Exam 1

Name: ______________________  e-mail: _______________________

Section 1: Answer these on this paper, not your bluebook. Each is worth 2.5 pts unless noted otherwise.

1. _____ What is the value of Government Spending on Goods and Services (i.e. not including transfers) as a % of GDP in the U.S.?
   a. 68.5 %  
   b. 46 %  
   c. 28.5%  
   d. 17.5%  
   e. 11 %

2. _____ What is the value of Investment as a % of GDP in the U.S.?
   a. 68.5 %  
   b. 46 %  
   c. 28.5%  
   d. 17.5%  
   e. 11 %

3. _____ What % of the U.S. government’s federal revenue comes from payroll taxes?
   a. 60.5 %  
   b. 46 %  
   c. 34 %  
   d. 22.5 %  
   e. 11 %

4. _____ What % of the U.S. government’s federal spending goes for Social Security?
   a. 38 %  
   b. 23 %  
   c. 14%  
   d. 7 %  
   e. 3 %

5. _____ Which of the following is true regarding changes in the relative importance of trade to the U.S. economy since 1960?
   a. International trade’s (percentage) share of the economy has remained roughly the same.
   b. International trade’s (percentage) share of the economy is 2.5 times as great today as in 1960
   c. International trade’s (percentage) share of the economy is 5 times as great today as in 1960
   d. International trade has grown in relative terms, but not absolute terms.
   e. International trade’s (percentage) share of the economy has shrunk by 30%.

6. _____ What % of the U.S. government’s federal spending goes for paying Net Interest?
   a. 38 %  
   b. 23 %  
   c. 14%  
   d. 7 %  
   e. 3 %

7. _____ In which of the following years did the U.S experience a recession?
   a. 1962 - 63  
   b. 1966 - 67  
   c. 1980 - 82  
   d. 1986 - 87  
   e. 1994 – 95

8. _____ How does income distribution in the U.S. compare to that in most less developed nations?
   a. Income is distributed more equally in the U.S. than in most less developed nations.
   b. Income is distributed about as equally (± 2.5%) in the U.S. as in most less developed nations.
   c. Income is distributed less equally in the U.S. than in most less developed nations.
   d. Income distribution is measured differently in the different countries and therefore cannot be compared.
   e. Theoretically, income distribution is measured the same in the U.S. as in less developed countries. However, different currencies make comparisons impossible.
9. ____ In which of the following periods did the U.S experience the highest inflation?
   a. the mid/late 1960’s  b. the early 1970’s  c. the late 1970’s  d. the mid 1980’s  e. the early 1990’s

10. ____ Which of the following is true of the U.S.’s trade balance?
    a. The U.S. has ran a trade surplus (Exports > Imports) from 1976 to 1997. Since 1997 it has been running a trade deficit.
    b. The U.S. has ran a trade deficit (Exports < Imports) from 1976 to 1997. Since 1997 it has been running a trade surplus.
    c. The U.S. has been running a trade surplus (Exports > Imports) every year since 1976
    d. The U.S. has been running a trade deficit (Exports < Imports) every year since 1976

11. ____ In which of the following years did the U.S experience very large increases in energy prices?
    a. the mid/late 1960’s  b. the early 1970’s  c. the late 1970’s  d. the mid 1980’s  e. the early 1990’s

12. ____ Which of the following graphs best describes U.S. energy prices, in real terms, from 1960 to 2000?
13. Congratulations! You’ve have just gotten a job with the Bedrock Government. Your first task is to construct a CPI for Bedrock. Below, you are given the cost of the market basket in various years. **2,000 BC is the base year.** Fill in the blanks with each year’s CPI and inflation rate. Report your answer to one decimal place.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost of Market Basket</th>
<th>CPI for that Year</th>
<th>Inflation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 BC</td>
<td>$1,617</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000 BC</td>
<td>$1,482</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Calculate Real GDP for each time period. i.e. Fill in the blank cells.

<table>
<thead>
<tr>
<th>Year</th>
<th>Nominal GDP</th>
<th>GDP PI (2006 = base year)</th>
<th>Real(06) GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>$17,258</td>
<td>106.2</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>$18,008</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Dr. Williams is trying to explain the rate of recidivism in drug treatment centers. i.e. She is trying to explain the rate with which a clinic’s patients will return to drugs. She thinks recidivism is explained by the following: 1) the average income of a clinic’s patients, 2) the amount of federal funding per patient a clinic gets, 3) the % of patients who are married, 4) the % of patients with children, 5) the percentage of a clinic’s patients with prior felony records.

She has data from 32 clinics. She does not have data on the individual patients in a clinic, just the averages for the clinic.

How many degrees of freedom does Dr. Williams have in trying to explain recidivism? _________

16. Dr. Nilan is trying explains each year’s %ΔReal GDP during the Great Depression. She thinks %ΔReal GDP was explained by the following: 1) \( \frac{\text{Actual GDP}}{\text{Potential GDP}} \) at the beginning of the year, 2) The %ΔM2 money supply from the prior year, 3) the Discount Rate - inflation, 4) the consumer confidence index, 5) the business confidence index, 6) the average U.S. tariff rate, 7) The real Government deficit, 8) the real value of private debt, 9) real GDP of Western Europe, America’s main trading partner, 10) real energy prices.

She has data for each year from 1929 to 1939, a total of 11 years.

How many degrees of freedom does Dr. Nilan have in trying to explain the Great Depression? _________

---

1 recidivism rate = % of a drug treatment center patients returning to drugs within 5 years (ex. 0.41 = 41%)
17. _____ A recent panel of economists appointed by the Senate Finance Committee estimates that the CPI ____________ inflation by approximately ______ percentage point(s) per year.
   a. overestimates, 1  
   b. overestimates, 3  
   c. underestimates, 1  
   d. underestimates, 3

18. _____ The version of Okun’s law studied in Chapter 2 assumes that with no change in unemployment, real GDP normally grows by ______ % each year. If the unemployment rate rises by 1% (above its normal rate), real GDP will ______ by an additional _____.
   a. 2%, fall, 1%  
   b. 2%, rise, 1%  
   c. 1%, rise, 2%  
   d. 3%, rise, 2%  
   e. 1%, fall, 2%

19. _____ The two most important factors of production, in terms of $s paid for them, are:
   a. labor and energy  
   b. land and capital  
   c. savings and investment  
   d. goods and services

20. _____ If a production function (with only labor and capital as inputs) has constant returns to scale, this means that if: (Notes: $z_1$, $z_2$, $z_3$ each represent a number, $z_1 \neq z_2 \neq z_3$)
   a. capital increases by $z_1$ times, and labor increases by $z_2$ times, output increases by $z_3$ times.
   b. capital increases by $z_1$ times, and labor increases by $z_2$ times, output increases by $z_1 \times z_2$ times.
   c. capital increases by $z_1$ times, and labor increases by $z_2$ times, output increases by $\frac{z_1 \times z_2}{2}$ times.
   d. capital increases by $z_1$ times, and labor increases by $z_2$ times, output increases by $\sqrt{z_1 \times z_2}$ times.
   e. capital and labor both increase by $z_1$ times each, output increases by $z_1$ times.

21. _____ In the long-run (i.e. Classical) model with fixed output, the supply and demand for goods and services is balanced by:
   a. changes in government spending  
   b. changes in government taxes  
   c. changes in interest rates  
   d. changes in the inflation rate  
   e. both a and b

22. _____ National savings refers to:
   a. $Y - C - T$  
   b. $(Y - C - T) + (T - G)$  
   c. $G - T$  
   d. $T - G$  
   e. none of the above

23. _____ Assume consumption is totally unaffected by the real interest rate. Further, assume there is no foreign trade of any kind. If national savings exceeds the demand for borrowing for investment,:
   a. savings will fall  
   b. savings will rise  
   c. the real interest rate will rise  
   d. the real interest rate will rise  
   e. both a and c  
   f. both a and d  
   g. both b and c  
   h. both b and d
Section 2: Answer 2 of the 3 the following Questions (20 points each)

24. a. What is the Cobb-Douglas production function? i.e. Give me its functional form.
   b. What are the factors of production in Cobb-Douglas production functions?
   c. Explain what is meant by constant returns to scale (in particular a production function having constant returns to scale).
   d. Demonstrate that the Cobb-Douglas production function exhibits constant returns to scale. Do this by either of two methods: 1) use numerical examples, or 2) use calculus. In either case, include a good written explanation of what you are doing and how it demonstrates constant returns to scale.
   e. What is Euler’s theorem (as it applies to production functions)? Does the Cobb-Douglas meet the criteria for Euler’s theorem to hold? Explain why or why not.

25. • Solve for the equilibrium condition of the economy the macroeconomy given the information at the bottom of this question.
• Show your work.
• Draw a graph of the market that keeps this economy in equilibrium. Label the important points and intercepts with specific numbers.
• Explain your graph

   Given Information:
   1) The production function is Cobb-Douglas
   2) \( \alpha \), the “weight” for labor, is 0.5
   3) \( C = 1,000 + 0.8 \times \text{(Disposable Income)} \)
   4) \( I = 5,000 - 5,000 \times r \)
   5) \( L = 40,000 \)
   6) \( G = 2,000 \)
   7) \( K = 10,000 \)
   8) \( T = 1,500 \)
   9) there is no foreign sector

26. • Draw a graph indicating equilibrium in financial markets according to what was learned in this chapter. More particularly, assume the following:
   1) \( C = C \left( Y - T \right) \) (C is not a function of \( r \))
   2) \( 0 < \text{MPC} < 1 \)
   3) \( I = I (\bar{r}) \)
   4) \( G = \bar{G} \)
   5) \( T = \bar{T} \)
   7) there is no foreign sector

   Label your curves and outcomes with the subscript 0 (ex. \( W_0 \) and \( I_0 \), \( r_0 \), etc.).
• Explain how your savings function is derived from the above information. Further, tell me what savings is a function of.
• Now assume that government spending (G) decreases. Shift the necessary curves and indicate the new outcomes. Label your curves and outcomes with the subscript 1 (ex. $W_1$, and $I_1$, $r_1$, etc.).

• Assume that government spending returns to its original level and the economy returns to $E_0$, the initial equilibrium. Next assume that Taxes (T) increase. Shift the necessary curves and indicate the new outcomes. Label your curves and outcomes with the subscript 2 (ex. $W_2$, and $I_2$, $r_2$, etc.).

• Assume that taxes return to its original level and the economy returns to $E_0$, the initial equilibrium. Next assume that Income (Y) increases. Shift the necessary curves and indicate the new outcomes. Label your curves and outcomes with the subscript 3 (ex. $W_3$, and $I_3$, $r_3$, etc.).