This is the final (and the only) examination. It will take 60 minutes.

In order to pass successfully the exam, read the following instructions carefully:

• write legibly, unintelligible handwriting will not be corrected and will receive zero points
• make answers short and to the point – irrelevant material may be penalized
• the exam has 4 pages (including one extra page for notes), make sure you have all pages
• negative points are awarded for wrong answers (only) in part I
• if you have a question, you must ask it publicly and I will answer publicly
• any violation of academic honesty will be punished to the fullest extent possible

I. Multiple choice questions (circle the correct answer) – more than one answer can be correct, points are subtracted for incorrect answers (30 points total, -30 points minimum)

1. (6 points) Iceberg transportation costs (introduces by Samuelson in 1952)
   a. mean that most of the transportation costs are invisible .
   b. imply that only a fraction of goods shipped between locations arrives at destination.
   c. is a way to model transport costs without introducing transport sector.
   d. none of the above is correct

2. (6 points) The term “economies of scale” or “increasing returns to scale”
   a. refers to a situation in which an increase in the level of output produced implies an increase in the average costs per unit of output.
   b. refers to a situation in which an increase in the level of output produced implies a decrease in the average costs per unit of output.
   c. are typical for Ricardian economy.
   d. are typical for Stiglitz-Dixit economy.

3. (6 points) If GL₁ = 0
   a. there is only inter-industry trade, no intra-industry trade.
   b. there is only intra-industry trade, no inter-industry trade.
   c. intra-industry trade is equal to inter-industry trade.
   d. none of the above is correct.

4. (6 points) The Dixit-Stiglitz approach
   a. uses a CES function for the utility derived from the consumption of goods.
   b. allows for a strong competition.
   c. is based on a perfect competition.
   d. none of the above is correct

5. (6 points) Leontief in his 1956 study
   a. showed that US export production is more capital intensive than US import
   b. showed that US export production is less capital intensive than US import
   c. supported prediction of neoclassical trade model
   d. was too restrictive regarding the types of goods and factors of production
II. True, False or Uncertain? Explain in space provided! (30 points total, 0 points minimum)

1. **(6 points)** Differences in comparative costs are crucial for determining international trade flows and gains from trade. Absolute cost advantages are crucial for determining a country’s per capita welfare level.

2. **(6 points)** The market structure underlying internal scale economies must necessarily be one of imperfect competition – the decrease in average costs comes about through an output increase at the level of the industry as a whole.

3. **(6 points)** Without the assumption of identical homothetic utility function a country might import the good which intensively uses the relatively abundant factor of production.

4. **(6 points)** As opposed to Krugman model, the utility in Ethier’s interpretation increases due to the increase of consumption of final good which is made possible by more efficient production process.

5. **(6 points)** Regardless of the industrial structure the quota-tariff equivalence holds in general.
III. Write a detailed answer (40 points total, 0 points minimum)

1. (40 points) In Ricardian framework assume that the EU fully specializes in the production of chemicals and Kenya fully specializes in the production of food. Exchange rate is 1. Wage rate in Kenya is taken as numéraire. Assume perfectly competitive economies with CRS. Productivity table is given below:

<table>
<thead>
<tr>
<th>Labor required to produce one unit of output</th>
<th>Food</th>
<th>Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Kenya</td>
<td>4</td>
<td>24</td>
</tr>
</tbody>
</table>

a) What is the price of food?

b) Let \( w_{EU} \) be the EU wage. What is the price of chemicals in terms of \( w_{EU} \)?

c) Note, that the EU can, in principle, also produce food. What would be the price of the food produced in the EU in terms of \( w_{EU} \), if it were to do so?

d) Since the EU does not produce food the price from c) must be higher than the actual food price – put down this inequality.

e) Note also, that Kenya can, in principle, produce chemicals. What would be the price of the chemicals produced in Kenya in terms of Kenya wage (numéraire), if it were to do so?

f) Since Kenya does not produce chemicals the price from e) must be higher than the actual price of chemicals – put down this inequality.

e) Using derived information above prove that the EU wage is at least twice as high as the Kenyan wage and at most three times as high.

f) What additional piece of information is needed in order to calculate the wage rate exactly?