

Exercise 1:

- a) The candidate should recognize that the Ricardo-Viner model can be used to address the question. The candidate should explain using text and graph (the bath tub diagram) that in autarky workers will move between the two industries until the wage paid in the two industries is identical.
About Comparative advantage: the candidate should express that we need to know the factor endowments of the two economies relative to each other in order to say something about CA. Extra points should be given if the candidate recognize that knowledge of the absolute endowments is not necessary; that it is the relative endowments we need to know.
- b) Two explanations for the described trading pattern:
- a. Norway has comparative advantage in fishing due to the fishing industry in Norway being relatively more productive than the fishing industry in the UK
 - b. Norway has a comparative advantage due to differences in relative endowments. Say that both fishing and car production requires workers and capital. Say that fishing is relatively labor intensive as compared to cars production and that the relative endowment of labor to capital is greater in Norway than in the UK
- c) If Norway has a comparative advantage in fishing and is opening up for trade, the factor that the fishing industry is using intensively will experience an increase in returns. The candidate should explain the process that leads to this result. Extra point should be given for graphs and for pointing to the Stolper-Samuelson theorem.
- d) The candidate should explain using text and graphs how the effects (for producers, consumers, and the country as a whole) of introducing a tariff depend on the size of the country. Ideally it should be emphasized that it is not the size as such, but the market size with respect to the relevant good. It should be shown that Norway as big country may gain, while the UK as small country will never gain.

Exercise 2:

- a) Sources of gains from trade with monopolistic competition
- a. Consumers get access to more variety, increased utility and welfare
 - b. Increased competition may lead to reduced markups and prices and increased utility and welfare (not in the Dixit-Stiglitz model)
 - c. With heterogeneous firms, the least productive will be forced out due to increased competition, the most productive will expand, average and aggregate productivity go up and increased welfare

- b) The candidate should refer to the Krugman model and explain the Home market effect: with imperfect competition and trade costs a country will export everything else being equal export goods for which it has a big (bigger) home market.
- c) The candidate should refer to the Melitz model. The candidate should explain that opening up for trade, competition will increase in the local market at the same time as firms get access to export markets. The most productive firms will be able to cover the extra fixed costs related to export and will start to expand. They will expand their production while the least productive firms will either exit or shrink their production and focus on the domestic market.
- d) The candidate should refer to the Melitz model and explain that this assumes a market with heterogeneous firms with different productivity. Opening up to trade in such a setting leads to the exit of the least productive firms. Extra points for graph that illustrates the cutoff points and what firms that exit.

Exercise 3:

- a) See syllabus and lecture notes; the candidate should be able to show the steps
- b) The candidate should be able to describe the optimization problem, solve it and produce the result $p_i = \frac{\sigma}{(\sigma-1)} \theta_i w_i$
- c) The candidate should refer to the Melitz model and emphasize that with heterogeneous firms, only the most productive firms will be able to cover the extra fixed costs necessary to serve the foreign market. Those that are not able to do so, will either exit or just serve the local market.
- d) The candidate should explain that population will affect the number of varieties, price index and welfare, but not necessarily productivity. Productivity depends on the distribution of productivity across firms. The rise in population leads to the entry of more firms; if the entrants productivity differ from the incumbents' there may be a change in productivity.

Exercise 4:

- a) False. The candidate should explain the theory of comparative advantage.
- b) True. The candidate should state that trade costs may influence the gains from trade in such a model, but not the patterns of trade
- c) True.
- d) False. Big countries may gain, explain and use graph to show the optimal tariff argument.
- e) False. Explain the optimal tariff argument, and point to the risk of trade wars.