

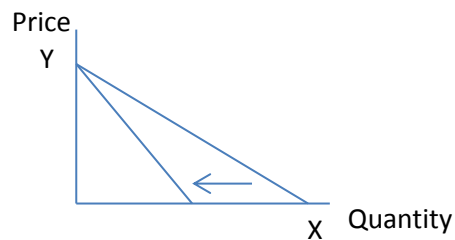
May/ June 2017 solutions

QUESTION 1 (15 Marks)

For each of the following questions, write whether the statement is **true** or **false**. Fully explain your answer, using a diagram if appropriate.

1.1 Michael only consumes two goods: X and Y. If X is a Giffen good for Michael, then Y must be a normal good for Michael. (3)

True- because Q demanded for good X increases as real income of Michael falls and good Y is being substituted for more units of good X.



True. A Giffen good is an inferior good. Since Michael only consumes two goods, they cannot both be inferior goods. Therefore, Y is a normal good

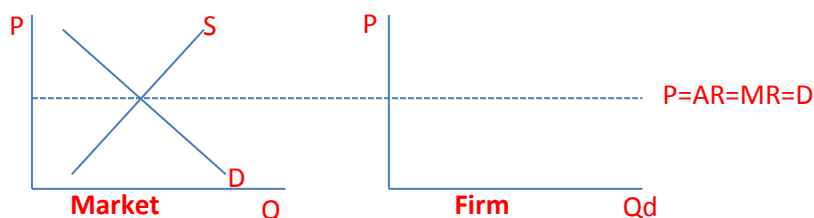
1.2 If good S and good F are perfect complements, you must be indifferent between these two bundles: bundle one consists of one unit of good S and one unit of good F; and bundle two consists of two units of good S and one unit of good F. (3)

False- they are not indifferent because bundle 2 contains more units of S than bundle F. Consumers prefers more to less. Indifferent means you must receive the same utility from both bundles.

False. The line that goes through the kinks of the indifference curves doesn't need to have slope equal to 1. Consider a consumer that likes to consume both goods in a ratio 2:1. In that case the first bundle is in another indifference curve with a lower level of utility associated.

1.3 In a perfectly competitive market, firms take the market price as a given, which implies that the market demand is infinitely elastic. (3)

True- perfectly competitive markets are price takers.



False. In a competitive market, firms are assumed to be very small, therefore they are assumed to have no influence on the market price – like if they faced an infinitely elastic demand at the market price level. Nevertheless, the market demand can be elastic or rigid.

1.4 A risk averse individual that has to decide between two different lotteries will always prefer a lottery with less risk. (3)

True- Risk averse individuals prefer investments with lower risk because they are reluctant to take risks.

False. A risk averse individuals dislike risk but not at "any price". They will take into account the expected value of each lottery in their decisions.

1.5 A consumer finds two goods to be perfectly substitutable. Therefore, the optimal bundle for this consumer will always be a corner solution. (3)

True- it means they yield same utility and are equally accessible so any good is suitable for the consumer.

False; consider for example the utility function $u = x + y$. The optimal bundle will be a corner solution if the prices of the two goods are different. If the prices are the same then any allocation is optimal.

QUESTION 2 (5 Marks)

Suppose the demand function for corn is, $Q_d = 10 - 2P$ and the supply function is, $Q_s = 3P - 5$. The government is concerned that the market equilibrium price of corn is too low and would like to implement a price support policy to protect the farmers. By implementing the price support policy, the government sets a support price and purchases the extra supply at the support price. In this case, the government sets the support price at . $P_s = 4$

2.1 Calculate the original market equilibrium price and quantity in the absence of the price support policy. (2)

Equilibrium Price **Equilibrium Quantity**

$Q_d = Q_s$ $Q = 3(3) - 5$

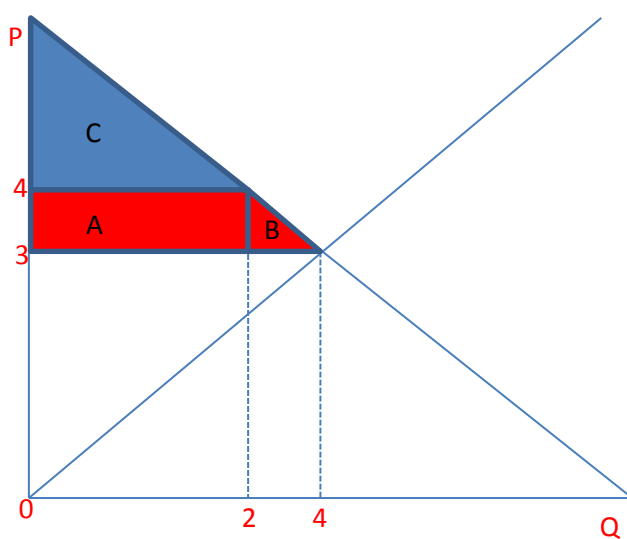
$10 - 2P = 3P - 5$ $= 9 - 5$

$-5P = -15$ $= 4$

$P = 3$

Correct!

2.2 Draw a diagram to show the change in the consumer surplus as a result of the implementation of the price support policy. Calculate the change in the consumer surplus. (3)



New $Q_d = 10 - 2(4) = 2$

C- new consumer surplus

A & B- Consumer Loss

Change in CS

$A = L \times B = 2 \times 1 = 2$

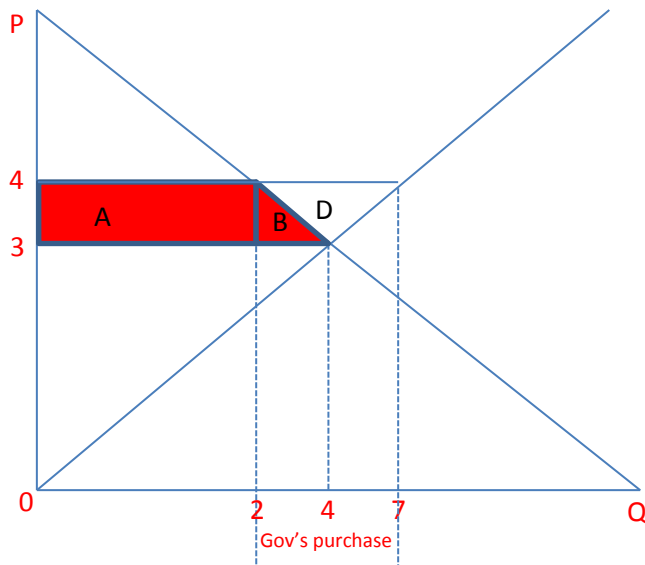
$B = \frac{1}{2} \times B \times H = \frac{1}{2} \times 2 \times 1 = 1$

Therefore: $A+B = 3$

The producer's gain is:

$$1 \times 7 - \frac{1}{2} (7 - 4) = 11/2 \text{ or } 5.5$$

which is the area A+B+D on the graph below.



QUESTION 3 (10 Marks)

3.1 Specify whether the following South African industries are monopolistic, oligopolistic or monopolistic competitive industries.

3.1.1 The cellphone industry.

Oligopoly Correct.

3.1.2 The restaurant industry.

Monopolistic (competitive)

3.1.3 The banking sector.

Oligopoly Correct.

3.1.4 Estate wine producers.

Oligopoly (competitive)

3.1.5 Car manufacturers.

Oligopoly Correct.

3.1.6 Rail transport.

Monopoly Correct.

3.2 Suppose a firm in an oligopolistic industry faces the following kinked demand for its product:

$$Q_1 = 100 - P$$

$$Q_2 = 160 - 2P$$

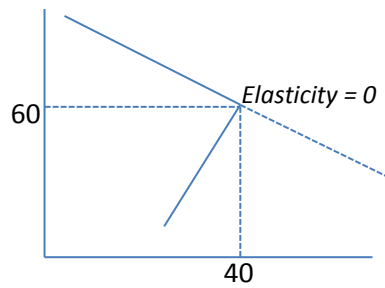
Where Q represents units of output and P the price of the product.

Suppose the firm's total cost is given by the following equation:

$$TC = 100 + 30Q; \text{ Thus } MC = 30.$$

3.2.1 What are the firm's profit-maximising price and output? (3)

$$\begin{aligned}MR &= MC \\100 - P &= 160 - 2P \\-P + 2P &= 160 - 100 \\P &= 60 \\Q &= 100 - 60 \\&= 40\end{aligned}$$



Correct!

3.2.2 What is the firm's marginal revenue equation? (2)

$$\begin{aligned}R1 &= PQ \\&= P(100 - P) \\&= 100P - P^2 \\R2 &= PQ \\&= P(100 - 2P) \\&= 100P - 2P^2 \\MR &= 160 - 2P^2 - (100P - P^2) \\&= 160P - 2P^2 - 100P + P^2 \\&= 60P - P^2\end{aligned}$$

Correct!

3.2.3 Between which values may marginal cost vary without causing a change in the equilibrium price and quantity? (2)

$$\begin{aligned}Q &= 40 \\P &= 60\end{aligned}$$

This is not marginal cost. Try again.

