Please be concise and to the point. Print your name on your exam and turn it in with your blue books. You have 65 minutes. The exam has 50 points. Answer Part I and either question 1 or 2 from Part II. Good luck!

**Part I. (30 points)**  Two weeks ago, the *New York Times* ran an article with the headline “6 Months Before Brexit, Many in U.K. Fear ‘It’s Looking Very Grisly’.” As the *Times* article noted:

> “When Theresa May appears on stage at the Conservative Party’s annual meeting this week, it will take all her determination to drown out the ticking of an invisible clock. One hundred and eighty days stand between Britain and an uncontrolled exit from the European Union. Then it will be 179, 178 … After two years of negotiation, Britain has reached a moment of consequence for the process known as Brexit. The insulating layer of time that had protected the country from a potentially failed divorce from the bloc is thinning. Soon, it will be gone, with the threat of major new trade restrictions closing in.”

Theresa May is getting nervous and she wants to know how bad this could get for the UK if there is indeed a “hard Brexit” (i.e., an uncontrolled exit from the European Union). Specifically, as she gears up for the final 6 months of negotiations with the European Union, May is interested in an estimate of what she should be willing to pay on behalf of the UK to avoid being pushed back to autarky (she knows that a hard Brexit is not really the equivalent of autarky, but she wants to be prepared for autarky just in case).

The economists at the UK Department for International Trade have been tasked with coming up with such an estimate, and you have been hired to assist them using the 2 good (x and y) 2 country (UK importing x and EU importing y) Basic Trade Model. They have data on the current UK import penetration ratio (the value of UK imports divided by the value of UK GNP, all measured in units of x at current prices), but that is all the data they have at the moment. They are trying to figure out what additional data they will need in order to provide Theresa May with a meaningful estimate of the compensating variation for the UK in moving from the pre-Brexit status quo to autarky, expressed as a fraction of UK GNP in the pre-Brexit status quo. Two issues have arisen, and they are seeking answers from you. Please advise:

(i) One group of economists within the UK Department for International Trade claims that the only additional information needed is the elasticity of the UK import demand curve, and that with this additional piece of information they can then use the UK import penetration ratio to provide either an upper bound or a lower bound on the desired compensating variation measure, depending on what that elasticity turns out to be. Use the Basic Trade Model diagrams to evaluate the validity of this claim.

(ii) A second group of economists within the UK Department for International Trade claims that, when coming up with bounds on the desired compensating variation measure, in addition to the elasticity of the UK import demand curve it would be helpful to also know the elasticity of the foreign (European Union) export supply curve that the UK faces. Use the Basic Trade Model diagrams to evaluate the validity of this claim.
Part II. Answer either question 1 or question 2 below.

1. (20 points) Consider a small x-importing country in the 2-good (x and y) Basic Trade Model. Suppose that this country wants to achieve a production target for good x, and in particular wants to produce a specific level of x that is higher than the level it would produce under free trade.

Rank the following policy options from best (lowest cost to the economy) to worst (highest cost to the economy): (a) a tariff on imports of good x set at the ad valorem level that achieves this production target; (b) a subsidy to the production of good x set at the ad valorem level that achieves this production target combined with a tax on consumption of good x set at the same ad valorem level as the production subsidy; and (c) a subsidy to the production of good x set at the ad valorem level that achieves this production target combined with a tax on consumption of good x set at the ad valorem level that raises just enough tax revenue to fund the production subsidy (you may assume that the consumption tax is set to be on the “right” side of the Laffer Curve, i.e., it is the lowest consumption tax that generate the desired revenue).

2. (20 points) Using the 2-good 2-country Basic Trade Model, (a) prove algebraically that Walras’ Law continues to hold in the presence of trade imbalances; and (b) show graphically that Walras’ Law continues to hold in the presence of trade imbalances (for this part, you can assume the Ohlin case to simplify your graphs).