

Examination: International Trade /

Examiner:

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ORIGINAL

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The following aids may be used: dictionary, calculator

### Examination questions

This examination comprises three questions. The available amount of time is two hours.

#### Question 1:

Suppose that in Germany each producer of helicopters faces the demand curve

$$Q = 50 \left[ 1/n - (P - \bar{P})/1600 \right]$$

with  $Q$  = output of the producer

$P$  = price charged by the producer

$\bar{P}$  = average price charged by the helicopter industry

$n$  = number of producers in the helicopter industry .

The cost function of each producer is

$$C = 20,000 + 100 \cdot Q .$$

It is assumed that all producers are identical and that they behave as if  $n$  and  $\bar{P}$  cannot be affected by their individual market behaviour. Furthermore it is assumed that there are no imports or exports of helicopters.

a) (3 points) What is the marginal cost of producing a helicopter?

b) (12 points) Show that the marginal revenue is

$$MR = -32 \cdot Q + P$$

and that for given  $n$ , the profit maximizing price of each producer is determined by

$$P = 100 + 1600/n .$$

c) (6 points) Show that for given  $n$ , the average cost of each producer is determined by

$$AC = 400 \cdot n + 100 .$$

d) (6 points) In equilibrium, how many producers of helicopters are in the German helicopter industry and how large is each producer's output?

e) (8 points) Suppose that the demand and cost functions of the British, French and Italian helicopter markets are identical to the German one and that these four countries integrate their helicopter markets. In equilibrium, how many producers of helicopters will exist in each country?

f) (5 points) Comment on the welfare effects of integrating the four countries' helicopter markets.

## Question 2:

*Home* is a large oil-exporting country.

- a) (10 points) In a partial equilibrium analysis, graphically derive Home's  $XS$ -curve (which shows Home's desired exports) and Foreign's  $MD$ -curve (which shows Foreign's desired imports). Indicate in your diagram the world's equilibrium oil price  $P_W$  and the volume of trade.
- b) (10 points) Suppose that Home imposes a specific tax  $x$  on its oil exports. Show graphically (in the old or a new diagram) how this will effect the equilibrium oil price in Home  $P_T$  and in Foreign  $P_T^*$ . What happens to the volume of trade?
- c) (10 points) In a suitable diagram, show the tax's welfare effects arising in Home. Does the export tax generate an overall welfare gain or loss?
- d) (3 points) "The tax reduces the price Home's consumers have to pay for their export product. This means a deterioration of Home's terms of trade." Is this a valid statement?
- e) (7 points) "By taxing its oil exports sufficiently high, Home may turn into an oil-importer". In a suitable diagram, demonstrate whether there is some theoretical truth in this argument.

## Question 3: Shorties

- a) (6 points) "From an administrative perspective, a customs union is more appealing than a free trade area. However, it is politically very difficult to establish a customs union." Explain why this is a valid statement.
- b) (8 points) Suppose some country has no absolute advantage in any of the two goods it produces. Nevertheless, the Ricardian model predicts that this country can establish a cost advantage. Using a suitable numerical example, demonstrate how this works.
- c) (4 points) Provide some explanations for the poor empirical performance of the Heckscher-Ohlin theory.
- d) (14 points) Consider some economy which can be characterized by the specific factors model. The economy's three factors of production are unskilled labour (mobile), software engineers (immobile) and mechanical engineers (immobile). Suppose that the economy produces software (using software engineers and unskilled labour) and cars (using mechanical engineers and unskilled labour) which are sold at prices  $P_S$  and  $P_C$ , respectively.  
In a suitable diagram, demonstrate the effect of a 10% increase in the relative price  $P_S/P_C$  on the wage rate of unskilled labour. What can be said about the real wage of unskilled labour?  
In a suitable diagram, show that the mechanical engineers are worse off as a result of the 10% change in  $P_S/P_C$ .
- e) (8 points) In advanced nations, strategic trade policy is sometimes justified by imperfect competition. In a simple numerical example, demonstrate that in this case a subsidy may make a country better off.