**Question-1.** Consider two countries, Home and Foreign, each having 120 units of labor,

the only input. In Home, 3 units of labor are required to produce one unit of clothing and

2 units of labor are required to produce one unit of food **(In other words, one worker**

**can produce 1/3 units of clothing or 1/2 units of food per unit of time)**. In Foreign, 1

unit of labor is required to produce one unit of clothing and 2 units of labor are required

for one unit of food **(In other words, one worker can produce 1 unit of clothing or 1/2**

**units of food per unit of time)**. Consumers in both countries have Leontief preferences,

consuming clothing and food in the fixed proportion of one-to-one. (Therefore, we have

U(*QC*, *QF*) = min{*QC*, *QF*}.)

Note-1: The indifference curves associated with Leontief preferences are right angles,

there are no substitution effects between the goods.

**Note-2: Throughout this class, we always assume that trade is balanced, namely**

**total exports = total imports given the world prices. This is still true in this question.**

(a) Draw the **production possibilities frontiers** for **each country**. (Put clothing on the

vertical axis and food on the horizontal axis.) Draw indifference curves and indicate

autarky equilibrium for each country (namely, autarky price, autarky consumption and

autarky production).

(b) Which country has an absolute advantage in which good(s)? Which country has a

comparative advantage in which good?

(c) Assume that trade is possible between countries. Draw the world relative supply curve

for food and the world relative demand for food. (Put *PF* /*PC* on the vertical axis and

*QF* / *QC* on the horizontal axis.) Find the free trade equilibrium relative price of food and

equilibrium relative quantity of food.

(d) In trade equilibrium, which country will produce which good(s) and how many units?

What is the trade pattern (what good(s) home and foreign countries export and import?

Do both countries benefit from trade?

2

**Question-2.** Consider first the Specific factors model with two countries (Home and

Foreign) and two goods (cell phones and textile). At first, there are three factors of

production in each country: Labor (denoted by *L*), capital specific to cell phone

production (denoted by *KC*) and capital specific to textile production (denoted by *KT*).

Assume that:

• In each industry, increases in the amount of labor used are subject to diminishing

returns, that is, the marginal product of labor declines as the amount of labor used

in the industry increases.

• As you increase the amount of capital, marginal product of labor increases,

whereas marginal product of capital decreases and vice versa.

• Home country has a comparative advantage in cell phone production and Foreign

country has a comparative advantage in textile production. As a result,

(*PC* /*PT*)H < (*PC* /*PT*)F (Relative price of cell phones is lower in Home than in

Foreign).

(a) Consider free trade between Home and Foreign. What is the trade pattern? Who will

support and who will oppose to free trade in each country?

(b) Suppose that some of the workers from Home country migrate to Foreign country.

Which factors benefit and which factors lose in each country? What happens to the

production of each good in each country? Use figures to support your answer.

Now, assume that we are in the long run. Home is capital abundant whereas Foreign is

Labor abundant. Assume also that under autarky we still have (*PC* /*PT*)H < (*PC* /*PT*)F. (Of

course, now the relevant framework is Heckscher-Ohlin model, and there is only one type

of capital that can be used in the production of each good). Moreover, assume that there

is some degree of substitutability between capital and labor. One example of this type of

production function is Cobb-Douglas. This assumption means that any change in the

wage/rental ratio implies a change in the labor/capital ratio.

(c) Given the information above, which good is capital intensive and which good is labor

intensive?

(d) How would your answer to part (a) change?

(e) How would your answer to part (b) change?