Exam 1

Code name: ______________________

Part A: (35 points) Each is worth 2.5 points unless noted.

1. _____ Jeremy Bentham argued that society should be judged according to a “hedonistic calculus”. The goal of a society should be to maximize the sum of pleasure its citizens receive. Which view of government (and/or society) comes closest to Bentham’s?
   a. Rawlsian
   b. Pigouvian
   c. Oriental
   d. Organic
   e. Occidental
   f. Nietzscheistic
   g. Mechanistic
   h. Darwinistic

2. _____ What is one of the primary effects of the 10th amendment to the U.S. Constitution?
   a. The provision of “public goods” is exclusively reserved to state governments.
   b. The power and scope of the federal government has been able to expand greatly.
   c. More powers than otherwise has been reserved for state governments.
   d. Individuals can, in effect, veto majority rule if it is found to negatively affect their person or property.
   e. The federal government has explicit authority to conduct income redistribution policies.
   f. Income redistribution policies are explicitly reserved to the state governments.
   g. The provision of “public goods” is exclusively reserved to the federal government.

3. _____ What is one of the primary effects of the “interstate commerce clause” of the U.S. Constitution?
   a. More powers than otherwise has been reserved for state governments.
   b. Individuals can, in effect, veto majority rule if it is found to negatively affect their person or property.
   c. The federal government has explicit authority to conduct income redistribution policies.
   d. Income redistribution policies are explicitly reserved to the state governments.
   e. The provision of “public goods” is exclusively reserved to the federal government.
   f. The provision of “public goods” is exclusively reserved to state governments.
   g. The power and scope of the federal government has been able to expand greatly.

4. _____ What % of federal government revenues come from personal income taxes?
   +/-: 5%: -0, +/-: 10%: -1.25, else: -2.5

5. _____ What % of federal government revenues come from payroll taxes (FICA, i.e. taxes for Social Security and Medicare)?
   +/-: 5%: -0, +/-: 10%: -1.25, else: -2.5

6. _____ Yowza! Bush is planning to greatly increase national defense spending. What % of federal government spending currently goes to national defense?
   +/-: 2%: -0, +/-: 4%: -1.25, else: -2.5

7. _____ What % of all government spending goes towards transfers?
   +/-: 5%: -0, +/-: 10%: -1.25, else: -2.5
8. **Which of the following is true of regarding government’s share of the economy since 1960?**
   a. By all measures, government’s share of the economy has decreased.
   b. By all measures, government’s share of the economy has increased.
   c. All government spending as a % of GDP has decreased. However, government spending on goods and services, as a % off GDP, has increased.
   d. All government spending as a % of GDP has increased. However, government spending on goods and services, as a % off GDP, has decreased.

9. **Assume that Zeus’s MU_{Soda} (marginal utility from soda) = 60 utils.  
   Zeus’s MU_{Pizza} = 20 utils.  
   Hera’s MU_{Soda} = 15 utils.  
   Hera’s MU_{Pizza} = 5 utils.**

   The current situation is:
   a. not Pareto efficient. To achieve Pareto efficiency Zeus should trade soda to Hera in exchange for pizza.
   b. not Pareto efficient. To achieve Pareto efficiency Zeus should trade pizza to Hera in exchange for soda.
   c. not Pareto efficient. To achieve Pareto efficiency Zeus should give both soda & pizza to Hera.
   d. not Pareto efficient. To achieve Pareto efficiency Hera should give both soda & pizza to Zeus.
   e. pareto efficient

10. **Assume that the marginal cost of producing a coffee is $2. The marginal cost of producing a donut is $1 for all producers. MRS^{D/C} for all consumers = \frac{4 \text{ Donuts}}{1 \text{ Coffee}}.**

11. **Which of the following is true?**
   a. The current situation is not Pareto efficient. **Producers** would tend to make more coffee and less donuts. **Consumers** would tend to buy more coffee and less donuts.
   b. The current situation is not Pareto efficient. **Producers** would tend to make more coffee and less donuts. **Consumers** would tend to buy less coffee and more donuts.
   c. The current situation is not Pareto efficient. **Producers** would tend to make less coffee and more donuts. **Consumers** would tend to buy more coffee and less donuts.
   d. The current situation is not Pareto efficient. **Producers** would tend to make less coffee and more donuts. **Consumers** would tend to buy less coffee and more donuts.
   e. The current situation is pareto efficient.

11. (10 pts) Assume the Producers and consumers react as you indicated in # 10 above. What would be happening to the following? Check one cell per row.

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<thead>
<tr>
<th></th>
<th>Increases</th>
<th>No change</th>
<th>Decreases</th>
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<tr>
<td><strong>MC of Donuts</strong></td>
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<td><strong>MC of Coffee</strong></td>
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<td><strong>MRS^{D/C}</strong></td>
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Part B: Essay (35 points) Answer 1 of the following 2 questions on the attached sheets of paper.

B-1. Consider the following 2 good, 2 person, one sushi joint world in which production is fixed. The two people are Wilma and Betty. The two goods are Tea and Sushi. There is a fixed amount of each good. This amount is already on the table. No more is coming. The two individuals have the Tea and Sushi divvied up (i.e. there will be no unconsumed Tea or Sushi), on their placemats and ready to eat. There are no externalities involved in the consumption of either good. Both people act competitively (i.e. there is no market power). Currently, the Tea and Sushi are divvied up such that, if each person eats what’s on her respective placemat, their marginal utilities will as shown below. Their present quantities are also listed.

- Wilma
  - Tea: $Q_{Tea}^{Wilma} = 8$ cups
  - Sushi: $Q_{Sushi}^{Wilma} = 16$ pieces
- Betty
  - Tea: $Q_{Tea}^{Betty} = 12$ cups
  - Sushi: $Q_{Sushi}^{Betty} = 14$ pieces

a) What is each person’s Marginal Rate of Substitution ($MRS_{Tea,Sushi}$)? Make sure you explicitly indicate the units you are using ($\frac{Tea}{Sushi}$ or $\frac{Sushi}{Tea}$).

b) Is the current situation Pareto Efficient? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it. (Note: Consider allocative, i.e. distributive, efficiency, only)

c) Illustrate the current situation with an Edgeworth box. Use as much of one entire page as possible to make your graph. Colors are good too. Label as much as you can, including values. For instance, tell me what the slopes of the curves mean, as well as what they are at each person’s consumption point.

d) Assume there are zero transactions costs to trading. Assume Wilma and Betty each care only about their own utility, not the other person’s. What will Wilma and Betty tend to do? Why? Illustrate this with numbers. i.e. What’s happening to their MU’s, and MRS’s as they trade? Show this move (if there is a move) in your Edgeworth box. If there is no move, briefly explain why.

B-2. Consider how production and incentives to produce affect the 1st and 2nd welfare theorems. In particular:

a) Explain what the 1st Welfare Theorem states. Include any assumptions needed for it to hold.

b) Does the 1st Welfare Theorem hold in a world in which goods have to be produced and are not freely given by nature? Explain why or why not.

c) Explain what the 2nd Welfare Theorem states. Include any assumptions needed for it to hold.

d) Does the 2nd Welfare Theorem hold in a world in which goods have to be produced and are not freely given by nature? Explain why or why not.
Part C: Short Essay (30 points each) Answer 1 of the following 2 questions.

C-1. The U.S., Britain, and Godzilla are poised to invade Iraq! The U.N. has sanctioned the invasion. Military and political analysts have given Saddam Hussein and his inner circle of 8 civilian advisors only a 40% of surviving the war alive and still in power. About the only thing which could stop the invasion is a plan announced by (the country of) Jordan and to which the U.S. and allies have agreed. The plan states that if Iraqi generals 1) assassinate Saddam Hussein, 2) agree to divide Iraq into 3 new countries, and 3) allow inspectors and armed U.N. escorts into (what used to be) Iraq, the invasion won’t occur. Further, the generals will not be prosecuted if they help implement the Jordanian plan.

- Analyze Iraq’s possible reaction. Make sure you look at it based on (at least) two different views of government. It would be wise to use the views of government discussed in this class.

C-2. Sci-Fi nightmare come true! The year is 2023. Global warming from the burning oil wells, pollution, and Godzilla have decimated land based crops. Much of human civilization has collapsed! A few people, however, are barely, just barely, hanging on. They get their food from farm raised fish. Humankind needs to increase the size of the next fish harvest or it will like go extinct.

Researchers have gathered data on the 2 chemicals used by the remaining humans in an attempt to increase yields. Farmers use either agent X or agent Z to promote fish growth. These researches have surveyed farmers all over the world on the amount and type of chemical used and the weight of their fish harvested. Results from the surveys of these 2 chemicals are shown below. The resulting equations, estimated via econometrics, are shown on each graph.

- Discuss the results of the studies. In particular, which chemical should be used for the next harvest? Use a few words/terms from econometrics in your answer.
- What could/should researchers have done differently on this study? Explain.

![Results from Agent X Users](image1.png)

Estimated $W = 4kg + 0.25kg \times X + e$

![Results from Agent Z Users](image2.png)

Estimated $W = 4kg + 0.5kg \times X + e$