

## Final Exam

This is a 3 hour exam. There are four equally weighted questions. Please read them carefully and answer **THREE** of them. If you have problems understanding a question please do ask. *Good luck !!!*

**Question 1:** Consider two planets: Mars and Venus. You are given the following information about their labor endowments and their unit labor requirements for the production of food and cars:

	Mars	Venus
labor	$L^M = 120$	$L^V = 90$
food	$a_f^M = 10$	$a_f^V = 3$
cars	$a_c^M = 2$	$a_c^V = 6$

Somewhat surprisingly, both the representative Martian as well as the representative Venusian have the same utility function, namely  $U(Q_f, Q_c) = \min(Q_f, Q_c)$ .

- Depict the PPF for both planets and label the intercepts as well as the slope (include their exact values, pls). Which planet has the comparative advantage in producing food/cars?
- Suppose spacecraft have not yet been invented. What will be the quantities produced/consumed and the utility levels obtained under autarky?
- Now un(wo)manned spacecraft are available to ship goods back and forth between the two planets. Depict the universe's relative supply function (again, pls label and provide numbers). What is the free trade equilibrium relative price? What quantities does each planet produce, how much do they import/export? Who gains from trade?

**Question 2:** Consider the neo-classical 2x2x2 trade model that is due to Heckscher and Ohlin.

- State the four main results of this model.
- Derive the Stolper-Samuelson result graphically as well as analytically and explain the magnification effect in prices.
- Provide a detailed exposition of the Vanek factor content approach, and explain how you would test its implications empirically.

**Question 3:** Trade policy in a perfectly competitive framework.

- a) Show graphically as well as analytically that the optimal tariff for a small country is zero.
- b) The “protection for sale” model predicts that small countries may set positive tariffs. Describe in detail how Grossman and Helpman obtain this result and state the equilibrium tariff equation.
- c) Describe in detail how you would test the tariff equation of the protection for sale model.

**Question 4:** New (new) trade — the monopolistic competition model.

- a) Describe the Dixit-Stiglitz-Krugman monopolistic competition trade model and explain why it is able to account for intra-industry trade whereas the old trade theory was not.
- b) One interesting aspect of markets where firms have market power is the strategic interaction between large firms. What assumption is used in the monopolistic competition model with regards to this interaction? Do firms in this model take into account that their price affects the others’ prices as well as the price index?
- c) Describe in detail how Melitz extends the monopolistic competition trade model to allow for heterogeneous firms, and explain the effects of a decrease in trade costs in his model.