Economics I; 2016/2017

Appeal Period Exam

30th January 2017

Solutions

Part A (7 marks)

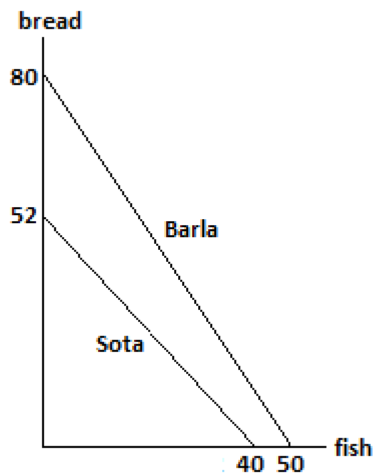
version	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
A	c	a	d	c	a	b	c	b	d	d	d	c	c	d
B	c	b	d	d	a	b	a	d	c	c	d	a	c	d
C	a	b	b	d	b	a	d	c	c	a	d	b	b	a
D	c	a	a	a	c	d	d	c	b	a	a	b	a	a

Part B (13 marks)

1.

a)

Using the information about the maximum quantities of each good that each country can produce if it produces nothing of the other good, the ppf for the two countries are those in the figure below.



b) The opportunity cost of fish in terms of bread expresses the quantity of bread that the country must forgo in order to produce one more unit of fish.

Barla:

$OC_{fish,\ bread} = -(-\Delta bread/\Delta fish) = -(-80/50) = 1{,}6$ f.u. bread/fish

Sota:

$OC_{fish,\ bread} = -(-\Delta bread/\Delta fish) = -(-52/40) = 1{,}3$ u.f. bread/fish

c)

Barla has absolute advantage in the production of both goods, because with the same amount of resources it produces more of each of the goods than *Sota*.

Sota has comparative advantage in the production of fish: its opportunity cost of fish in terms of bread is inferior than the opportunity cost of fish in terms of bread in *Barla*. Conversely, *Barla* has comparative advantage in the production of bread: to produce one more unit of bread in *Barla*, it is necessary to forgo 0,525 (50/80) units of fish, which is less than what is necessary to forego in *Sota* (0.769 = 40/52 fish/bread).

2.

a)

$$Q^D(p) = Q^S(p)$$

$$40 - 2p = 4p - 20$$

$$p^* = 10$$

$$Q^D(10) = Q^S(10) = Q^* = 20.$$

b)

The tax, t, of 3€ per traded unit corresponds to the difference between the price paid by the consumers and the price received by the producers: $p^d = p^s + t$. In this case, $p^d = p^s + 3$.

The equilibrium:

$$Q^D(p^d) = Q^S(p^s)$$

$$40 - 2p^d = 4p^s - 20$$

Because $p^d = p^s + 3$:

$$40 - 2(p^s + 3) = 4p^s - 20$$

$$p^s = 9$$

Because $p^d = p^s + 3$, $p^d = 12$.

$$Q^D(p^d) = Q^S(p^s) = Q^*$$

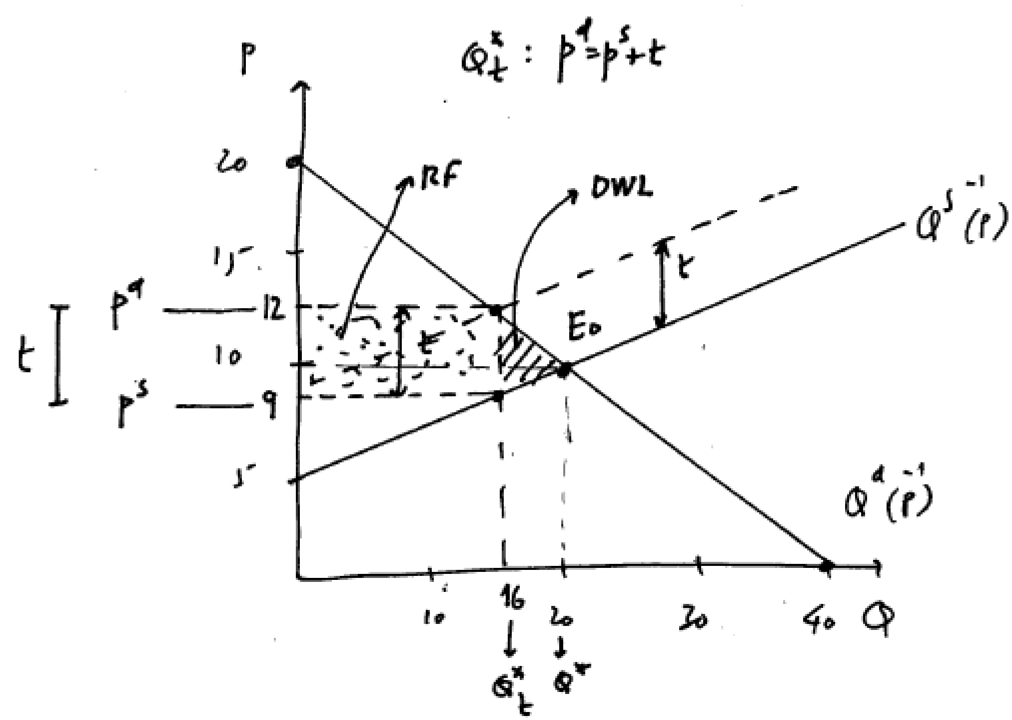
$$Q^* = 40 - 2p^d = 4p^s - 20$$

$$Q^* = 40 - 2*12 = 4*9 - 20 = 16$$

c)

Fiscal Revenue = 3 x 16 = 48 u.m.

Deadwight Loss = (12-9) x (20-16)/2 = 6 u.m.



3.

a)

Because there are fixed costs – if the firm produces zero, total cost is 2 - it means that there are fixed inputs, which happens only in the short-run,

b)

$VC = 0{,}5.Q^2 + Q$

$ATC = TC/Q = 0{,}5.Q + 1 + 2/Q$

$AVC = VC/Q = 0{,}5.Q + 1$

$MC = \Delta TC/\Delta Q = \Delta VC/\Delta Q = Q + 1$

c)

The supply curve of the infividual firm is

$p = MC, \quad p > AVC$

$p = Q + 1 \Leftrightarrow Q = p - 1$,

$p > AVC \Leftrightarrow MC = Q + 1 > 0{,}5.Q + 1$

The condition $p > AVC$ is, in this case, valid for any Q.

The supply curve of the firm is, therefore:

$Q^s_{\text{firm}} = \text{p} - 1$

Because there are 10 000 identical firms, the market supply will be:

$Q^s_{\text{market}} = 10\ 000.\ Q^s_{\text{firm}}$

$Q^s_{\text{market}} = 10\ 000.\text{p} - 10\ 000$

d)

$Q^S(p) = Q^D(p)$

$10\ 000.p - 10\ 000 = 70\ 000 - 10\ 000.p$

$20\ 000.p = 80\ 000$

$p^* = 4$, Equilibrium price.

$Q^S(4) = Q^D(4) = Q^*$

10 000 (4) – 10 000 = 70 000 – 10 000 (4) = … = 30 000 = Q_{market}*, equilibrium **market quantity**.

The equilibrium **individual firm quantity** Q_{firm}*, considering that there are 10 000 firms in the market, is:

Q_{market}*/ 10 000 = 30 000/10 000 = 3 = Q_{firm}*

Each firm's profit is P*. Q_{firm}* – $(0,5*3^2)$ – 3 – 2 = 4*3 – 4,5 – 3–2 = 2,5 m.u