1. (20%) Suppose that in 1983 the average free trade equilibrium price of an automobile was $9,000, with U.S. manufacturers producing 6 million vehicles per year and U.S. consumers purchasing 10 million vehicles. Suppose that the U.S. government, responding to calls for protection against imports, now imposes a $1000 tariff. (This problem is adapted from Robert W. Crandall, 1984, “Import Quotas and the Automobile Industry: The Costs of Protectionism.”)

   a. (10%) Assume initially that the world price is unaffected by the U.S. tariff, and that both U.S. demand and supply are linear. Assume that the tariff results in an increase in the consumer price to $10,000, a decrease in quantity-demanded to 8 million, and an increase in domestic production to 7 million. How much revenue does the tariff earn? Calculate the change in domestic consumer and producer surplus, and calculate the net change in total domestic surplus value. Graph your answers. Assume that this tariff saved approximately 25,000 domestic jobs; how much did consumers pay per job saved per year?

   b. (10%) Suppose, instead, that the U.S. was a large world consumer of autos, and that the $1000 tariff results in an increase in the consumer price to $9,500, a decrease in quantity-demanded to 9 million, and an increase in domestic production to 6.5 million. How much revenue does the tariff earn? Calculate the change in domestic consumer and producer surplus, and calculate the net change in total domestic surplus value. Graph your answers. Adding in foreign excess supply, calculate the change in foreign net surplus value, and the combined change in the total world surplus value.

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 both impose a tariff, they each lose $1 billion. If the home country imposes a tariff but foreign does not, home gains $1 billion (because its domestic Y consumer surplus falls by $5 billion, its domestic Y producer surplus rises by $4 billion, and its government revenue rises by $2 billion) while the foreign country loses $2 billion. Similarly, if the foreign country imposes a tariff while the home country does not, then foreign gains $1 billion while home loses $2 billion.

   a. (8%) Show how this problem leads to a Prisoner's Dilemma if both countries try to maximize their net domestic surplus, taking the actions of the other country as given. What is the Nash equilibrium?

   b. (7%) What was the General Agreement on Tariffs and Trade, and what are its key elements? How did these characteristics help to change the payoff matrix of the Prisoner's Dilemma in the postwar period? What effect did this have on world trade?
3. (10%) What are the monopoly, externality, and infant industry justifications for trade barriers? For each, briefly explain the argument in favor of trade barriers, and then briefly explain the argument against them. In arguing against, can you suggest better alternative solutions?

4. (20%) Assume that the current indirect spot rate for the Japanese Yen is 125- per dollar (i.e., the direct rate of 1- is 0.84), while the one-year indirect forward rate is 122.5-.

   a. (3%) What is the equation for the interest rate parity condition?

   b. (4%) If the U.S interest rate is 5% per year, and both the U.S. and Japan are considered equally safe countries to invest in, what is the Japanese interest rate? (Hint: rewrite your equation from Japan’s point of view, since their direct rate is our indirect rate.)

   c. (4%) If the dollar direct spot price of the Euro is 904, what is the cross-price of the Euro in Yen? What forces this to be true?

   d. (4%) If I buy a forward contract to sell Yen for dollars in one year but don't currently have any, and wait a year to buy them on the spot market, am I speculating or hedging? What if I expected a payment in Yen for the amount of the forward contract next year by a Japanese importer of my goods?

   e. (5%) Suppose that Japanese interest rates are expected to increase next year while U.S. interest rates are expected to remain constant. Use a diagram to predict how this would affect the direct spot price for the Yen next year. Then use another diagram to predict how this should affect the current direct spot price for the Yen.

5. (20%) Last year, in 2000, the U.S. exported $772 in of goods or merchandise and $293 in services (all amounts are in billions). Imports of goods amounted to $1,224, and imports of services amounted to $217. U.S. receipts from factors abroad C mostly interest and profits, but some compensation for labor C totaled $353, while payments to foreigners for their factors here totaled $368. There were also $54 of outflows in unilateral transfers. Foreign-owned assets in the U.S. increased by $1,024 as a result of savings inflows, while U.S. owned assets abroad increased by $581 as a result of savings outflows.

   a. (8%) What is the amount of the: (i) Merchandise Trade Balance, (ii) the Balance on Goods and Services, (iii) the Balance on Current Account, and (iv) the Balance on Capital Account?

   b. (4%) Assume that the Federal Reserve Bank neither bought nor sold any foreign exchange reserves last year, and foreign central banks neither bought or sold U.S. dollar assets. What is the (i) statistical discrepancy and (ii) the balance of payments?

   c. (8%) Assume that the Balance of Payments was $100 billion. (i) If the Federal Reserve Bank was committed to a fixed exchange rate, what would it have to do in this case? (ii) If instead foreign central banks were committed to a fixed exchange rate against the dollar, what would they have to do? (iii) If central banks all did nothing, what would happen to the exchange rate?
6. (15%) Consider a labor-abundant, less-developed country which produces two goods, urban manufacturing and rural agriculture. Manufacturing is capital-intensive, and agriculture is labor-intensive.

a. (5%) Under free trade, what would be the expected patterns of trade? Using an appropriate diagram, explain how the standard model of trade explains the allocation of labor and wage determination in the two sectors. If this country is currently engaged in free trade, how would labor allocation be affected by a switch to a policy of import substitution?

b. (5%) Assume that the marginal product of labor in agriculture is zero, so there is surplus labor, and graph the Lewis model of labor allocation. Why does this model suggest that import substitution might be the best trade policy for economic development?

c. (5%) Assume that there is no surplus labor, but workers in urban areas have significantly more political power, and graph the Harris-Todaro model of labor allocation. Why might import substitution in this case be a bad policy? What other policies might be more likely to lead to economic development?

Bonus: Suppose an isolationist (Buchananite) faction of the Republican Party comes to dominate the Bush Administration in the wake of the 9/11 Crisis. As a result, the President is considering new policies to reduce our dependence on many foreign imports. You are his economic advisor. Explain to him the relative efficiency and effects of import tariffs, import quotas, and subsidies for domestic import-substitutes. Which do you recommend? Finally, explain to him (as tactfully as possible) why he shouldn’t use any of them.