FOREIGN DIRECT INVESTMENT

1. A US firm building a new production facility in China is called
   a) merger & acquisition
   b) brownfield FDI
   c) greenfield FDI
   d) joint venture
   e) licensing

2. When only parts of the production processes are transferred to the
   affiliate location in China, it is called
   a) horizontal FDI
   b) vertical FDI
   c) export platform FDI
   d) proximity FDI
   e) tariff-jumping FDI

3. Vertical FDI is driven *mainly* by a desire to locate production
   a) close to large customer bases
   b) to minimize production costs
   c) in as few concentrated locations as possible
   d) where wages are the lowest
   e) in host countries similar to the source country

4. Horizontal FDI is driven *mainly* by a desire to locate production
   a) close to large customer bases
   b) to minimize production costs
   c) in as few concentrated locations as possible
   d) where wages are the lowest
   e) in host countries similar to the source country
5. If a foreign company invests in at least _____ of the stock in a subsidiary, the two firms are typically classified as a multinational corporation.
   a) 10%
   b) 25%
   c) 50%
   d) 75%
   e) 100%

6. Most foreign direct investment occurs from ______ source countries into ______ host countries.
   a) developed, developed
   b) developed, developing
   c) developing, developed
   d) developing, developing
   e) no clear pattern

7. The amount of foreign direct investment flowing into developing and transition countries was what fraction of the total level worldwide in 2009?
   a) 10%
   b) 25%
   c) 50%
   d) 75%
   e) 100%

8. Which type of foreign direct investment has tended to be the most stable over time?
   a) merger & acquisitions
   b) brownfield FDI
   c) greenfield FDI
   d) joint venture
   e) licensing
TRADE POLICIES

9-12 Suppose the United States relaxes its binding quota on imports of sugar from allowing 3 million tons to allowing 4 million tons of sugar to be imported.

9. The quantity demanded of sugar and consumer surplus in the United States
   a) rises due to the US price of sugar rising
   b) rises due to the US price of sugar falling
   c) remains the same
   d) falls due to the US price of sugar rising
   e) falls due to the US price of sugar falling

10. The quantity supplied of sugar and producer surplus in the United States
    a) rises due to the US price of sugar rising
    b) rises due to the US price of sugar falling
    c) remains the same
    d) falls due to the US price of sugar rising
    e) falls due to the US price of sugar falling

11. Relaxing the US quota increases United States welfare due to:
    a) less consumption distortion
    b) less production distortion
    c) less quota rents transferred to foreign sugar producers
    d) a, b and c
    e) a and b

12. Relaxing the US quota affects foreign welfare by:
    a) less foreign consumption distortion
    b) less foreign production distortion
    c) less quota rents transferred to foreign sugar producers
    d) a, b and c
    e) a and b
13-16 Suppose China removes an export subsidy on toys. China is large enough to affect the world prices for toys.

13. Removing the Chinese export subsidy causes the price of toys in China to
   a) rise by the full amount of the subsidy
   b) rise by less than the full amount of the subsidy
   c) fall by the full amount of the subsidy
   d) fall by less than the full amount of the subsidy
   e) remain unchanged

14. Removing the Chinese export subsidy causes the price of toys in the rest of the world to
   a) rise by the full amount of the subsidy
   b) rise by less than the full amount of the subsidy
   c) fall by the full amount of the subsidy
   d) fall by less than the full amount of the subsidy
   e) remain unchanged

15. Removing the Chinese export subsidy increases Chinese welfare due to eliminating the
   a) consumption distortion
   b) production distortion
   c) terms of trade loss
   d) a, b and c
   e) a and b

16. Removing the Chinese export subsidy increases world welfare due to eliminating the
   a) consumption distortion
   b) production distortion
   c) terms of trade loss
   d) a, b and c
   e) a and b
TRADE POLICY PROBLEMS

In the United States (US), inverse demand is \( P = 98 - 2Q_D \), while inverse supply is \( P = 58 + 2Q_S \). In the rest of the world (ROW), inverse demand is \( P^* = 84 - 2Q_D^* \), while inverse supply is \( P^* = 32 + 2Q_S^* \).

1. Derive the US autarky price and quantity.

Derive the US import demand (including slope-intercept form).

Derive the ROW autarky price and quantity.

Derive the ROW export supply (including slope-intercept form).
2. Derive the free trade price and US imports under free trade.

Derive US quantity demanded and quantity supplied under free trade.

3. Derive the US tariff-ridden import demand for a specific tariff $t = 10$ (including slope-intercept form).

Derive the ROW price, the US price, and US imports with the tariff.

Derive US quantity demanded and quantity supplied with the tariff.

How large of a tariff would the United States need to impose to prohibit all imports?
4. Derive the change in consumer surplus, producer surplus, and government revenue in the United States due to the tariff (starting with the general equations and being sure to indicate the areas corresponding to each on the US graph).

5. Define and derive the US consumption distortion and production distortion.

Define and derive the US efficiency loss and terms of trade gain.

6. Derive the change in welfare in the United States due to the tariff. Confirm that the net welfare calculation yields the same answer.

Is the United States better or worse off with the tariff and why?
DRAW WORLD MARKET GRAPH HERE: US IMPORT DEMAND, ROW EXPORT SUPPLY, US TARIFF-RIDDEN IMPORT DEMAND

DRAW US MARKET GRAPH HERE: US DEMAND, US SUPPLY
Indicate free trade price, US quantity demanded and quantity supplied under free trade, US tariff-ridden price, US quantity demanded and quantity supplied with the tariff, and ROW tariff-ridden price. Label areas corresponding to change in consumer surplus, change in producer surplus, change in government revenue, production distortion, consumption distortion, efficiency loss, and terms of trade gain.

On my honor as an Aggie, I have neither given nor received unauthorized aid on this exam.

Signature __________________________
MULTIPLE CHOICE
1c A firm building a new production facility abroad is called greenfield FDI.
2b When only parts of the production processes are transferred to the affiliate location in China, it is called vertical FDI.
3b Vertical FDI is driven mainly by a desire to locate production to minimize production costs.
4a Horizontal FDI is driven mainly by a desire to locate production close to large customer bases.
5a If a foreign company invests in at least 10% of the stock in a subsidiary, the two firms are typically classified as a multinational corporation.
6a Most foreign direct investment occurs from developed source countries into developed host countries.
7c The amount of foreign direct investment flowing into developing and transition countries was 50% of the total level worldwide in 2009.
8c Greenfield FDI has tended to be the most stable.
9b The quantity demanded of sugar and consumer surplus in the United States rises due to the US price of sugar falling.
10e The quantity supplied of sugar and producer surplus in the United States falls due to the US price of sugar falling.
11d United States welfare increases due to less consumption and production distortions, and less quota rents transferred to foreign sugar producers.
12d Less consumption and production distortions, and less quota rents transferred to foreign sugar producers all affect foreign welfare.
13d The price of toys in China will fall by less than the full amount of the subsidy.
14b The price of toys in the rest of the world will rise by less than the full amount of the subsidy.
15d Chinese welfare increases due to eliminating the consumption and production distortions, and eliminating the terms of trade loss.
16e World welfare increases due to eliminating the consumption and production distortions.
TRADE POLICY PROBLEMS

1. Derive US autarky price and quantity.
   \[ 98 - 2Q^A = 58 + 2Q^A, \quad 4Q^A = 40, \quad Q^A = 10 \]
   \[ P^A = 98 - 2Q^A = 98 - 20 = 78 \]

   Derive the US import demand (including slope-intercept form).
   \[ P = 98 - 2Q_D, \quad Q_D = 49 - \frac{1}{2}P \]
   \[ P = 58 + 2Q_S, \quad Q_S = -29 + \frac{1}{2}P \]
   \[ M = Q_D - Q_S = 49 - \frac{1}{2}P - \left( -29 + \frac{1}{2}P \right) \]
   \[ M = 78 - P, \quad P = 78 - Q_M \]

   Derive the ROW autarky price and quantity.
   \[ 84 - 2Q^{A*} = 32 + 2Q^{A*}, \quad 4Q^{A*} = 52, \quad Q^{A*} = 13 \]
   \[ P^{A*} = 84 - 2Q^{A*} = 84 - 26 = 58 \]

   Derive the ROW export supply (including slope-intercept form).
   \[ P^* = 32 + 2Q_S^*, \quad Q_S^* = -16 + \frac{1}{2}P^* \]
   \[ P^* = 84 - 2Q_D^*, \quad Q_D^* = 42 - \frac{1}{2}P^* \]
   \[ X^* = Q_S^* - Q_D^* = -16 + \frac{1}{2}P^* - \left( 42 - \frac{1}{2}P^* \right) \]
   \[ X^* = -58 + P^*, \quad P^* = 58 + Q_X^* \]
2. Derive the free trade price and US imports under free trade.
   \[ M = X^*, \quad 78 - P = -58 + P^*, \quad 136 = 2P, \quad P = P^* = 68 \]
   \[ M = 78 - P = 78 - 68 = 10 \]

   Derive US quantity demanded and quantity supplied under free trade.
   \[ P = 98 - 2Q_D, \quad 68 = 98 - 2Q_D, \quad D^1 = Q_D = \frac{30}{2} = 15 \]
   \[ P = 58 + 2Q_S, \quad 68 = 58 + 2Q_S, \quad S^1 = Q_S = \frac{10}{2} = 5 \]

3. Derive the US tariff-ridden import demand for a specific tariff \( t = 10 \)
   (including slope-intercept form).
   \[ M_T = 78 - P_T = 78 - (P_T^* + 10), \quad M_T = 68 - P_T^*, \quad P_T^* = 68 - Q_{M_T} \]

   Derive the ROW price, the US price, and US imports with the tariff.
   \[ M_T = X^*, \quad 68 - P_T^* = -58 + P_T^*, \quad 126 = 2P_T^*, \quad P_T^* = 63 \]
   \[ P_T = P_T^* + t = 63 + 10 = 73 \]
   \[ M_T = 68 - P_T^* = 68 - 63 = 5 \]

   Derive US quantity demanded and quantity supplied with the tariff.
   \[ P_T = 48 - 2Q_D, \quad 73 = 98 - 2Q_D, \quad D^2 = Q_D^T = \frac{25}{2} = 12.5 \]
   \[ P_T = 8 + 2Q_S, \quad 73 = 58 + 2Q_S, \quad S^2 = Q_S^T = \frac{15}{2} = 7.5 \]

   How large of a tariff would the United States need to impose to prohibit all imports?
   \[ t' = P^A - P^{A*} = 78 - 58 = 20 \]
4. Derive the change in consumer surplus, producer surplus, and government revenue in the United States due to the tariff.

\[
\Delta CS = -abcd = -(P_T - P) \left( \frac{D^1 + D^2}{2} \right) = -(73 - 68) \left( \frac{15 + 12.5}{2} \right) = -68.75
\]

\[
\Delta PS = a = (P_T - P) \left( \frac{S^1 + S^2}{2} \right) = (73 - 68) \left( \frac{5 + 7.5}{2} \right) = 31.25
\]

\[
\Delta GR = ce = tM_T = 10(5) = 50
\]

5. Define and derive the US consumption distortion and production distortion.

Consumption distortion is loss due to too little consumption.

\[
d = \Delta P \left( \frac{\Delta D}{2} \right) = (73 - 68) \left( \frac{15 - 12.5}{2} \right) = 6.25
\]

Production distortion is loss due to too much production.

\[
b = \Delta P \left( \frac{\Delta S}{2} \right) = (73 - 68) \left( \frac{7.5 - 5}{2} \right) = 6.25
\]

Define and derive the US efficiency loss and terms of trade gain.

Efficiency loss is size of total distortion, consumption plus production.

\[
b + d = 6.25 + 6.25 = 12.5
\]

Terms of trade gain is degree that buy imports cheaper.

\[
e = (P - P^*)M_T = (68 - 63)(5) = 25
\]

6. Derive the change in welfare in the United States due to the tariff. Confirm that the net welfare calculation yields the same answer.

\[
\Delta W = \Delta CS + \Delta PS + \Delta GR = -68.75 + 31.25 + 50 = 12.5
\]

\[
e-(b+d) = 25 - 12.5 = 12.5
\]

Is the United States better or worse off due to the tariff and why?

Better. The terms of trade gain outweighs the efficiency loss for large country adopting a small tariff starting from free trade.

US MARKET GRAPH: US DEMAND, US SUPPLY
Free trade price 68, US quantity demanded 15 and quantity supplied 5 under free trade, US tariff-ridden price 73, US quantity demanded 12.5 and quantity supplied 7.5 with the tariff, and ROW tariff-ridden price 63.