# Exercise 5

**Problem 1:** GATT/WTO

a) Consider a tariff game between two large countries, as in the work of Bagwell and Staiger. Let the welfare of each country be given by

$$W_i(t_i, t_{-i}) = 0.125 + 0.25(t_i - t_{-i}) - t_i(t_{-i} + t_i) \tag{1}$$

where $i \in \{home, foreign\}$. Find the optimal tariffs as a best response to the tariff set by the other country. Are tariffs strategic complements or substitutes? Determine the Nash equilibrium in tariffs, as well as the globally optimal tariff regime(s)

b) Continuing from part b), let this be a repeated game, and suppose both governments have the same discount factor. What is the critical discount factor that is required to render the symmetric cooperative outcome self-enforcing under the threat of Nash-reversion?

**Problem 2:** Consider the spatial version of the Dixit-Stiglitz Model as presented in chapters 4 and 5 of Fujita, Krugman, Venables (1999).

a) Derive the equations that characterise the *price index effect* and the *home market effect*. Explain what these effects imply for aglomeration.

b) Derive the eight equations that determine the equilibrium in the two-region version of the model. Explain, using graphs, under which conditions manufacturing industry will be concentrated in one region, and when it will be equally divided across regions.