

**Midterm examination****Scores add up to 50**Your name: \_\_\_\_\_ SID: \_\_\_\_\_ Your  
TA: \_\_\_\_\_**Answer 7 of the questions 1 to 8 (3 points each). Do not answer 8 questions. Only 7 will be read.****True/False questions 1 to 4 Give a concise but precise explanation**

1. The Ricardian model explains why a small country that completely specializes in one export-good (e.g. a 'banana-republic') need not gain from free trade. \_\_\_\_\_

2. In the specific factors model, the welfare effect of trade on the mobile factor is ambiguous because it depends on the sector in which the factor is employed. \_\_\_\_\_

3. Consider a small country Sadoulania with a Heckscher-Ohlin economy that produces Q1 and Q2 with factors of production capital and labor, earning  $r$  and  $w$  respectively. Assume that the production of Q1 is relatively capital-intensive and that Sadoulania is so small that it cannot affect the world relative price  $p_1/p_2$ . Then under free trade, an increase in the capital endowment of Sadoulania will reduce its relative factor price  $r/w$ . \_\_\_\_\_

4. Countries A and B have two factors of production, capital and labor, with which they produce two goods, X and Y. Technology is the same in the two countries. X is capital intensive; A is capital abundant. An increase in A's labor supply induces an increase in A's terms of trade. \_\_\_\_\_

4. Countries A and B have two factors of production, capital and labor, with which they produce two goods, X and Y. Technology is the same in the two countries. X is capital intensive; A is capital abundant. An increase in A's labor supply induces an increase in B's terms of trade. \_\_\_\_\_

**Short-answer questions 5 to 8.**

5. What determines the pattern of trade in the specific factors model.

6. What is the Stolper-Samuelson effect?

7. According to the author of "War of the Worlds: The Missing Link" in *The Economist* of October 1994,

- What is the short term benefit of the growth in the developing countries on the developed countries?
- What are the long term benefits of the growth in the developing countries on the developed countries?

8. State one major point of contention between Public Citizen and the U.S. Trade Representative about the employment effect of NAFTA.

**Answers the 2 following graphical questions 9 and 10 (3 points each).**

9. Consider a specific factors model where land (T) is a specific factor for food production, capital (K) is a specific factor for manufacturing and labor (L) is the mobile factor. For constant product prices, show graphically the effect of an increase in capital on the labor allocation and wage. Explain intuitively what happens to the wage.

10. Consider a Heckscher-Ohlin model with two goods, computers and bread, and two factors, high-skilled labor (H) and low-skilled labor (L), that earn a factor reward of  $w_H$  and  $w_L$  respectively. Assume that computer production is relatively intensive in high-skilled labor. Suppose that technological progress in the computer industry enables computer manufacturers to produce the same amount of output with only half the factors of production. Show graphically the effect of this productivity increase on the relative factor price  $w_H / w_L$ . Give an intuitive explanation.

**Solve problem 11 (12 points)**

**11. Trade in a Ricardian World**

Suppose that Mexico can produce 1 ton of corn or 1/2 ton of vegetables with the labor of one worker, while the United States would produce 3 tons of corn or 1 ton of vegetables with one worker.

11.2. What would be the relative price of vegetables in terms of corn ( $p_V/p_C$ ) in each of the countries if they would remain in autarky?

11.3. Opening for trade. Assume that the United States have 2 million agricultural workers for the production of corn and vegetables and Mexico has 4 million agricultural workers. Construct the world relative supply curve  $Q_V/Q_C$  as a function of  $p_V/p_C$ .

11.4. Now suppose that the world relative demand for vegetables is:

$$C_V/C_C = 2 - (2/3) p_V/p_C.$$

What is the equilibrium relative price of vegetables on the international market? What does each country produce?

11.5. What is the wage in Mexico relative to the wage in the United States?

Wage in Mexico is  $w_M = 1/2 p_V$ . Wage in U.S. is  $w_{US} = 3 p_C$ . Hence the ratio of wages is:

$$w_M / w_{US} = (1/2 p_V) / (3 p_C) = 1/6 p_V/p_C = 2.5/6 \quad .4$$

**11. Trade in a Ricardian World**

Suppose that Mexico can produce 1.5 ton of corn or 1 ton of vegetables with the labor of one worker, while the United States would produce 4 tons of corn or 1.5 ton of vegetables with one worker.

11.1. What are the labor requirements in corn and vegetable production in each of the two countries? What are the opportunity costs of corn in terms of vegetables in the two countries? Indicate the commodity in which each country has comparative advantage.

11.2. What would be the relative price of vegetables in terms of corn ( $p_V/p_C$ ) in each of the countries if they would remain in autarky?

11.3. Opening for trade. Assume that the United States have 2 million agricultural workers for the production of corn and vegetables and Mexico has 4 million agricultural workers. Construct the world relative supply curve:  $Q_V/Q_C$  as a function of  $p_V/p_C$ .

11.4. Now suppose that the world relative demand for vegetables is:

$$C_V/C_C = 1.5 - 0.5 p_V/p_C.$$

What is the equilibrium relative price of wheat on the international market? What does each country produce?

11.5. What is the wage in Mexico relative to the wage in the United States?

Wage in Mexico is  $w_M = 1 p_V$ . Wage in U.S. is  $w_{US} = 4 p_C$ . Hence the ratio of wages is:

**Answer question 12 (11 points):**

**12. The effect of a drought in Asia on the United States**

A free-trade equilibrium exists in a two-region, two-product world. The United States exports food and import clothing. A long term drought now occurs in East Asia which negatively affects the production of food in the region.

- 12.1. At given international price, what is the effect in East Asia of the long term drought on the production of food and clothing? On the consumption of food and clothing? On the desired level of imports and of exports?
- 12.2. Illustrate this result on a graph showing the impact of the drought on the East Asian offer curve.
- 12.3. Assume that the United States and East Asia are both large enough to influence international prices, show on a graph how East Asia's drought affects the equilibrium international price ratio.
- 12.4. Show on a graph and explain the effect of this change in the terms of trade *in the United States* on
- quantities of food and clothing produced
  - quantities of food and clothing consumed
  - U.S. welfare