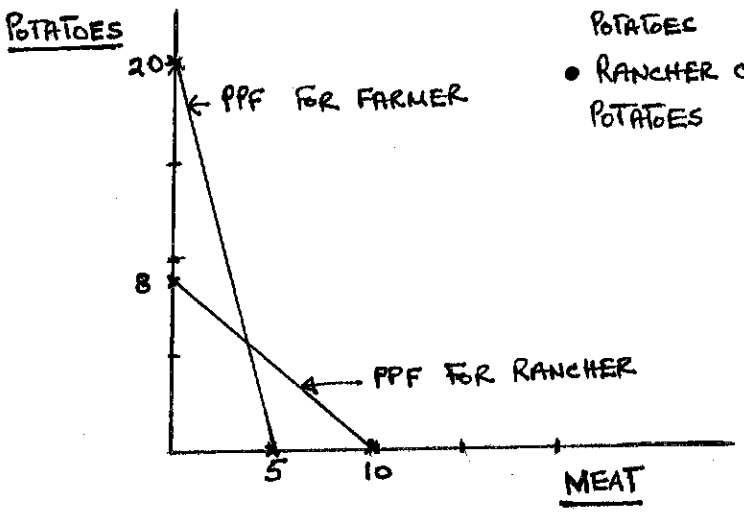
## SECTION B

1. The labor hours that a farmer and a rancher need to make 1 kilogram of meat and 1 kilogram of potatoes are as shown in the table below. **Both the farmer and the rancher each have a total of 40 hours.**

| | Labor hours needed to make 1 kilogram of meat | Labor hours needed to make 1 kilogram of potatoes |
|---|---|---|
| Farmer | 8 [5 kg] | 2 [20 kg] |
| Rancher | 4 [10 kg] | 5 [8 kg] |

a) On the same diagram sketch the production possibilities frontiers for the farmer and the rancher [3 marks]

- FARMER CAN PRODUCE MAX 5 KG OF MEAT OR 20 KG OF POTATOES
- RANCHER CAN PRODUCE MAX. 10 KG OF MEAT OR 8 KG OF POTATOES




b) Calculate the opportunity cost of 1 kilogram of meat and 1 kilogram of potatoes for the farmer [1 mark].

- OPPORTUNITY COST OF 1 KG OF MEAT = $\frac{20}{5}$ = 4 KG OF POTATOES
- OPPORTUNITY COST OF 1 KG OF POTATOES = $\frac{5}{20}$ = 0.25 KG OF MEAT

c) Calculate the opportunity cost of 1 kilogram of meat and 1 kilogram of potatoes for the rancher [1 mark].

- OPPORTUNITY COST OF 1 KG OF MEAT = $\frac{8}{10}$ KG OF POTATOES = 0.8 POTATOES
- OPPORTUNITY COST OF 1 KG OF POTATOES = $\frac{10}{8}$ KG OF POTATOES = 1.25 KG OF MEAT

d) Who has absolute advantage in meat production? Who has absolute advantage in potato production? [2 marks].

- THE RANCHER HAS ABSOLUTE ADVANTAGE IN MEAT PRODUCTION – BECAUSE HE USES LESS AMOUNT OF LABOUR TO PRODUCE MEAT
- THE FARMER HAS ABSOLUTE ADVANTAGE IN POTATO PRODUCTION – BECAUSE HE USES LESS LABOUR TO PRODUCE POTATOES.

e) Who has comparative advantage in meat production? Who has comparative advantage in potato [2 marks].

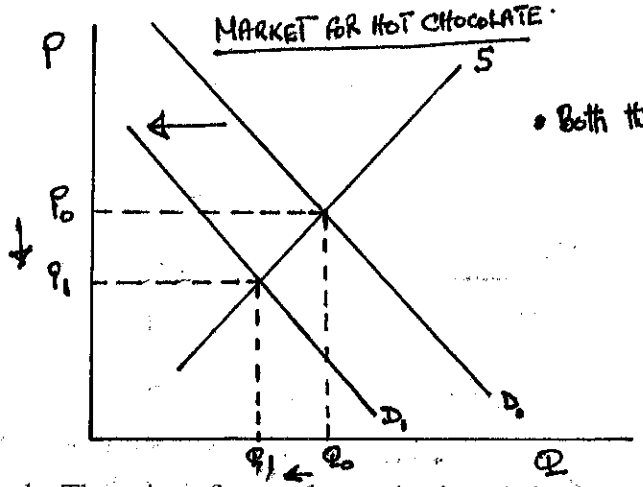
- THE RANCHER HAS COMPARATIVE ADVANTAGE IN MEAT PRODUCTION – HE HAS A LOWER OPPORTUNITY COST IN MEAT PRODUCTION.
- THE FARMER HAS COMPARATIVE ADVANTAGE IN POTATO PRODUCTION – HE HAS A LOWER OPPORTUNITY COST IN POTATO PRODUCTION.

f) Explain briefly how the farmer and rancher could both benefit? [1 mark].

FARMER SHOULD SPECIALIZE IN POTATO PRODUCTION AND THE RANCHER SHOULD SPECIALIZE IN MEAT PRODUCTION. THEY SHOULD THEN TRADE WITH EACH OTHER.

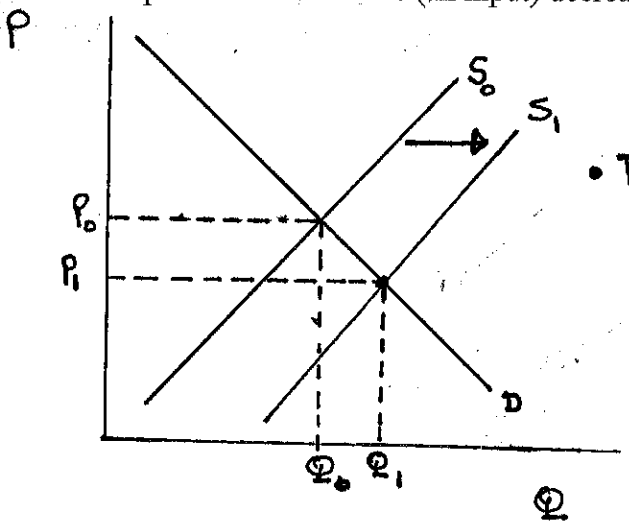
2. Consider the market for hot chocolate. Graphically illustrate the impact each of the following would have on demand or supply. Also show how equilibrium price and quantity have changed.

a. The price of tea, a substitute for hot chocolate, falls [2 marks].



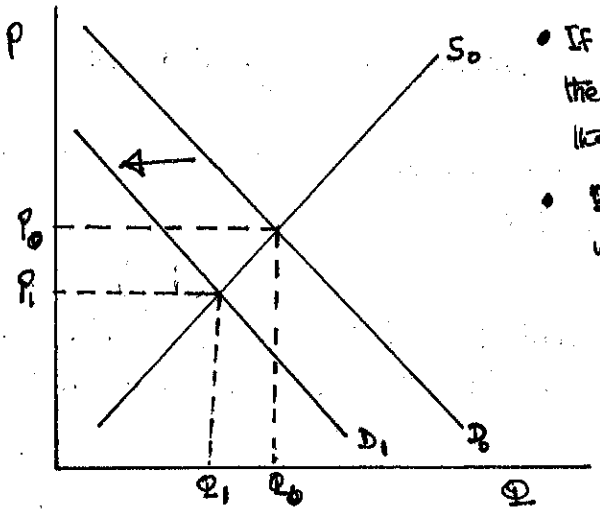

- Both the Price and equilibrium quantity will fall.

b. The price of cocoa beans (an input) decreases [2 marks].



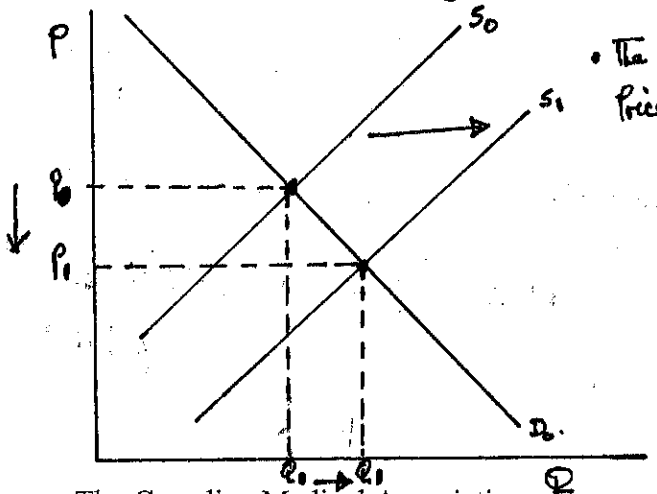

- The Price will fall; the quantity will increase.

c. The price of milk rises [2 marks].



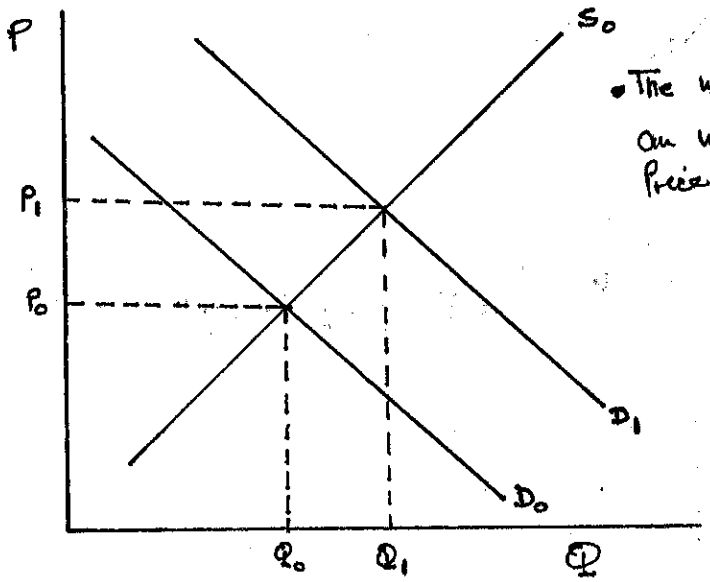

- If milk and hot chocolate are complements then the increase in the price of milk will cause the demand for hot chocolate to fall.
- Both the price and the equilibrium quantity will fall.

d. A better method of harvesting cocoa beans is introduced [2 marks].




- The supply curve shifts to the right and the price falls and the equilibrium quantity rises.

e. The Canadian Medical Association announces that hot chocolate cures acne [2 marks].




- The increase in demand will lead to an increase in both the equilibrium price and equilibrium quantity.

3. Market demand is given as $Q^D = 300 - 6P$. Market supply is given as $Q^S = 4P$. [illegible]

a) Calculate the equilibrium price and quantity [2 marks].

At equilibrium: $Q_d = Q_s$

$300 - 6P = 4P$

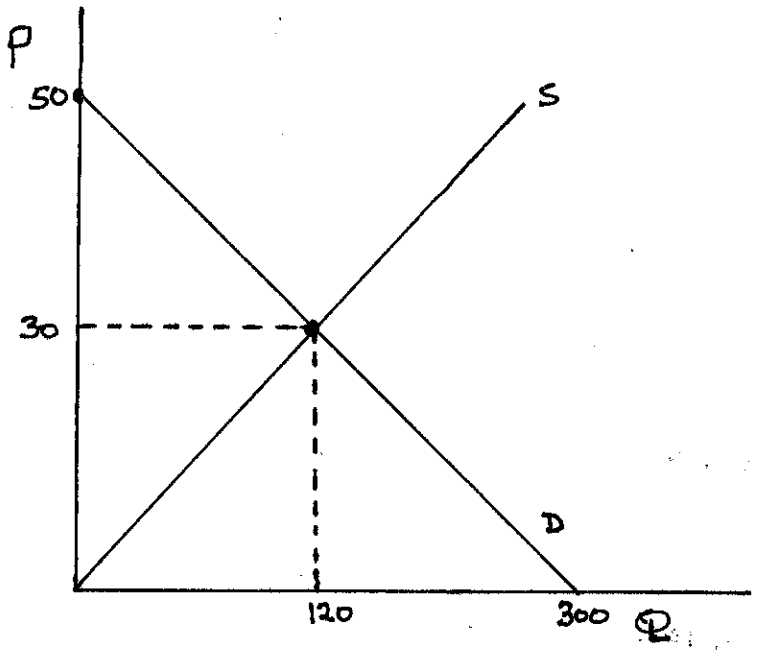
$10P = 300 \Rightarrow P = \frac{300}{10} = 30$.

Using $P = \$30$ in either the supply or demand equations gives:

$Q = 4 \times 30 = 120$

$\therefore$ **$P = 30$; $Q = 120$**

b) Plot the above demand and supply curves and label your diagram fully [5 marks].




c) Calculate the consumer surplus [1.5 marks].

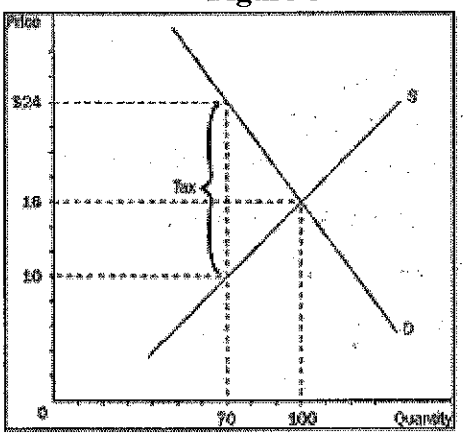
$CS = \frac{1}{2} \times 20 \times 120 = \$1200$

d) Calculate the producer surplus [1.5 marks].

$PS = \frac{1}{2} \times 30 \times 120 = \$1800$

4. Refer to Figure 8 to answer the questions that follow.

**Figure 8**




a) What is the price that buyers will pay after the tax? [1 mark].

$24

b) What is the price sellers receive after the tax? [1 mark].

$10

c) What is the per-unit burden of the tax on buyers? [1 mark]

$24 - $16 = $8

d) What is the per-unit burden of the tax on the sellers? [1 mark]

$16 - $10 = $6

e) What is the amount of tax revenue received by the government? [1.5 marks].

Tax Revenue generated = $14 x 70 = $980

* f) What is the amount of deadweight loss as a result of the tax? [1.5 marks].

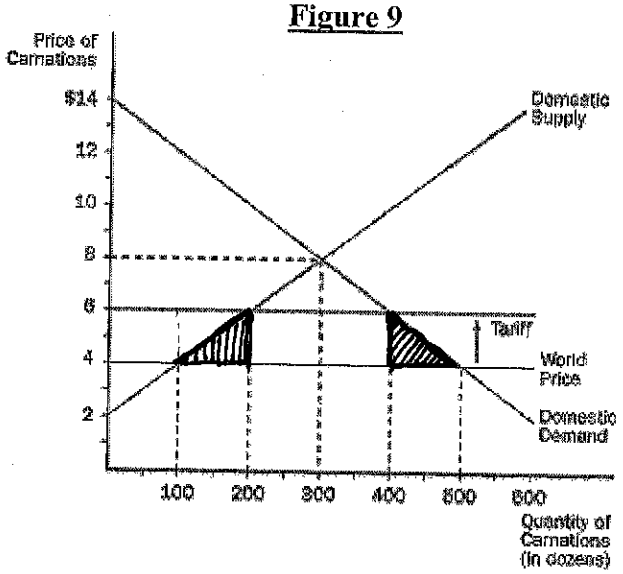
DWL = $\frac{1}{2}$ x 14 x 30 = $210

* g) By how much would the tax reduce the consumer and producer surplus [3 marks].

. Tax reduces the CS and PS by the amount of the tax revenue and the deadweight loss. Therefore the tax reduces CS & PS by $980 + $210 = $1,190

5. Figure 9 shows the market for carnations with free trade and after a tariff is imposed.

**Figure 9**




a) What is the reduction in imports due to the tariff? [2.5 marks].

- Imports before tariff = 400
- Imports after tariff = 200

∴ tariff reduces imports by 200.

b) What is the amount of revenue collected by the government from the tariff? [2.5 marks].

- Amount of revenue collected = $200 \times 2 = \$400$

c) When a tariff is imposed in the market, how much do producers gain or lose? [2.5 marks].

- Producers gain an amount equal to $[200+100] \times \frac{1}{2} \times 2 = \underline{\$300}$

d) What is the amount of deadweight loss caused by the tariff?[2.5 marks]

- Amount of deadweight loss $= \left(100 \times 2 \times \frac{1}{2}\right) + \left(100 \times 2 \times \frac{1}{2}\right)$

$= 100 + 100 = \underline{200}$.