

SYE

**Exam 2: Version A
Fall 2016**

Do not open this exam until instructed to do so.

Key

- You have 75 minutes to complete this exam
- You may use a calculator; you may **not** use any other device (cell phone, etc.)
- You may consult one page of notes (both sides); you may not use books, notebooks, etc.
- Show your work

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, nor tolerate those who do.

Signature

Printed Name

For each question below, write the letter of the most correct answer to the left of the question.

1. (3 pts.) An explanation for anti-trade sentiment is that

- B
- A. economists cannot persuade the general public that free trade is beneficial.
 - B. the losses from opening to trade are concentrated, where as the gains from trade are diffuse.
 - C. there is systematic political corruption.
 - D. economists do not understand how the real world works.

2. (3 pts.) The linear demand curve for the monopolistic competition model implies that if a firms price is _____ the industry average, its quantity sold will be _____ the industry average.

- B
- A. below; below
 - B. below; above
 - C. above; above
 - D. the same as; above

3. (3 pts.) Chile is blessed with rich copper deposits. The cost of producing copper (relative to the cost of manufactures) is therefore very low. From this information we know that

- D
- A. Chile has a comparative advantage in copper.
 - B. Chile should export both manufactures and copper.
 - C. Chile should import copper and export manufactures.
 - D. Depending upon the world relative price of copper, Chile may or may not have a comparative advantage in copper.

4. (3 pts.) In a small open economy, if exports equal 20 billion, imports equal 30 billion, and domestic national saving equals 25 billion, then investment equals

- B
- A. 10 billion
 - B. 35 billion
 - C. 25 billion
 - D. -10 billion

5. (3 pts.) In a small open economy, if the world interest rate is lower than the interest rate if the economy were closed, then the economy has

- D
- A. positive capital outflows.
 - B. a trade surplus.
 - C. balanced trade.
 - D. a trade deficit.

6. (3 pts.) In the model of monopolistic competition, if firms differ in productivity, then **closing** to trade will cause _____ firms to _____ the industry.
- B
- A. more efficient; exit
 - B. less efficient; enter
 - C. less efficient; exit
 - D. more efficient; enter
7. (3 pts.) The adoption of an investment tax credit in a small open economy is likely to lead to:
- C
- A. a decrease in investment and an increase in net exports.
 - B. a increase in investment and a increase in net exports.
 - C. a increase in investment and a decrease in net exports.
 - D. an increase in both investment and saving.
8. (3 pts.) The gains from trade in the Ricardian model arise from
- A
- A. differences in productivity
 - B. differences in country size and increasing returns to scale technologies
 - C. differences in preferences/tastes
 - D. differences in product variety
9. (3 pts.) In a small open economy, if exports equal 5 billion and import equal 7 billion, then there is a trade _____ and _____ net capital outflow.
- B
- A. deficit; positive
 - B. deficit; negative
 - C. surplus; negative
 - D. surplus; positive
10. (3 pts.) If one country's wage level is very low relative to the other's
- D
- A. the low wage country has a comparative advantage as it is more competitive with lower costs.
 - B. the low wage country has an absolute advantage as it is more competitive with lower costs.
 - C. the high wage country has a comparative advantage.
 - D. the low wage country has an absolute disadvantage relative to the high wage country.

Key

**Exam 2: Version B
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- D
1. (3 pts.) If one country's wage level is very low relative to the other's
- A. the high wage country has a comparative advantage.
 - B. the low wage country has a comparative advantage as it is more competitive with lower costs.
 - C. the low wage country has an absolute advantage as it is more competitive with lower costs.
 - D. the low wage country has an absolute disadvantage relative to the high wage country.
- C
2. (3 pts.) In a small open economy, if exports equal 5 billion and imports equal 7 billion, then there is a trade _____ and _____ net capital outflow.
- A. surplus; negative
 - B. surplus; positive
 - C. deficit; negative
 - D. deficit; positive
- C
3. (3 pts.) The adoption of an investment tax credit in a small open economy is likely to lead to:
- A. an increase in both investment and saving.
 - B. a increase in investment and a increase in net exports.
 - C. a increase in investment and a decrease in net exports.
 - D. a decrease in investment and an increase in net exports.
- A
4. (3 pts.) In a small open economy, if the world interest rate is lower than the interest rate if the economy were closed, then the economy has
- A. a trade deficit.
 - B. a trade surplus.
 - C. positive capital outflows.
 - D. balanced trade.
- C
5. (3 pts.) In the model of monopolistic competition, if firms differ in productivity, then **closing** to trade will cause _____ firms to _____ the industry.
- A. more efficient; exit
 - B. less efficient; exit
 - C. less efficient; enter
 - D. more efficient; enter

6. (3 pts.) In a small open economy, if exports equal 20 billion, imports equal 30 billion, and domestic national saving equals 25 billion, then investment equals

A. -10 billion
B. 10 billion
C. 25 billion
D. 35 billion

D

7. (3 pts.) The linear demand curve for the monopolistic competition model implies that if a firm's price is _____ the industry average, its quantity sold will be _____ the industry average.

A. the same as; above
B. below; above
C. above; above
D. below; below

B

8. (3 pts.) An explanation for anti-trade sentiment is that

A. economists do not understand how the real world works.
B. there is systematic political corruption.
C. economists cannot persuade the general public that free trade is beneficial.
D. the losses from opening to trade are concentrated, whereas the gains from trade are diffuse.

D

9. (3 pts.) The gains from trade in the Ricardian model arise from

A. differences in product variety
B. differences in preferences/tastes
C. differences in productivity
D. differences in country size and increasing returns to scale technologies

C

10. (3 pts.) Chile is blessed with rich copper deposits. The cost of producing copper (relative to the cost of manufactures) is therefore very low. From this information we know that

A. Depending upon the world relative price of copper, Chile may or may not have a comparative advantage in copper.
B. Chile has a comparative advantage in copper.
C. Chile should import copper and export manufactures.
D. Chile should export both manufactures and copper.

A

11. (35 pts.) **Comparative Advantage and NAFTA.** As an aid to Senator Kirsten Gillibrand (D, NY) in the US Congress you are tasked to reevaluate the benefits from trade between the United States and Canada. A summer intern compiled the following data describing productivity per labor hour in Canada and the United States.

	Cars/hr	Tons of Wheat/hr	Total Labor Hours
Canada	12	6	200
USA	24	18	200

- a. (7 pts.) If countries specialize according to their comparative advantage, which country imports cars and which country imports wheat? Please carefully explain how you came to that conclusion.

Lets compute opportunity cost for cars, then go from there...

~~CANADA~~, $1 \text{ car} = 12 \cdot \frac{1}{12}$
 $\frac{1}{2} \text{ wheat} = 6 \cdot \frac{1}{12}$
 Labor required

To produce 1 car, $\frac{1}{2}$ wheat

USA, $1 \text{ car} = 24 \cdot \frac{1}{24}$
 $\frac{3}{4} = 18 \cdot \frac{1}{24}$
 Labor required

To produce 1 car, give up $\frac{3}{4}$ wheat

This tells me Canada has the lowest O.C. in ~~the~~ car production, it gives up the least amount of wheat.

Then Ricardo tells us, countries should specialize in the low O.C. good, thus Canada produces cars. This then implies US produces wheat (note this can be verified).

- b. (7 pts.) At what set of prices will **both** countries be willing to trade according to their comparative advantage?

Lets start with Canada, and compute autarky relative price of cars...

$$\frac{P_C}{P_W} = \frac{MPL_W}{MPL_C} = \frac{6}{12} = \frac{1}{2}$$

Which means in autarky, if it sells on car it gets $\frac{1}{2}$ wheat. Well to specialize according to C.A., it must get more wheat in return for the cars it produces, so...

$$\frac{P_C}{P_W} > \frac{1}{2}$$

or canada must get more than $\frac{1}{2}$ wheat in return for a car...

US Autarky relative price is...

$$\frac{P_C}{P_W} = \frac{MPL_W}{MPL_C} = \frac{18}{24} = \frac{3}{4}$$

Which means if ~~it~~ it buys a car it gives up $\frac{3}{4}$ wheat. Well to specialize in wheat,

it must get a better deal than
at home, so...

$$\frac{P_C^*}{P_W^*} < \frac{3}{4}$$

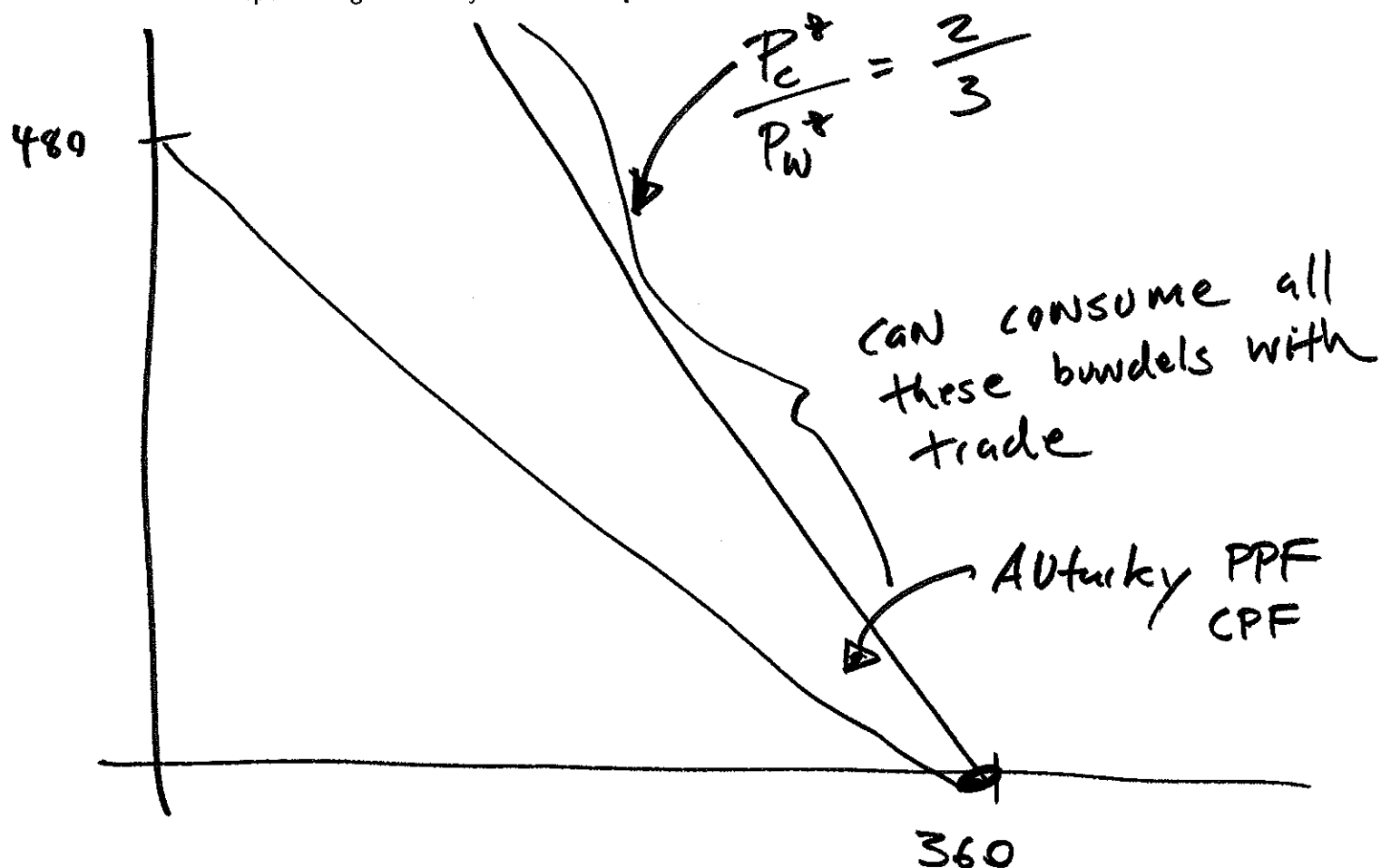
or US must be able to
buy a car for less than
 $\frac{3}{4}$ of a wheat !!!

Thus...

$$\frac{P_C^*}{P_W^*} \in \left(\frac{1}{2}, \frac{3}{4} \right)$$

For Both countries to trade according
to their comparative advantage.

- c. (7 pts.) Pick a price in the set at which each country is willing to trade at, show that US **gains** (i.e. either in real wages, consumption opportunities, etc) from opening up to trade by specializing in the way described in part a.



B.C. its consumption possibility lies above its production possibility, The US gains from trade....

- d. (7 pts.) Suppose that because of "Global Warming", Canada's productivity in wheat increases from 6 tons of wheat per hour to 8 tons of wheat per hour. Does this change your analysis? How does it affect the gains from trade that the US will realize? If yes, why? Please carefully explain.

Yes, in the sense that the set of prices it will trade at shrinks....

$$\text{Canada } \frac{P_C}{P_W} = \frac{8}{12} = \frac{2}{3}$$

Thus trade will now only take place in the set $\frac{P_C}{P_W} \in \left(\frac{2}{3}, \frac{3}{4}\right)$

What this implies is that Global Warming is reducing the differences, hence the gains from trade that were possible (e.g. before the US may have traded at a price between $\frac{1}{2}$, $\frac{2}{3}$ ~ ~~and~~ and gained a lot) but now as the U.S.'s C.A. shrinks, there is smaller scope for gains. In other words, as we become more similar, there are less gains!!

- e. (7 pts.) If you are a young auto worker in the United States who recently inherited a wheat farm from your Grandparents, would you support free trade with Canada? Please explain why or why not?

Yes, I would. The key here is that while I may loose my ^{auto} job to Canada, the FARM I just inherited is now far more valuable in that I can produce for the US and Canada. So it turns out that my life circumstances happened to allow me to ~~gain benefit~~ NOT loose out from trade.

12. (35 pts.) **Trade Dispute.** You are a research associate covering the gizmo industry for Morgan Stanley. After the 2016 election, the US becomes engaged with China in a trade dispute. Upset with behavior of China, the Trump administration is threatening to close the US gizmo market to Chinese firms. You are asked to write a research report on the implications of this scenario.

Some information about the gizmo industry in the US and China:

- Firms in both countries share the same technological characteristics. Consultants from Bain report that the fixed cost associated with producing a gizmo are \$5,000, the variable costs associated with producing a gizmo are \$10. The demand elasticity parameter "b" was estimated to be 1/50.
 - Your analyst reports industry characteristics of the US and China market: Currently there are 10 firms in the combined market. Three of these firms are located in US. The other seven firms are from China.
 - Total gizmo demand (and units sold) in the combined market is 10,000 units. Out of the total, 2,500 units were sold in US and 7,500 units were sold in China.
- a. (7 pts.) In a preliminary draft of the report, your research analysts writes, "our team at Morgan Stanley expects, in long-run, that the US market (when closed to foreign competition) to be entirely comprised of the current three firms located in US" Is this correct? Why or why not?

Lets see

$$n^* = \left(\frac{2,500}{(1/50) \cdot 5000} \right)^{\frac{1}{2}} = \underline{\underline{5}}$$

My research anaylsts is wrong,

There will be 5 firms, not 3

- b. (7 pts.) Building on your answer to (a), compute for your research analyst: (i) the price and (ii) market share (units sold per firm) of each firm in the US market when it closes to foreign competition **in the long-run**.

The price

$$P = c + \frac{1}{h \cdot b}$$

$$= 10 + \frac{1}{5 \cdot \left(\frac{1}{50}\right)} = \underline{\underline{20}}$$

Then Market Share is

$$\frac{S}{n} = \frac{2,500}{5} = \underline{\underline{500}}$$

Each Firm
Sells 500 units

- c. (7 pts.) A colleague argues that closing the US market to foreign competition is good for the firms currently operating in US because it will lead to higher profits. Is your colleague correct? Please carefully explain why or why not with particular attention to short-run and long-run distinctions.

In the short-run, yes there will be higher profits per firm. The way to see this is

$$P = 10 + \frac{1}{\left(\frac{1}{50}\right) \cdot 3} = 26.6\bar{6}$$

$$AC = 10 + \frac{5,000}{2,500} = 12$$

$$MC + \frac{F}{Q}$$

So $P > AC \Rightarrow$ Firms are making positive Economic Profits.

Long-Run: No. Firms will enter the US market to capture these profits, AC \uparrow as Firms lose market share, $P \downarrow$ as competition erodes markups $\Rightarrow P = AC$ in Long-Run and profits are eroded.

- d. (7 pts.) A colleague suggests that closing the US market to foreign competition will "create more jobs" for Americans. To evaluate this claim, assume that to produce one gizmo it takes one worker. Please carefully explain why or why not closing to China creates more jobs in the gizmo industry.

No.

Open to Trade : ~~10,000 units~~ ~~10 Firms~~

$$\frac{10,000 \text{ units}}{10 \text{ Firms}} = 1,000 \text{ units per Firm.}$$

There are 3 Firms in the US, \Rightarrow

3,000 units produced in US. \Rightarrow 3,000

Jobs.

Closed to Trade ... simple ...

2,500 units produces/sold \Rightarrow

2,500 jobs.

Thus being open to trade created more jobs !!!

- e. (7 pts.) Over coffee, a colleague suggests that the this policy will not hurt the American consumer that much. Specifically, he argues the following: "because Chinese and US gizmo varieties are essentially identical, there is no loss to consumers from not having access to Chinese varieties."

Within the context of our class, discuss (i) how this claim may be correct and (ii) how it may not give a complete picture of the losses to closing to China.

(i) How it may be correct, yes if the products are very close ~~in variety~~ substitutes then the intuition should be that the gains from variety will be small, why having two of the same choices is the same as one . . .

(ii) But this is only part of the story, More variety (while similar) leads to more competition \Rightarrow lower prices which is a good thing in and of itself.
~~Also these will~~

Extra Space

Clearly label the question number, and leave a reference to this page near the question.