MIDTERM EXAMINATION #2

Instructions:
To insure fairness in grading, please write only your student ID number on the top of each page of your exam.

Please use the bubble sheet to record your answers from sections 1 and 2.

This exam covers the concepts discussed thus far in the course and problem sets. It consists of short answer definitions and problem solving essays. The exam lasts 75 minutes and is worth 100 points. The possible points for each question is provided for your convenience, use this information to help allocate your time. The space provided is sufficient for a good answer, please keep your answers within this space.

In the problem solving section, show all your work, and whenever you draw a graph, be sure to label the axes and all curves. Partial credit is only possible when calculations are shown. Questions will be graded for accuracy, precision, and completeness. You must write legibly – points will be deducted for illegible answers.

At a minimum, any form of cheating on this exam will result in an F for the course.

Please feel free to ask any clarification questions throughout the exam.

I. True – False (2 points each) – Record your final answers to your bubble sheet, only the answer on the bubble sheet will count (A = True and B = False)

1. True _____ False _____ In its last meeting, October 28, 2003, the Federal Open Market Committee voted to raise the Federal funds target rate from 1.0% to 1.5%

2. True _____ False _____ The seasonally adjusted growth rate of real GDP for the third quarter of 2003 was about 3.4%; growing at a slower rate than most economists expected.

3. True _____ False _____ As we have discussed, economists have been unsure about the recovery in the labor market. In the last month, the employment picture has become increasingly dismal with jobless claims rising and employment falling.

4. True _____ False _____ Non-farm business productivity grew at a whopping 8.1% during the third quarter of this year. This rate of growth is unsustainable, but nevertheless, even a .5% faster growth rate means living standards increase several years quicker because a growth in productivity shifts the PPF to the right.
5. True _____ False ____ In its last press release, the Federal Open Market Committee sounded upbeat about the economy and indicated that because the risk of inflation seemed low the federal funds target rate would remain low for the “foreseeable future.”

6. True _____ False ____ The business cycle has two phases, expansions and contractions.

7. True _____ False ____ The recent recession has been one of the longest recessionary periods to date.

8. True _____ False ____ The Federal Reserve bank achieves a desired federal funds interest rate target by mandating the rates banks must charge on overnight loans to other banks. Banks that make loans at higher rates incur stiff penalties.

9. True _____ False ____ Monetary policy decisions are made by the Presidents Council of Economic Advisors.

10. True ____ False ____ A primary obstacle to effective monetary policy has been choosing the amount of government securities to purchase or sell in order to achieve a desired interest rate target.

II. Multiple Choice (2 points each) – choose the best answer. Copy your final answers to your bubble sheet – only the answer on the bubble sheet will count.

11. The quantity of real GDP produced by one hour of labor is equal to
   a. real GDP per person.
   b. the advance in technology.
   c. the growth rate of technology.
   d. labor productivity.

12. If we use productivity curves to illustrate the U.S. experience between 1960 and 2000, we see
   a. little change in real GDP per hour of labor.
   b. growth in real GDP per hour of labor but little change in capital per hour of labor.
   c. growth in real GDP per hour of labor brought about, in part, by technological change.
   d. a decrease in real GDP per person because of increases in capital per hour of labor.

13. In classical growth theory, if the real income level is above the subsistence real income,
   a. the economy will keep growing without limit.
   b. population grows rapidly and lowers real income to its subsistence level.
   c. technological growth occurs and keeps real income above its subsistence level.
d. None of the above answers is correct.
14. Neoclassical growth theory predicts that
a. the economy will grow indefinitely.
b. population grows rapidly and lowers real income level to subsistence.
c. the economy is not subject to diminishing returns.
d. technological growth is necessary to maintain growth in real GDP per person.

15. The new growth theory
a. corrects for poor estimates of population growth.
b. eliminates technological advances from the growth picture.
c. applies to only very poor, less-developed nations.
d. explains the source of technological advances.

16. ____ growth theory(ies) predict(s) that real GDP in different nations converges to the same level.
   a. The classical
   b. The neoclassical
   c. The new growth
   d. Both the classical and neoclassical

17. A key reason why some nations show little or no growth is
   a. overpopulation that overuses limited resources.
   b. lack of incentives to undertake actions toward growth.
   c. too much private property not directed by the government.
   d. patents in rich nations that keep technology only for the rich.

18. Economic freedom requires
   a. that there are no regulations and restrictions set on businesses and households by the government.
   b. the rule of law and the ability to enforce the laws.
   c. strong labor unions.
   d. freedom to bribe government officials.

19. Property rights assure people that
   a. neither other individuals or the government will confiscate the property owners income or savings.
   b. the government will provide a minimum standard of living.
   c. the factors of production and goods are owned jointly by the government and the people.
   d. economic growth will enhance government involvement in the economy.
20) Economists use the word "capital" to mean
   a) the workers that firms employ to produce goods and services.
   b) the tools, instruments, and other produced goods used to produce additional goods and
   c) the funds that firms use to buy and operate their businesses.
   d) purchases in the market for stocks and bonds.

21) Which of the above figures shows the effect of an economic expansion on the investment demand curve?
   a) Figure A          b) Figure B          c) Figure C          d) Figure D

22) Which of the following graphs shows the effect of an increase in the real interest rate on investment demand?
   a) Figure A          b) Figure B          c) Figure C          d) Figure D
23) Resources are underused during which phase of the business cycle?
   a) expansion  
   b) peak
   c) recession 
   d) None of the above answers is correct.

24) The change in potential real GDP and aggregate supply shown in the graph above can be a result of
   a) a decrease in the money wage rate.  
   b) an increase in the quantity of capital. 
   c) an increase in the real wage rate. 
   d) a decrease in the money price of oil.

25) The AD curve is a graph depicting the
   a) relationship between the price level and the quantity of real GDP demanded. 
   b) business cycle during expansions and recessions. 
   c) relationship between the price level and the quantity of real GDP supplied. 
   d) relationship between the price level and potential GDP.

26) A tax increase
   a) increases the quantity of real GDP demanded and there is a movement down along the AD curve.
   b) decreases the quantity of real GDP demanded and there is a movement up along the AD curve.
   c) increases aggregate demand and the AD curve shifts rightward.
   d) decreases aggregate demand and the AD curve shifts leftward.
27) At the beginning of 2004, a country is at full-employment. During 2004, oil-producing countries decrease oil production leading to higher oil prices. The higher oil prices
   a) increase aggregate supply and lead to an expansion.
   b) decrease aggregate demand and lead to a stagflation.
   c) increase aggregate demand and lead to an expansion.
   d) decrease aggregate supply and lead to a stagflation.

28) If aggregate demand increases because of an increase in government purchases of goods and services, real GDP increases more than the initial increase in government purchases because
   a) the increase in GDP increases income, which increases households’ consumption expenditure.
   b) a deflationary gap is created.
   c) aggregate supply increases.
   d) None of the above answers is correct.

29) In the figure above, the economy is at an equilibrium with real GDP of $10 trillion and a price level of 110. At this point there is
   a) price stability.                                b) an inflationary gap.
   c) a deflationary gap.                           d) None of the above answers is correct.

30) When disposable income increases, consumption expenditure
   a) does not change.                            b) also increases, but by less.
   c) decreases by the same amount.              d) also increases and by an equal amount.
31) In the figure above, the economy is at an equilibrium with real GDP of $10 trillion and a price level of 110. As the economy moves toward its ultimate equilibrium, the aggregate ____ curve shifts ____.
   a) supply; rightward  b) demand; leftward
   c) demand; rightward  d) supply; leftward

32) Jane supports herself at college by working in a bookstore earning $300 a month, which she spends entirely every month. If she gets a salary increase of $100 a month, she spends $90 more dollars on consumption expenditure. Jane's *MPC* is equal to
   a) 0.90.  b) 1.00.
   c) $90.  d) None of the above answers is correct.

33) If the economy is in equilibrium with real GDP less than potential GDP, there is ____ gap and a fiscal policy that ____ aggregate demand is appropriate.
   a) a deflationary; decreases  b) an inflationary; increases
   c) a deflationary; increases  d) an inflationary; decreases

34) If the *AS* and the *AD* curve intersect at a level of real GDP that exceeds potential GDP, then the appropriate monetary policy is one that ____ the interest rate and ____ aggregate demand.
   a) raises; decreases  b) raises; increases  c) lowers; decreases  d) lowers; increases
35) The table above gives data for the nation of Mosh. In Mosh, equilibrium expenditure equals
   a) $9 trillion.
   b) $4 trillion.
   c) $6 trillion.
   d) None of the above answers is correct.

36) The table above gives data for the nation of Mosh. If we graphed these data, we would see that when GDP equals
   a) $10 trillion, the 45° line is above the AE curve.
   b) $9 trillion, the AE curve intersects the 45° line.
   c) $6 trillion, the AE curve is below the 45° line.
   d) None of the above answers is correct.

37) If we compare monetary policy to fiscal policy we see that
   a) they both have limitations of estimating potential GDP and forecasting future economic activity.
   b) monetary policy can only be conducted once every eight weeks whereas fiscal policy can be conducted more frequently.
   c) monetary policy has precisely the same limitations as fiscal policy.
   d) monetary policy suffers from a worse law-making lag than fiscal policy.

38) During the Great Depression, real GDP decreased, unemployment rose, and the inflation rate was negative. Which would have been the appropriate federal government policy combination to improve economic performance?
   a) increase government spending, decrease taxes, increase the quantity of money
   b) increase government spending, decrease taxes, decrease the quantity of money
   c) keep government spending and taxes stable, keep the quantity of money growing at a moderate pace
   d) decrease government spending, increase taxes, decrease the quantity of money
39) If an economy is at the short-run equilibrium illustrated by the figure above, a discretionary *fiscal* policy to adjust the economy to full employment is to

a) decrease taxes.

b) increase government spending.

c) increase taxes and decrease government spending simultaneously.

d) decrease the quantity of money.
40) The economy is at the equilibrium shown as point a in the above figure. To restore the economy to potential GDP, the Fed should 
   a) sell government securities and thereby decrease aggregate demand. 
   b) sell government securities and thereby increase aggregate demand. 
   c) buy government securities and thereby increase aggregate demand. 
   d) buy government securities and thereby decrease aggregate demand.

41) Fiscal policy is most powerful when there is a 
   a) large effect on interest rates from changes in the demand for money. 
   b) large effect on investment from a change in interest rates. 
   c) lot of crowding out. 
   d) small effect on interest rates from changes in money demand.

42) The effect of fiscal policy is reduced because an increase in government purchases 
   a) leads to an increase in the demand for money and thereby a rise in the interest rate that crowds out private investment.
   b) leads to higher income and higher taxes, which crowds out private consumption and investment. 
   c) has a multiplier effect of less than one. 
   d) leads to higher income and higher tax revenue, which enhances the multiplier effect.
43) In the figure above, a change in the money supply would have a more powerful effect on real GDP in
   a) Figure A.
   b) Figure B.
   c) Figure A and Figure B because the effect is not zero and is equally powerful in both.
   d) neither Figure A nor Figure B because the effect is nil in both figures.

44) Which of the following statements about fiscal policy and monetary policy is correct?
   a) Factors that make fiscal policy weak also make monetary policy strong.
   b) The government can use either fiscal policy or monetary policy but cannot use both simultaneously.
   c) Factors that make monetary policy weak also make fiscal policy weak.
   d) None of the above answers is correct.

45) If the crowding-out effect is large and the demand for money is very sensitive to interest rate changes,
   a) neither monetary policy nor fiscal policy is powerful.
   b) fiscal policy is more powerful than monetary policy.
   c) both monetary policy and fiscal policy are powerful.
   d) monetary policy is more powerful than fiscal policy.
III. (20 points) The Aggregate Expenditure Model

The equation of dynamic income generation can be written as,

\[ Y_{t+1} = A + aY_t \]  \hspace{1cm} (1)

where \( A = I_{t+1} + G_{t+1} = I + G \) (investment and government spending are constant) and the tax adjusted marginal propensity to consume is given by, \( a = \alpha (1 - \tau) \).

a. (2 points) In the figure at right plot equation (1).

b. (6 points) Assume that the sum of government spending and private investment is constant at 10 (billions of constant dollars).

Assume that the marginal propensity to consume is .8 (or 8/10) and the tax rate is .5 (or 1/2). Write down equation (1) in the space below substituting values for A and a.

Now, solve for the stationary level of income and label this as \( \bar{Y} \) in the figure at right.

\[ Y_{t+1} = A + \alpha (1 - \tau)Y_t \]
\[ \bar{Y} = 10 + \frac{8}{10} (1 - \frac{1}{2}) \bar{Y} \]
\[ \bar{Y} - \frac{8}{20} \bar{Y} = 10 \]
\[ \frac{12}{20} \bar{Y} = 10 \]
\[ \bar{Y} = \frac{200}{12} = \frac{50}{3} = 16.67 \]

The stationary level of income is 16.67 billions of constant dollars.

\[ \bar{Y}^G = \bar{Y}^T = 25 \]

Y<sub>t+1</sub> Y<sub>t</sub>

\[ \bar{Y} = 16.67 \]

\( \bar{Y}^G = \bar{Y}^T = 25 \)

Y<sub>t</sub>

Page 13 of 13

c. (4 points) Suppose that government spending increases by 5 (billions of constant dollars). Assume that the values for government spending and investment will remain unchanged over time. Write down the new dynamic income equation incorporating these changes and solve for the new level of stationary income. Show the movement from the old steady state (part b.) to the new steady state and label the new steady state as \( \bar{Y}^G \).

\[ Y_{t+1} = A + \alpha (1 - \tau)Y_t \]
\[ \bar{Y} = 15 + \frac{8}{10} (1 - \frac{1}{2}) \bar{Y} \]
\[ \bar{Y} - \frac{8}{20} \bar{Y} = 15 \]
\[ \frac{12}{20} \bar{Y} = 15 \]
\[ \bar{Y} = \frac{200}{12} = \frac{50}{3} = 16.67 \]

\[ \bar{Y}^G = \frac{75}{3} = 25 \]
d. (5 points) Alternatively (instead of the increase in government spending in part c) suppose that taxes are decreased to 0.25 (or 1/4), while government spending, investment, and the marginal propensity to consume are at the same level as in part b. Write down the basic dynamic income equation incorporating this change and solve for the new level of stationary income. Plot this new equation in the figure above and label the new level of stationary income as $Y^T$.

\[
Y_{t+1} = A + \alpha(1-\tau)Y_t
\]

\[
\hat{Y} = 10 + \frac{8}{10} (1 - \frac{1}{4})\hat{Y}
\]

\[
\hat{Y} - \frac{24}{40} \hat{Y} = 10
\]

\[
\frac{16}{40} \hat{Y} = 10
\]

\[
\hat{Y}^T = \frac{400}{16} = 25
\]

e. (3 points) What is the effect of an increase government spending versus a decrease in taxes on economic growth? How do these policy instruments affect GDP growth differently? Explain briefly.

*In this example, the increase in G and the decrease in taxes lead to the same equilibrium level of income. Here the cost of increasing G is 5 Billion and GDP increases by 8.3 billion [25-16.6=8.3] – so one could argue the net effect of the increase in G is positive. The cost of increasing taxes is 2.08 B (new tax revenue [.25*25=6.25] minus the old tax revenue [5*16.6= 8.3]) and again the equilibrium level of income has increased by 8.3 billion. Again, one could argue that the net effect of increasing taxes is positive.*

*In this example (because of the high MPC), the higher equilibrium level of GDP is achieved through a lower cost with the tax policy as opposed to the government spending policy.*

**Extra Credit:** (7 points) Use the articles we have discussed in class to describe the current state of the US economy with respect to GDP, inflation, and unemployment. Also discuss the most recent numbers on productivity – why are they unique (how do they differ from previous years) and why are they important in terms of future standards of living. What is your view on the near-term future of the US economy and why?

Use either an aggregate demand and aggregate supply or an aggregate expenditures diagram in your discussion.