
   D) the quantity of labor demanded to rise.

5) Suppose the marginal product of labor is       5) _____
   $$MPN = 200 - 0.5N$$
   where $N$ is aggregate employment. The aggregate quantity of labor supplied is $300 + 8w$, where w is the real wage. What is the equilibrium quantity of employment?
   A) 190        B) 760        C) 380        D) 12

6) The income effect of a higher real wage on the quantity of labor supply is the       6) _____
   A) tendency of workers to supply more labor in response to becoming wealthier.
   B) idea that workers feel psychologically wealthier when wages are higher, so they work more.
   C) tendency of workers to supply less labor in response to becoming wealthier.
   D) effect that income must rise when wages rise.

7) When a person receives an increase in wealth, what is likely to happen to consumption and saving?       7) _____
   A) Consumption decreases and saving increases.
   B) Consumption increases and saving increases.
   C) Consumption increases and saving decreases.
   D) Consumption decreases and saving decreases.

8) The yield curve generally slopes upward because    8) _____
    A) longer maturity bonds typically pay higher interest rates than shorter maturity bonds.
    B) longer maturity bonds typically pay lower interest rates than shorter maturity bonds.
    C) longer maturity bonds are not taxable.
    D) shorter maturity bonds have more default risk.

9) If the government cuts taxes today, issuing debt today and repaying the debt plus interest next    9) _____
year, a rational taxpayer will
    A) leave a smaller gross bequest to her or his heirs.
    B) spend the full amount of the tax cut today and reduce consumption next year.
    C) increase saving today, leaving consumption unchanged.
    D) increase consumption today, before taxes go up next year.

10) If a U.S. firm buys tulips from a Dutch firm and the Dutch firm uses the dollars it gets to buy U.S.    10) _____
stocks, the U.S. trade balance _____ and the U.S. capital and financial account _____.
    A) falls; falls         B) falls; rises         C) rises; rises         D) rises; falls

11) Suppose the current account shows debits of $5.3 billion and credits of $4.7 billion. The current    11) _____
account balance is _____, and the capital and financial account balance is _____.
    A) –$0.6 billion; +$0.6 billion         B) +$0.6 billion; –$0.6 billion
    C) –$0.6 billion; –$0.6 billion         D) +$0.6 billion; +$0.6 billion

12) In a large open economy like the United States, an increased government budget deficit which    12) _____
reduces national saving
    A) reduces investment and improves the current account balance.
    B) has no effect on investment, but reduces the current account balance.
    C) reduces investment and reduces the current account balance.
    D) has no effect on either investment or the current account balance.

13) A large open economy has desired national saving of $S^d = 1200 + 1000r^w$, and desired national    13) _____
investment of $I^d = 1000 - 500r^w$. The foreign economy has desired national saving of $S^d_{For} = 1300 +$
$1000r^w$, and desired national investment of $I^d_{For} = 1800 - 500r^w$. The equilibrium world real
interest rate equals
    A) 0.20.         B) 0.15.         C) 0.05.         D) 0.10.

14) Suppose the current level of output is 5000 and the elasticity of output with respect to labor is 0.7. A    14) _____
10% increase in labor would increase the current level of output to
    A) 5035.         B) 5700.         C) 5070.         D) 5350.

15) In the textbook model of endogenous growth, long-run output growth would decline if there were    15) _____
either a _____ in the saving rate or a _____ in the depreciation rate.
    A) rise; fall         B) fall; fall         C) fall; rise         D) rise; rise

16) A good that is used as a medium of exchange as well as being a consumption good is called    16) _____
    A) a commodity money.         B) a debased money.
    C) a barter money.         D) a legal tender.

17) The interest rate on long-term bonds is somewhat higher than suggested by the expectations theory because

    A) the expectations theory doesn't account for taxes.

    B) the Fed can only control short-term interest rates.

    C) a risk premium exists.

    D) an inflation premium must be added to long-term bonds.

17) _____

18) An increase in the real interest rate would cause an increase in the real demand for money

    A) if expected inflation fell by more than the rise in the real interest rate.

    B) if expected inflation fell by the same amount as the rise in the real interest rate.

    C) no matter what the change in expected inflation.

    D) if expected inflation fell by less than the rise in the real interest rate.

18) _____

19) If real income rises 4%, prices rise 1%, and nominal money demand rises 4%, what is the income elasticity of real money demand?

    A) 5/6        B) 1        C) 4/5        D) 3/4

19) _____

20) Which of the following would shift the $FE$ line to the left?

    A) A decrease in the capital stock

    B) A decrease in the future marginal productivity of capital

    C) An increase in labor supply

    D) A beneficial supply shock

20) _____

21) The $IS$ curve will shift down and to the left when

    A) government purchases increase.

    B) desired saving declines.

    C) consumption increases.

    D) the expected future marginal product of capital declines.

21) _____

22) Banks decide to raise the interest rate they pay on checking accounts from 1% to 2%. This action would

    A) decrease money demand, shifting the $LM$ curve up and to the left.

    B) decrease money demand, shifting the $LM$ curve down and to the right.

    C) increase money demand, shifting the $LM$ curve up and to the left.

    D) increase money demand, shifting the $LM$ curve down and to the right.

22) _____

23) In the classical model, a temporary decrease in government spending would cause a decrease in

    A) output, employment, real wages, and the price level.

    B) output, employment, the real interest rate, and the price level.

    C) output, the real interest rate, real wages, and the price level.

    D) employment, the real interest rate, real wages, and the price level.

23) _____

24) An adverse supply shock would directly _____ labor productivity by changing the amount of output that can be produced with any given amount of capital and labor. It would also indirectly _____ average labor productivity through changes in the level of employment.

    A) increase; decrease        B) increase; increase

    C) decrease; increase        D) decrease; decrease

24) _____

25) According to the misperceptions theory, if the Fed wanted to use monetary policy to influence the real economy it would have to

    A) surprise the public with unexpected changes in monetary policy.
    B) increase the money supply whenever the economy was in a recession.
    C) abide by the monetary targets it announced.
    D) decrease the money supply whenever the economy was in an inflationary boom.

26) Friedman and Schwarz argue that money is not neutral because

    A) money is a leading, procyclical variable.
    B) theoretical models of the economy don't show monetary neutrality.
    C) they found several historical incidents in which changes in the money supply were not responses to macroeconomic conditions, and output moved in the same direction as money.
    D) they found no evidence that productivity changes or changes in government spending contributed to business cycles; only monetary changes preceded every recession.

27) If the menu cost theory is true, then firms that change prices less frequently than other firms are likely to be in

    A) more competitive industries.
    B) growing, rather than declining, industries.
    C) less competitive industries.
    D) service, rather than manufacturing, industries.

28) If firms are price setters, a small decline in the demand for their outputs will cause them to

    A) increase price in the short run to offset the effect on profits of a decline in output.
    B) reduce price and reduce the level of output produced.
    C) reduce output in the short run, but reduce price in the long run.
    D) reduce price in the short run, but reduce output only in the long run.

29) In the Keynesian model in the short run, a decrease in government purchases causes output to _____ and the real interest rate to _____.

    A) fall; fall        B) rise; rise        C) rise; fall        D) fall; rise

30) Easy monetary policy and tight fiscal policy lead to

    A) roughly unchanged real interest rates only when Ricardian equivalence holds; otherwise, low real interest rates.
    B) high real interest rates.
    C) roughly unchanged real interest rates.
    D) low real interest rates.

31) In the extended classical model, an unexpected decrease in aggregate demand would cause unanticipated inflation to be _____ and cyclical unemployment to be _____.

    A) positive; positive               B) negative; positive
    C) positive; negative              D) negative; negative

32) The Friedman–Phelps analysis shows that a negative relationship between inflation and unemployment holds

    A) even if both the expected inflation rate and the natural rate of unemployment change.
    B) even when expected inflation changes.
    C) even when the natural rate of unemployment changes.
    D) as long as the expected inflation rate and the natural rate of unemployment are approximately constant.

33) The costs of disinflation would be low if
    A) expected inflation falls as inflation falls.
    B) wage and price controls were used.
    C) the Phillips curve adjusted slowly to changes in inflation.
    D) the Phillips curve were nearly horizontal.

33) _____

34) When actual inflation is greater than expected inflation
    A) cyclical unemployment rises, according to Phillips–curve analysis.
    B) the natural rate of unemployment rises, according to Phillips–curve analysis.
    C) there are transfers from lenders to borrowers.
    D) there are transfers from borrowers to lenders.

34) _____

35) Which of the following disinflationary monetary policies would classical economists prefer?
    A) A cold turkey approach that is announced, but not credible.
    B) A gradual approach that is unannounced.
    C) A gradual approach that is announced and credible.
    D) A cold turkey approach that is announced and credible.

35) _____

**SHORT ANSWER/PROBLEMS: 4 problems, each 12.5 points. ANSWER ONLY 4. I will correct the first four responses so CROSS OUT THE ANSWER you don't want me to grade.**

36) Suppose the marginal product of labor in the economy is given by $MPN = 200 - 0.5\,N$, while the supply of labor is $100 + 4w$.

   (a)  Find the market–clearing real wage rate.

   (b)  What happens if the government imposes a minimum wage of 40? Is there involuntary unemployment?

   (c)  What happens if the government imposes a minimum wage of 60? Is there involuntary unemployment?

37) A large open economy has desired national saving of $S^d = 20 + 200r^w$, and desired national investment of $I^d = 30$
$- 200r^w$. The foreign economy has desired national saving of $S^d_{For} = 40 + 100r^w$, and desired national
investment of $I^d_{For} = 75 - 400r^w$.

(a) Calculate the equilibrium values of $r^w$, $CA$, $CA_{For}$, $S$, $I$, $S_{For}$, and $I_{For}$.

(b) Suppose $S^d$ rises by 45, so that now $S^d = 65 + 200r^w$. Calculate the equilibrium values of $r^w$, $CA$, $CA_{For}$, $S$, $I$, $S_{For}$, and $I_{For}$.

(c) Suppose, with $S^d$ back to $S^d = 20 + 200r^w$, as in part (a), that $I^d$ rises by 45, to $I^d = 75 - 200r^w$. Calculate the equilibrium values of $r^w$, $CA$, $CA_{For}$, $S$, $I$, $S_{For}$, and $I_{For}$.

38) A country has the per–worker production function

$$y_t = 5k_t^{0.5},$$

where $y_t$ is output per worker and $k_t$ is the capital–labor ratio. The depreciation rate is 0.2 and the population growth rate is 0.05. The saving function is

$$S_t = 0.2Y_t,$$

where $S_t$ is total national saving and $Y_t$ is total output.

(a)  What is the steady–state value of the capital–labor ratio?
(b)  What is the steady–state value of output per worker?
(c)  What is the steady–state value of consumption per worker?

39) A Keynesian economy is described by the following equations.

$C^d = 250 + 0.5(Y - T) - 250r$

$I^d = 250 - 250r$

$G = 300$

$T = 300$

$L = 0.5Y - 500r + \pi^e$

$M = 3000$

$\overline{Y} = 1250$

$\pi^e = 0$

(a)  Calculate the values of the real interest rate, the price level, consumption, and investment for the economy in general equilibrium.

(b)  Now suppose government purchases increase to 350 with no change in taxes. What will be the real interest rate, the price level, output, consumption, and investment in the short run?

(c)  What will be the real interest rate, the price level, output, consumption, and investment in the long run?

40) The expectations–augmented Phillips curve is

$$\pi = \pi^e - 2(u - 0.06).$$

(a)   Graph the long–run Phillips curve and the short–run Phillips curve for an expected inflation rate of 0.04. Be precise about the intercepts. If the Fed chooses to keep the actual inflation rate at 0.04, what will be the unemployment rate? Label the equilibrium point "A". What is the numerical value of the natural rate of unemployment?

(b)   An aggregate demand shock (resulting from increased exports of goods) raises the inflation rate to 0.06 (the natural rate of unemployment and the expected inflation rate are not affected). Show what happens on your graph. Label the equilibrium point "B". What is the numerical value of the unemployment rate?

(c)   In response to the aggregate demand shock, suppose the Fed allows the inflation rate of 0.06 to persist. Show what happens on your graph, labeling the equilibrium point "C". In the long run, what is the numerical value of the unemployment rate?

(d)   From the situation in part (c), suppose a supply shock raises the natural rate of unemployment by .01 from its original value. If both the inflation rate and the expected inflation rate do not change, show what happens in your graph, labeling the equilibrium point "D". What is the numerical value of the unemployment rate?

1) D
2) C
3) B
4) A
5) C
6) C
7) C
8) A
9) C
10) B
11) A
12) C
13) D
14) D
15) C
16) A
17) C
18) A
19) D
20) A
21) D
22) C
23) B
24) C
25) A
26) C
27) C
28) C
29) A
30) D
31) B
32) D
33) A
34) C
35) D
36) (a)  The market–clearing real wage rate equates the demand and supply of labor. Setting $w = MPN = 200 - 0.5\,N$ and solving for $N$ gives $N = 400 - 2w$, which represents labor demand. Equating labor demand to labor supply gives $400 - 2w = 100 + 4w$, or $300 = 6w$, or $w = 50$.

(b)  A minimum wage of 40 has no effect, as it is below the market wage, so involuntary unemployment is 0.

(c)  A minimum wage of 60 is binding, as it is above the market wage. At $w = 60$, labor demand is $400 - (2 \times 60) = 280$, while labor supply is $100 + (4 \times 60) = 340$. So unemployment is 60 workers.

37) (a)  In equilibrium, $S^d + S^d_{For} = I^d + I^d_{For}$ so that $60 + 300r^w = 105 - 600r^w$, or $900r^w = 45$, so $r^w = 0.05$. Using this in the

formulas, we get $S = 30$, $I = 20$, $CA = 10$, $S_{For} = 45$, $I_{For} = 55$, and $CA_{For} = -10$.

(b)  Now $900r^w = 0$, so $r^w = 0.0$. Using this in the formulas, we get $S = 65$, $I = 30$, $CA = 35$, $S_{For} = 40$, $I_{For} = 75$, and $C$$A_{For} = -35$.

(c)  Now $900r^w = 90$, so $r^w = 0.10$. Using this in the formulas, we get $S = 40$, $I = 55$, $CA = -15$, $S_{For} = 50$, $I_{For} = 35$, and $C$$A_{For} = 15$.

Notice that the current account may swing from positive to negative, depending on the value of the real interest rate.

38) (a)  $sf(k) = (n + d)k$, so $0.2 \times 5k^{0.5} = 0.25k$; or $k^{0.5} = 4$, so $k = 16$.

(b)  $y = 5k^{0.5} = 20$.
(c)  $c = (1 - s)y = 0.8y = 16$.

39) (a)  $r = 0.05$, $P = 5$, $C = 712.5$, $I = 237.5$
(b)  $r = 0.10$, $P = 5$, $Y = 1300$, $C = 725$, $I = 225$
(c)  $r = 0.15$, $P = 5.4545$, $Y = 1250$, $C = 687.5$, $I = 212.5$

40) (a)  Long run: vertical line at $u = 0.06$. Short run: downward sloping line (curve) crossing the long–run curve at $\pi = 0.04$. The natural rate of unemployment is 0.06.
(b)  Move up along same short–run Phillips curve; now unemployment rate $= 0.05$.
(c)  Now, expected inflation rises to 0.06, with a shift to a higher short–run Phillips curve. The unemployment rate rises to 0.06 as well.
(d)  The long–run Phillips curve now shifts to the right at an unemployment rate of 0.07. With inflation and expected inflation remaining the same, the short–run Phillips curve shifts to the right.