Midterm 2 **NAME:**……
201 Macroeconomics Winter 2006
Prof. Gordon
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Total points = 17 (Multiple Choice) + 43 (Short answer) = 60 Points

ANSWER SHEET MULTIPLE CHOICE (17 Points)

1. B	10. C
2. D	11. B
3. D	12. D
4. C	13. B
5. A	14. D
6. E	15. C
7. A	16. C
8. E	17. A
9. A	

Short Answer Section (43 Points)

I. What is the unemployment rate and the labor force in The Sopranos?
Tony has a job in waste collection. **Carmella** is a housewife. **Pauli** was working as a groundskeeper, but that didn't work out, so now he's looking for a new way to be a good earner. **Anthony B.** was working in massage therapy, but that failed, and while he would like to work, as an ex-convict, he figures that no one will hire him and so he's not actively looking for paid employment. **Adriana** works part-time doing weird jobs, but she doesn't really like it and is actively looking for a more serious job. **Meadow** is a full-time student. **Dr. Melphi** works as a psychiatrist. (8 points)

a) What is the unemployment rate? 1/4

b) What is the size of the labor force? 4

II. On January 1st, 2005 you bought 25 IBM shares. The price of a share of IBM on January 1st 2005 was $146. Exactly one year later you sell all the shares. The share price rose 17% during the period January 1st, 2005 – January 1st, 2006. Inflation in the year 2005 was 2.7%. Tax rate on capital gains equals 12%. What is the real capital gain after taxes of buying and then selling the IBM shares? (4 points)

Answer: 17-2.7-0.12*17=12.26%, thus 0.1226*146*25=447.5

III. A Belgian newspaper had a very funny article. Peter S., a genealogy buff, seems to have proof that one of his ancestors Xaverius S., who did business with the De Medici family (a very rich Italian family in the 1600s), has never received the 2 copper coins he was entitled to in August, 1st, 1634. He wants justice, and wants a transfer from the current De Medici family to his own family. As a historian, Peter S. knows that 2 copper coins in 1634 was not worth that much, he calculated that in today's terms it would be worth 25 euros. But, Peter S. alleges that his family is not only entitled to the 25 euros, but also on the interest foregone! He proposed to use a moderate average annual interest rate of 4%.
How much should the De Medici family pay according to Peter S. in order to correct for this "injustice"? Suppose we are now February, 1st, 2006. (7 points)

a) What is the time period you should use (in years and months)?
Answer: 2006-1634 = 371 years and 6 months

b) What amount did Peter S. demand in court (in euros)? (Yes, he actually went to court.) You are about to experience the power of compounded interest. Use the logarithm or exponential formula.

Answer: 25*exp(0.04*371.5) = 71.04 million euros

IV. (8 points)

Income (Y)	Saving (S)	G	I	X	IM
2000	800	200	700	350	150
2400	1000	200	700	350	150

In this open economy the government runs a budget surplus of 100. (HINT: you are given the values of G and S and the government surplus, allowing you to figure out first T and then C).

a) Write down the consumption function (i.e. C = a + b*DI).

Answer: C = 50 + 0.5*DI

b) Calculate aggregate demand (AD) when Y=2000 and when Y=2400.

Answer: AD(Y=2000)=2000, AD(Y=2400)=2200

c) As discussed in section aggregate supply (AS) = Y and we have an equilibrium when AS = AD. In part b) you just calculated AD. Is one of these two income levels an equilibrium level?
Answer: Yes, the first one (AS=AD)

d) The real interest rate *falls* by 1%. This causes a change in the investment level of 100. Recalculate AD when Y=2000 and when Y=2400.
Answer: AD(Y=2000) = 2100, and AD(Y=2400) = 2300

V. (4 points)

	Firm A	Firm B	Firm C	Firm D
Purchases from firm A	0	$500	$600	0
Purchases from firm B	0	0	$400	$1100
Total Sales	$1100	$2000	$1500	$2500
Wages	$150	$200	$150	$400
Value added				

There are 4 firms in this economy (A, B, C, and D) and consumers. Firms can either sell goods to other firms (intermediate sales) or to consumers (final sales). Total sales are just the sum of the intermediate sales and the final sales.

a) Fill out the table by calculating the value added of each of the 4 firms.
Answer: A:1100, B: 1500, C: 500, D: 1400

b) Calculate for each of the 4 firms the amount of final sales.

Final sales of firm A: 1100-500-600=0

Final sales of firm B: 2000-400-1100=500

Final sales of firm C: 1500

Final sales of firm D: 2500

c) Compute GDP in this economy.

Answer: Either sum of value added: 1100+1500+500+1400=4500
or sum of final sales: 0+500+1500+2500=4500

VI. There are 1000 consumers on the miniature island of Gordonia. They are all identical, i.e. they all have the same income, consume in the same way, … The island is so far away that they don't trade at all, nobody wants to deliver the goods to Gordonia. It is a very primitive economy, they don't have a real currency, they use coconuts to trade with each other.

The government of Gordonia always runs a balanced budget. The consumers spend 60% of each coconut that they possess. Consumers pay 5 coconuts of taxes. Each consumer has an income of 15 coconuts. What is the **total amount of investment** that can take place on the island of Gordonia (expressed in units of coconuts)? (6points)

Answer: S+T=I+G, or S=I, DI = 10, S per person = 4, total S = 4000, and thus I = 4000

VII. The following economy has 4 categories (Cars, Housing, Education, and Everything Else). (6 points)

	Price of Cars($)	**Price of Housing($)**	**Price of Education($)**	**Price of Everything Else($)**
October 2005	20,000	18,000	12,125	15,000
November 2005	21,100	18,200	12,225	15,100
December 2005	21,125	18,885	13,010	15,125

Assume that an average annual household budget is $60,000. Every year a household spends an average of $6000 on Cars, $18,000 on Housing, and $12,000 on Education. The rest it spends on the category Everything Else.

Calculate the CPI for all for 3 months, setting the CPI of November 2005 equal to 100. Weigh the four categories according to how much an average household spends on each category relative to its entire household budget.

a) What weights will you use?
Answer: Cars=10%, Housing=18/60=30%, Educ=20%
Ever.Else=40%

b) CPI (Oct.2005) =
…Aver.Pr=15825…CPI=15825/16055*100=98.57……..

CPI (Nov.2005) = 100 …Aver.Pr=16055…….

CPI (Dec.2005) = Aver.Pr=16430 CPI=16430/16055*100=102.34

c) Using the logarithm formula, calculate the annualized inflation rate between:

Oct.2005-Nov.2005: 12*ln(100/98.57)*100=17.28%

Nov.2005-Dec.2005: 12*ln(102.34/100)*100=27.76%

Oct.2005-Dec.2005: 6*ln(102.34/98.57)*100=22.5%

Multiple Choice (17 Points)

1.Net taxes are
a) the difference between taxes paid to the government and government spending
b) taxes paid to government minus transfer payments
c) the difference between the amount of taxes owed and the amount collected
d) none of the above

2.Which of the following pairs would BOTH shift the AD curve in the US to the right?
a) increase in the value of dollar, increase in European GDP
b) decrease in the value of dollar, decrease in European GDP
c) increase in the value of dollar, decrease in European GDP
d) decrease in the value of dollar, increase in European GDP

3.At potential GDP
a) there is unemployment, but there is not full employment
b) there is no unemployment, but there is full employment
c) inflation is always zero
d) none of the above are correct

4. The "Okun's Law" line discussed in lecture describes a _____ relationship between _____ .
a) positively sloped; cyclical unemployment and structural unemployment
b) negatively sloped; potential GDP and cyclical unemployment
c) negatively sloped; cyclical unemployment and GDP gap
d) positively sloped; GDP gap and structural unemployment
e) negatively sloped; GDP gap and structural unemployment

5. Household savings equal
a) G + X + I – T – IM
b) T – G – X + IM + I
c) X – I – IM – G + T
d) IM + I + G – X – T

6. The US nominal interest is 6% and expected US inflation is 3%, and the world real interest rate is 2%. This will lead Americans to
a) lend more to the rest of the world
b) borrow more from the rest of the world
c) buy more American government bonds than foreign government bonds
d) a & c
e) b & c

7. In years with positive growth and deflation real GDP increases _____ nominal GDP.
   a) faster than
   b) slower than
   c) at the same pace as
   d) sometimes faster, sometimes slower, and sometimes at the same pace as

8. If the nominal interest rate is 7.163%, and inflation is 3.036%, the real interest rate is____and the nominal interest paid on a loan of $32654 is _____ .

   a) 10.199%, $2339
   b) 10.199%, $3330
   c) 10.199%, $991
   d) 10.199%, $1348
   e) none of the above

9. Which of the following factors implies that official statistics may understate the unemployment rate?
   a) the problem of determining who is actively looking for a job
   b) the fact that some part-time workers want to work full-time
   c) a & b
   d) none of the above

10. Which of the following people are eligible for unemployment benefits?
   a) a college senior looking for her first job
   b) a housewife looking to find a job again after she's taken care of the children for 3 years
   c) a Boeing mechanic who laid off last month after a 15 year career with Boeing
   d) b & c
   e) none of the above

11. President Bush finally realizes that something must be done about the budget deficit. He gets Congress to reverse some of the previously implemented tax cuts, and to cut down on Social Security spending. At the same time he is also really lucky because productivity growth increases. Which of the following would we expect to happen?

   a) Rising employment, but an unclear effect on the price level
   b) Lower prices, even possible deflation, but unclear effect on unemployment
   c) Decreased unemployment and prices
   d) An unclear effect on inflation, but increased employment

12. What is the approximate level of GDP in the US today?
   a) 800 billion dollars
   b) 1200 billion dollars
   c) 8 trillion dollars
   d) 12 trillion dollars

13. Consider a table with five rows and five columns, thus containing 25 cells. The five rows are the quintiles of the income distribution in 1989, starting with the bottom 20% in the top row and top 20% in the bottom row. The five columns are the same for 1999, ranging from the poorest 20% in the left column to the richest 20% in the right column. The numbers in each cell tell what percent of a given group in 1989 was in a given (same or different) group in 1999. In a society with absolutely no income mobility, the table would:

a) have 20% in each of the 25 cells.
b) have 100% in each of the five diagonal cells with zero in the other 20 cells.
c) have 40% in each of the 25 cells.
d) None of the above

14. A traditional objection to "Robin Hood" economic policies is

a) Rich will work less
b) Poor will work less
c) Middle class will work less
d) a & b
e) a & c

15. A society where all the income is earned by one person has a Gini coefficient of

a) 0.0
b) 0.5
c) 1.0
d) 2.0

16. Britain has a higher rate of return on higher education than the US because

a) The relative demand for college graduates is higher
b) More high-school drop-outs in Britain raise the supply of unskilled labor
c) British students take less time to earn their degree
d) More foreign students are in American colleges, thus driving down the return to college education in the US

17. Regarding the total shortfall of female lifetime earnings relative to male lifetime earnings, which statement is true?

a) Most of the shortfall is accounted for by fewer lifetime working hours
b) Most of the shortfall is accounted for by lower wages per hour
c) Most of the shortfall is explained by the fact that women choose lower-paying occupations like nursing and school teaching
d) None of the above