Answer the following questions in a large blue book. Don’t be too wordy, of course, but make sure that you clearly answer each and every question. You have until 2:25PM.

1. (15%) Suppose there are only two countries trading in steel, home (the United States) and foreign (East Asia). Assume the countries are similar in size, and the foreign country has a comparative advantage in steel production. Using separate supply and demand diagrams for each country, show the free trade equilibrium relative to the autarky price. Then on these same diagrams, show the effect of a non-prohibitive specific tariff placed on steel imports by the home country. Carefully labeling the areas, explain the resulting changes in consumer surplus, producer surplus, and government revenue in the each country. Does the tariff improve or worsen overall welfare in the home country? In the foreign country? Overall?

2. (15%) Suppose that two similarly-sized countries are engaged in free trade, where the home country exports good X to the foreign country, and imports good Y. Their governments are each considering whether or not to impose tariffs on the other. If neither imposes a tariff, they both neither gain nor lose. If one country imposes a tariff but the other country does not, the tariff-imposing country will gain $2.7 billion in its import sector while the other country will lose $4.7 billion in its export sector. If both countries impose tariffs, then each country will gain $2.7 billion in its import sector while losing $4.7 billion in its export sector.

   a. Show how this problem leads to a Prisoner's Dilemma if both countries try to maximize their net welfare, taking the actions of the other country as independent or given. What is each country’s dominant strategy? What is the Nash equilibrium?

   b. What is the World Trade Organization, how did it evolve, and what are its key principles? How did one of these principles help to change the payoff matrix of the Prisoner's Dilemma in the postwar period? What effect did this have on world trade?

3. (20%) Suppose that the U.S. imports beef from Brazil under free trade, more or less. Assume that in Brazil, the production of beef has a significant negative production externality that falls on only Brazilians.

   a. Assuming that Brazil is a small country in the world beef market, use a supply and demand diagram to show how an appropriate production tax would affect Brazilian welfare for producers, consumers, and overall.

   b. Why might Brazil’s government choose not to levy an appropriate production tax?

   c. Assume Brazil’s government does not impose the tax. Suppose that the U.S. is a large country in the beef market, and environmentalists in the U.S. push for a tariff on Brazilian beef imports equivalent to the tax. How would this affect the welfare of beef producers and consumers in the United States? How would this affect the welfare of beef producers and consumers in Brazil? Including the change in the production externality, how would the U.S. tariff affect overall welfare in the U.S.? In Brazil?

   d. Which would be more efficient, the Brazilian beef tax or the U.S. beef tariff? Why?

   e. Would the WTO rules allow the U.S. to impose the tariff on Brazilian beef? Explain.

   f. Going beyond what you’ve been taught so far, suppose that the external cost does not only affect Brazilians, but the entire world (I’m thinking of rain forest destruction and global warming). Why might this make Brazil less likely to impose the tax than before? Can you suggest a more efficient alternative solution for the U.S. (And other countries) than a tariff on Brazilian beef exports?
4. (15%) What is the Infant Industry argument for protectionism? What are the future benefits, and what are the current costs? What two conditions would make government intervention necessary? For a small country with an infant industry, use a supply and demand diagram to compare the welfare effects of a production subsidy with those from an import tariff. Why might government prefer the less efficient option? Finally, what other effects would the subsidy or tariff have on the infant industry?

5. (15%) Last year, in 2001, the U.S. exported $719 in of goods or merchandise and $279 in services (all amounts are actually in billions). Imports of goods amounted to $1,146, and imports of services amounted to $210. Foreign-owned private assets in the United States increased by $753, with $269 in factor income paid to foreigners (all but $9 of which came from income on foreign-owned assets in the U.S.). U.S.-owned private assets abroad increased by $371, with $284 in factor income received from abroad (all but $2 of which came from U.S.-owned assets abroad). There was also $49 in net payments in unilateral transfers, some from U.S. government grants but mostly from private remittances by U.S. residents). Finally, the U.S. central bank increased its foreign currency reserves by $5, and foreign central banks increased their U.S. Dollar reserve assets by $5.

a. What is the (i) merchandise trade balance, now also called the balance on goods, (ii) the balance on services, (iii) the balance on factor income, and (iv) the balance on the current account?

b. What is (i) the balance on the capital account, otherwise called the non-reserve financial account, and (ii) the statistical discrepancy?

c. If foreign central banks instead had instead significantly reduced their holdings of U.S. dollar reserve assets, would the value of the dollar relative to foreign currencies (i.e., the indirect exchange rate) have risen or fallen?

6. (15%) Assume that the current direct spot rate for the Canadian dollar is 64.4 cents U.S., while the one-year direct forward rate is 63.3 cents.

a. What is the equation for the interest rate parity condition?

b. If the U.S interest rate on one-year T-Bills is 2.1% per year, and both the U.S. and Canada are considered equally safe countries to invest in, what is the equivalent Canadian interest rate?

c. If the dollar direct spot price of the Euro is 97.0 cents, what is the cross-price of the Euro in Canadian Dollars? What forces this to be true?

d. Suppose that U.S. interest rates are suddenly expected to increase one year from now, while Canadian interest rates are expected to remain constant. Use a diagram to predict how this would affect the direct price for the Canadian Dollar in one year. Then use another diagram to predict how this should affect the current direct spot price for the Canadian Dollar.

7. (5%) Assume there are only two countries, home and foreign. Let E be the direct exchange rate for foreign currency (i.e., the home-currency price of one unit of foreign currency). Will the spot price for E rise or fall if: (a) the return to capital is expected to rise at home, (b) the foreign country has higher price inflation, (c) the foreign country has a banking crisis that makes deposits riskier, (d) the home country’s economy grows faster, and consumers thus import more, or (e) the foreign country’s currency is expected to appreciate next year.
**Bonus Question:** Let’s do #1 with numbers:

a. Suppose that in the home country, quantity-demanded \( QD_a = 100 - P_a \), and quantity-supplied \( Qs_a = P_a - 20 \). Solve for the autarky price \( P_a \) and the excess (import) demand function.

b. Suppose that in the foreign country, quantity-demanded \( QD_b = 100 - P_b \), and quantity-supplied \( Qs_b = 2P_b - 20 \). Solve for the autarky price \( P_b \) and the excess (export) supply function.

c. Suppose that import demand equals export supply at the free trade price \( P = P_a = P_b \). Solve for \( P \), and the volume of trade.

d. Suppose that the home country imposes a tariff of \( T=5 \), so that \( P_a = P_b + 5 \). Solve for the new equilibrium prices \( P_a \) and \( P_b \), and the new volume of trade.

e. Comparing your solutions to (c) and (d), calculate the net change in welfare for the home country, the net change in welfare for the foreign country, and the net change in world welfare.