FOREIGN DIRECT INVESTMENT

1. A US firm purchasing 20% of a Brazilian firm is called
   a) greenfield FDI
   b) brownfield FDI
   c) a merger or acquisition
   d) b) or c)
   e) a) or c)

2. A Canadian firm building a new production plant in Mexico would be called
   a) greenfield FDI
   b) brownfield FDI
   c) a merger or acquisition
   d) b) or c)
   e) a) or c)

3. A French firm wanting to locate production close to the large market in China is most likely to choose
   a) horizontal FDI
   b) vertical FDI
   c) diagonal FDI
   d) circular FDI
   e) export platform FDI

4. A German firm wanting to shift production abroad to minimize production costs is most likely to choose
   a) horizontal FDI
   b) vertical FDI
   c) diagonal FDI
   d) circular FDI
   e) export platform FDI
5. Which country has the largest outflows of FDI?
   a) the United States
   b) the United Kingdom
   c) Germany
   d) Japan
   e) France

6. Foreign outsourcing is
   a) the transfer of operations to foreign contractors
   b) an example of internalization
   c) an example of foreign direct investment
   d) currently banned in the United States
   e) the substitution of immigration for foreign direct investment

7. In 2002, what fraction US manufacturing firms reported any sales abroad?
   a) 9%
   b) 18%
   c) 27%
   d) 35%
   e) 42%

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 reduces (tightens) its binding quota on imports of sugar from allowing 3 million tons to allowing 2 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. Reducing the US quota on sugar affects US welfare through
    a) larger consumption distortion
    b) larger production distortion
    c) quota rents transferred to foreign sugar producers
    d) a, b and c
    e) a and b

12. Reducing the US quota on sugar causes US welfare to
    a) rise
    b) fall
    c) stay the same
    d) rise or stay the same
    e) fall or stay the same
13-16 Suppose Bangladesh introduces an export subsidy on toys. Bangladesh is too small to have any measurable impact on the world price for toys.

13. The export subsidy causes the price of toys in Bangladesh 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. The 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. Introducing the export subsidy affects Bangladeshi welfare through
   a) consumption distortions
   b) production distortions
   c) terms of trade losses
   d) a, b and c
   e) a and b

16. Introducing the export subsidy on toys causes Bangladeshi welfare to
   a) rise
   b) fall
   c) stay the same
   d) rise or stay the same
   e) fall or stay the same
TRADE POLICY PROBLEMS

In the United States (US), inverse demand is \( P = 106 - 2Q_D \), while inverse supply is \( P = 42 + 2Q_S \). In the rest of the world (ROW), inverse demand is \( P^* = 50 - 2Q_D^* \), while inverse supply is \( P^* = 2 + 2Q_S^* \).

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 \( t = 12 \) (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

1d A US firm purchasing 20% of a Brazilian firm is called brownfield FDI or a merger or acquisition.
2a A Canadian firm building a new production plant in Mexico would be called greenfield FDI.
3a A French firm wanting to locate production close to the large market in China is most likely to choose horizontal FDI.
4b A German firm wanting to shift production abroad to minimize production costs is most likely to choose vertical FDI.

5a The United States has the largest outflows of FDI.
6a Foreign outsourcing is the transfer of operations to foreign contractors.
7b In 2002, 18% of US manufacturing firms reported any sales abroad.
8c Greenfield FDI has tended to be the most stable over time.

9d The quantity demanded of sugar and consumer surplus in the United States falls due to the US price of sugar rising.
10a The quantity supplied of sugar and producer surplus in the United States rises due to the US price of sugar rising.
11d Reducing the US quota on sugar affects US welfare through a larger consumption distortion, a larger production distortion, and the quota rents transferred to foreign sugar producers.
12b Reducing the US quota on sugar causes US welfare to fall.

13a The export subsidy causes the price of toys in Bangladesh to rise by the full amount of the subsidy.
14e The export subsidy causes the price of toys in the rest of the world to remain unchanged.
15d Introducing the export subsidy affects Bangladeshi welfare through consumption distortions, production distortions, and terms of trade losses.
16b Introducing the export subsidy on toys causes Bangladeshi welfare to fall.
TRADE POLICY PROBLEMS

In the United States (US), inverse demand is $P = 106 - 2Q_D$, while inverse supply is $P = 42 + 2Q_S^*$. In the rest of the world (ROW), inverse demand is $P^* = 50 - 2Q_D^*$, while inverse supply is $P^* = 2 + 2Q_S^*$.

1. Derive US autarky price and quantity.
   
   \[ 106 - 2Q_A^* = 42 + 2Q_A^* \]
   \[ 4Q_A^* = 64, \quad Q_A^* = 16 \]
   \[ P_A^* = 98 - 2Q_A^* = 106 - 32 = 74 \]

   Derive the US import demand (including slope-intercept form).
   
   \[ P = 106 - 2Q_D^* \]
   \[ Q_D^* = 53 - \frac{1}{2}P \]

   \[ P = 42 + 2Q_S^* \]
   \[ Q_S^* = -21 + \frac{1}{2}P \]

   \[ M = Q_D^* - Q_S^* = 53 - \frac{1}{2}P - \left(-21 + \frac{1}{2}P\right) \]
   \[ M = 74 - P, \quad P = 74 - Q_M \]

   Derive the ROW autarky price and quantity.
   
   \[ 50 - 2Q_A^* = 2 + 2Q_A^*, \quad 4Q_A^* = 48, \quad Q_A^* = 12 \]
   \[ P_A^* = 50 - 2Q_A^* = 50 - 24 = 26 \]

   Derive the ROW export supply (including slope-intercept form).
   
   \[ P^* = 2 + 2Q_S^* \]
   \[ Q_S^* = -1 + \frac{1}{2}P^* \]

   \[ P^* = 50 - 2Q_D^* \]
   \[ Q_D^* = 25 - \frac{1}{2}P^* \]

   \[ X^* = Q_S^* - Q_D^* = -1 + \frac{1}{2}P^* - \left(25 - \frac{1}{2}P^*\right) \]
   \[ X^* = -26 + P^*, \quad P^* = 26 + Q_X^* \]
2. Derive the free trade price and US imports under free trade.
\[ M = X^*, \quad 74 - P = -26 + P^*, \quad 100 = 2P, \quad P = P^* = 50 \]
\[ M = 74 - P = 74 - 50 = 24 \]

Derive US quantity demanded and quantity supplied under free trade.
\[ P = 106 - 2Q_D, \quad 50 = 106 - 2Q_D, \quad D^1 = Q_D = \frac{56}{2} = 28 \]
\[ P = 42 + 2Q_S, \quad 50 = 42 + 2Q_S, \quad S^1 = Q_S = \frac{8}{2} = 4 \]

3. Derive the US tariff-ridden import demand for a specific tariff \( t = 12 \) (including slope-intercept form).
\[ M_T = 74 - P_T = 74 - (P_T^* + 12), \quad M_T = 62 - P_T^*, \quad P_T^* = 62 - Q_{M_T} \]

Derive the ROW price, the US price, and US imports with the tariff.
\[ M_T = X^*, \quad 62 - P_T^* = -26 + P_T^*, \quad 88 = 2P_T^*, \quad P_T^* = 44 \]
\[ P_T = P_T^* + t = 44 + 12 = 56 \]
\[ M_T = 62 - P_T^* = 62 - 44 = 18 \]

Derive US quantity demanded and quantity supplied with the tariff.
\[ P^T = 106 - 2Q_D^T, \quad 56 = 106 - 2Q_D^T, \quad D^2 = Q_D^T = \frac{50}{2} = 25 \]
\[ P^T = 42 + 2Q_S^T, \quad 56 = 42 + 2Q_S^T, \quad S^2 = Q_S^T = \frac{14}{2} = 7 \]

How large of a tariff would the United States need to impose to prohibit all imports?
\[ t' = P^A - P^A^* = 74 - 26 = 48 \]
4. Derive the change in consumer surplus, producer surplus, and government revenue in the United States due to the tariff.

\[ \Delta CS = -abcd = -(P_T - P) \left( \frac{D^1 + D^2}{2} \right) = -(56 - 50) \left( \frac{28 + 25}{2} \right) = -159 \]

\[ \Delta PS = a = (P_T - P) \left( \frac{S^1 + S^2}{2} \right) = (56 - 50) \left( \frac{4 + 7}{2} \right) = 33 \]

\[ \Delta GR = ce = tM_T = 12(18) = 216 \]

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

*Consumption distortion is loss due to too little consumption.*

\[ d = \Delta P \left( \frac{AD}{2} \right) = (56 - 50) \left( \frac{28 - 25}{2} \right) = 9 \]

*Production distortion is loss due to too much production.*

\[ b = \Delta P \left( \frac{AS}{2} \right) = (56 - 50) \left( \frac{7 - 4}{2} \right) = 9 \]

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

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

\[ b + d = 9 + 9 = 18 \]

*Terms of trade gain is degree that buy imports cheaper.*

\[ e = (P - P^*) M_T = (50 - 44)(18) = 108 \]

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

\[ \Delta W = \Delta CS + \Delta PS + \Delta GR = -159 + 33 + 216 = 90 \]

\[ e-(b+d) = 108 - 18 = 90 \]

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 50, US quantity demanded 28 and quantity supplied 4 under free trade, US tariff-ridden price 56, US quantity demanded 25 and quantity supplied 7 with the tariff, and ROW tariff-ridden price 44.