ECO202: PRINCIPLES OF MACROECONOMICS
FIRST MIDTERM EXAM
SPRING 2003
Prof. Bill Even

Directions

1. Fill in your scantron with your unique id and form number. Doing this properly is worth 3 points.

2. There are 39 multiple choice questions. Each is worth 3 points.

3. Your grade depends entirely upon the answers listed on your scantron.

4. You will not receive your scantron back. Be sure to record your answers on your exam so that you will be able to check your answers once the key is posted.

5. You may use a calculator.

6. You have until the end of the period to finish the exam. No extra time will be allowed.

7. Academic dishonesty is a serious offense. In the event I find someone behaving in a dishonest manner, I will request that the maximum penalty allowed by the university be imposed.
To answer the next 2 questions, consider the following investment opportunity. You can purchase a machine today for $200,000. You can rent this machine to a customer for $70,000 per year for each of the next 3 years. At the end of the 3 years, you can scrap the machine and sell it for $10,000. Your first payment will come at the end of the first year.

1. What is the NPV of this investment if the interest rate is 6%?
   a. $4493        b. -$4493        c. $21285        d. -$21285

2. For the project described, the internal rate of return is:
   a. below 0      b. between 0 and 6%   c. between 6% and 10%  d. above 10%

3. According to the consumption smoothing model, an increase in expected future income will cause
   a. this period’s consumption to fall and this period’s saving to rise.
   b. this period’s consumption and saving to rise.
   c. this period’s consumption to rise and this period’s savings to fall.
   d. this period’s consumption and savings to fall.

4. According to the consumption smoothing model, if the government gives a temporary tax cut this year,
   a. the majority of the tax cut will be spent this year and older families will spend a larger fraction of the tax cut.
   b. the majority of the tax cut will be spent this year and older families will spend a smaller fraction of the tax cut.
   c. the majority of the tax cut will be saved this year and older families will save a smaller fraction of the tax cut.
   d. the majority of the tax cut will be saved this year and older families will save a larger fraction of the tax cut.

5. The wealth effect of higher interest rates in the current year will:
   a. increase current consumption by borrowers only.
   b. decrease current consumption by everyone.
   c. increase current consumption by everyone.
   d. increase current consumption by savers only.
Use the following information to answer the next two questions. Between 1960 and 2002, the consumer price index (base year 1983) rose from 29.6 to 179.9. Over the same period, the average nominal hourly wage rate rose from $2.09 to $14.77.

6. For a person in 2002 to earn a wage with the same purchasing power as the average worker in 1960, she would have to earn ______ per hour.
   a. $8.21   b. $3.76   c. $7.06   d. $12.70

   a. increased by $1.15
   b. decreased by $1.15
   c. increased by $3.47
   d. decreased by $3.47

8. In December of 2002, there were 215.0 million people in the civilian non-institutional population, 142.3 million people in the civilian labor force and 134.2 million people employed. Start with the December 2002 numbers, if 1 million people who were unemployed in December 2002 find jobs and .5 million people who were out of the labor force begin looking for jobs. What would the new unemployment rate be?
   a. 5.3%   b. 5.5%   c. 5.1%   d. 5.7%

9. Evidence suggests that the growth rate of the consumer price index (overstates, understates) the growth in the cost of living and thereby causes the growth in federal spending on entitlement programs to be too (small, large).
   a. overstates; small.   b. overstates; large.   c. understates; large.   d. understates; small.

10. Of the four components of the expenditure side of GDP, which tends to drop most during a recession?
    a. consumption   b. investment   c. government purchases.   d. exports.

11. If you deposit $1000 in a savings account for 10 years at 4% interest, what will your account balance be at the end of the 10 years?
    a. $1160   b. $1232   c. $1396   d. $1480

12. If you promised to pay the bank $1000 2 years from today and another $2000 3 years from today, what is the most the bank would lend you if it charges you an 8% interest rate on the loan?
    a. $1973   b. $2445   c. $2562   d. $2612
13. If you want a $20000 balance in your savings account 5 years from today, how much must you deposit in the bank today if the nominal interest rate is 8%?
   a. $13611     b. $14232     c. $15131     d. $15873

14. The substitution effect of higher interest rates in the current year will:
   a. increase current consumption by everyone.
   b. increase current consumption by savers only.
   c. increase current consumption by borrowers only.
   d. decrease current consumption by everyone.

To answer the next 3 questions, suppose that your life is split into two periods -- this year and next year. You earn $50,000 this year and $30,000 next year. Income is received at the beginning of each year. **Round all of your answers to the nearest dollar and assume a 5% interest rate.**

15. If you wish to “smooth out” consumption (i.e. have the same level of consumption in each period), how much can you consume in each period?
   a. $40,000     b. $40,243     c. $40,476     d. $40,823

16. Assuming that you can borrow or lend at 5% interest, how much can you consume this year if you want to spend $40,000 next year?
   a. $40,000     b. $40,476     c. $40,726     d. $41,387

17. If you want to increase spending by $500 this year, how much will you have to decrease consumption next year?
   a. $500     b. $512.50     c. $525     d. $550

18. If a person finances an investment by borrowing money, the investment would be profitable if and only if the internal rate of return on the investment is:
   a. positive.
   b. above the interest rate that the money is borrowed at.
   c. below the interest rate that the money is borrowed at.
   d. negative.
19. Based on behavior predicted by the loan market, a simultaneous decrease in investment and higher interest rates could be caused by:
a. news that leads consumers to believe that their incomes will rise beginning next year.
b. news that leads consumers to believe that their incomes will fall beginning next year.
c. a technological innovation that makes for many new profitable investment opportunities.
d. a smaller government budget deficit.

20. If government tax revenues are unchanged but spending on defense increases, changes in the loan market should cause:
a. higher interest rates and less private investment.
b. lower interest rates and less private investment.
c. higher interest rates and more private investment.
d. lower interest rates and more private investment.

21. Suppose that over the next year, the nominal interest rate decreases but the expected real interest rate is unchanged. Which of the following would best explain this combination of events?
a. an increase in expected inflation.
b. a decrease in expected inflation.
c. a larger federal government budget deficit.
d. a smaller federal government budget deficit.

22. According to the equation of exchange, if velocity rises by 3%, 3 percent inflation could be caused by:
a. 0% growth in the money supply and 0% growth in real GDP.
b. 6% growth in the money supply and 3% growth in real GDP.
c. 1% growth in the money supply and 4% growth in nominal GDP.
d. 3% growth in the money supply and 6% growth in nominal GDP.

23. Suppose that over the next year, real GDP and velocity grow according to expectations, but the central bank prints much less money than expected. In this scenario, we would expect that:
a. borrowers and lenders will both win.
b. borrowers will lose and lenders will win.
c. borrowers will win and lenders will lose.
d. borrowers and lenders will lose.

24. Suppose that a one year bond has a coupon rate of 5% and a maturity value of $1000. If you buy the bond today for $950, your yield will be:
a. 5.0% b. 7.3% c. 10.5% d. 11.6%
25. According to supply side economics, 
   a. a cut in tax rates could increase tax revenue. 
   b. an increase in tax rates would increase tax revenue. 
   c. an increase in government spending would increase tax revenue. 
   d. a decrease in government spending would increase tax revenue. 

26. "Menu costs" tend to be higher when: 
   a. there is a high rate of inflation. 
   b. real interest rates are high. 
   c. the federal government passes new food safety regulations. 
   d. the income tax system is not indexed. 

27. Suppose you can buy an indexed bond with a 3% coupon rate or a non-indexed bond with a 
    7% interest rate. Both bonds can be purchased for $1000 and would have a maturity value of 
    $1000. The maturity value is indexed in the case of the indexed bond, however. You should 
    prefer the non-indexed bond over the indexed bond if and only if: 
   a. you expect inflation to exceed 4 percent per year. 
   b. you expect inflation to exceed 7 percent per year. 
   c. you expect inflation of less than 4 percent per year. 
   d. you expect inflation of less than 7 percent per year. 

To answer the next question, consider the following description of the federal income tax system. 
The marginal tax rate on income for a single taxpayer is described in the table below: 

<table>
<thead>
<tr>
<th>Taxable Income</th>
<th>0 to 23,350</th>
<th>23,350 to 61,400</th>
<th>61,400 to 128,100</th>
<th>128,100 to 274,450</th>
<th>278,450 and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal tax rate</td>
<td>15%</td>
<td>28%</td>
<td>31%</td>
<td>36%</td>
<td>39.6%</td>
</tr>
</tbody>
</table>

28. If a person’s taxable income is $30,000, how much does she owe in taxes? 
   a. $5365   b. $8400   c. $11902   d. $12365 

29. Given the current structure of the federal income tax system, assuming their earnings are 
    unchanged, if two single people get married, their combined tax bill will: 
   a. increase. 
   b. decrease. 
   c. increase if their incomes are identical, but decrease if one person has earnings and the other 
      person has no earnings. 
   d. decrease if their incomes are identical, but increase if one person has earnings and the other 
      person has no earnings.
30. According to the rule of 72, if real GDP grows at 3% per year, real GDP will quadruple in approximately _____ years.
   a. 12  b. 24  c. 48  d. 75

31. In a proportional income tax system, if there is inflation of 10% and everyone's income rises by 10%,
   a. nominal tax payments would increase 10% and real tax payments would be unaffected.
   b. nominal tax payments would increase 10% and real tax payments would rise.
   c. nominal tax payments would increase more than 10% and real tax payments would rise.
   d. nominal tax payments would increase 10% and real tax payments would fall.

32. Suppose a progressive income tax system is NOT indexed. If there is inflation of 10% and everyone’s nominal income rises by 10%:
   a. average tax rates will rise.
   b. nominal tax payments will rise more than 10%.
   c. real tax payments will rise.
   d. all of the above.

33. Suppose that in a certain locality, when a person's income increases from $50,000 to $100,000, her tax bill increases from $1500 to $2500. This city's income tax would be:
   a. regressive.
   b. proportional.
   c. progressive.

To answer the next 4 questions, consider the following information taken from the 2003 Statistical Abstract of the United States:

<table>
<thead>
<tr>
<th>Year</th>
<th>1960</th>
<th>2000</th>
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<tr>
<td>Real consumption spending (in 1996 dollars)</td>
<td>$1,510.8 billion</td>
<td>$6,223.9 billion</td>
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<tr>
<td>Nominal spending on durable goods</td>
<td>$332.3 billion</td>
<td>$6,683.7 billion</td>
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Give all growth rates to the nearest one-tenth of one percent -- e.g. 8.2%).

34. What is the GDP-deflator in 2000?
   a. 93.1  b. 102.5  c. 107.4  d. 201.1

35. What was the average annual rate of growth in real consumption spending between 1960 and 2000?
   a. 2.3%  b. 2.8%  c. 3.6%  d. 4.2%
36. Using the GDP-deflator as your measure of the price level, $1 in 2000 bought as much as $____ in 1960. (round to the nearest cent.)
   a. $.20 b. $.28 c. $.37 d. $.42

37. Using the GDP-deflator as the measure of the price level, what was the average annual inflation rate between 1960 and 1996 (note 1996 is the base year for real GDP)?
   a. 1.2% b. 2.3% c. 3.2% d. 4.3%

38. Holding capital and technology constant, a decrease in the number of people willing to work at any given wage rate would:
   a. reduce real wages, reduce real GDP, and reduce productivity.
   b. reduce real wages, reduce real GDP, and increase productivity.
   c. increase real wages, reduce real GDP, and increase productivity.
   d. increase real wages, reduce real GDP, and decrease productivity.

39. Which of the following would cause the growth in real per capita GDP to be an overstatement of how much the standard of living improves?
   a. an increase in "do-it-yourself" projects.
   b. an improvement in environmental quality.
   c. an increase in the crime rate.
   d. all of the above.

THIS IS FORM 3 OF THE EXAM. RECORD THE FORM NUMBER ON YOUR SCANTRON.
<table>
<thead>
<tr>
<th>Question number</th>
<th>Form 3: corresponding question on form 1.</th>
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