It starts with S followed by 6 numbers.

S1 The concept of the invisible hand is the single actors of a marketplace lead to most efficient allocation of resources, under the fact that society is the sum of individuals and individuals maximizing leads to the society at maxima. The picture depicts men likely arguing that this however will not lead to optimal state, as market failures (such as externalities or exercise of market power) exist and Adam Smith´s invisible hand (and fingers) cannot (and will not) lead to efficient allocation.

S2 The first sentence is positive statement, as it can be empirically tested (what is?). The second sentence is normative statement, because it is subjective and opinionated, i.e. cannot not be tested (what should be?).

S3 The price of a good is not determined by its total utility rather by scarcity and marginal utility. That is why water is cheap (due to high abundance and low marginal utility, despite total utility is high as it is essential for lie), while diamonds are expensive (scarce and high marginal utility due to acting as status symbol).

S4 ab since the only short run variable cost is coming from labour,the marginal cost increases (slope of MC increases) due to marginal product of labour decreasing, because of

dq/dL=0.4*10(0.6)/L(0.6) yielding L increasing dq/dL decreasing.

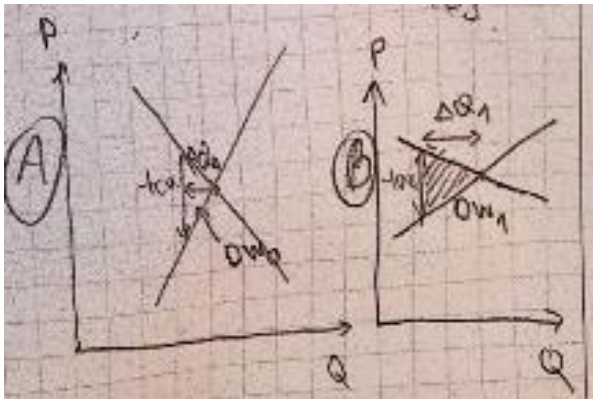
S5 Perfect competitors do still maximize with marginal revenue and marginal cost being equal just as monopolists, because this yields most profit, however they do have P=MR=MC, while monopolistic have P > MC.

S6 The elasticity of the firm demand curve faced by a perfect competitor is infinity, because the firms demand curve itself has slop of 0 (as competitive firms are price-takers).

S7 Average profit is not a good measure at all to determine whether to ramp up the production or not. It is based on relationship between marginal revenue and marginal cost. Decision making should be made at the margin, not based on averages. Thus, I would ask firstly is market price less than AVC (when we are on competitive market) as then it is wise to shut down. Otherwise, we produce the quantity of P=MR=MC in the short term, i.e. asking for relationship (function) between marginal revenue and marginal cost.

S8 I would choose market A to tax as both supply and demand curves are more inelastic, meaning less deadweight loss (less efficiency is lost), when tax is levied. To levy the tax of T on both markets, we can see from the (sorry handwavy) figures that DW_1>DW_0 as on B there are more elastic demand and supply than on A. DW=tax*dQ/2 (in case of linear curves) and as taxes very the same both DW loss is smaller on A and tax revenue government receives is larger.

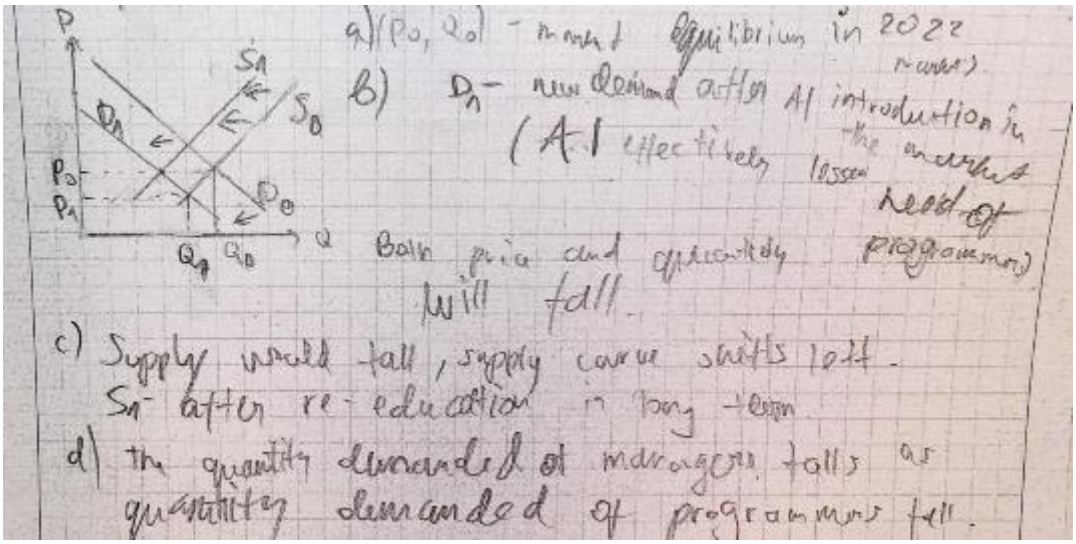
It starts with S followed by 6 numbers.



S9 This is example of versioning, offering different types of products, serving different types of consumer groups based on willingness to pay with a goal to maximize profit. This might be beneficial to consumers as those wanting full version will obtain it and those who cannot afford full version (are not willing to pay) will opt for lesser (damaged) version.

S10 a The policy does not work, as flooring is non-binding because market price of 15 is bigger than price floor of 10. The market is clearing. b Market supply curve shifts to the right and effectively market price will drop to 10 (with quantity supplied and demanded increasing).

S11



S12 The elasticity of demand is -2. As FC=0 and marginal cost is constant, we find MC=50000/100=500. Now, utilizing profit maximization formula,

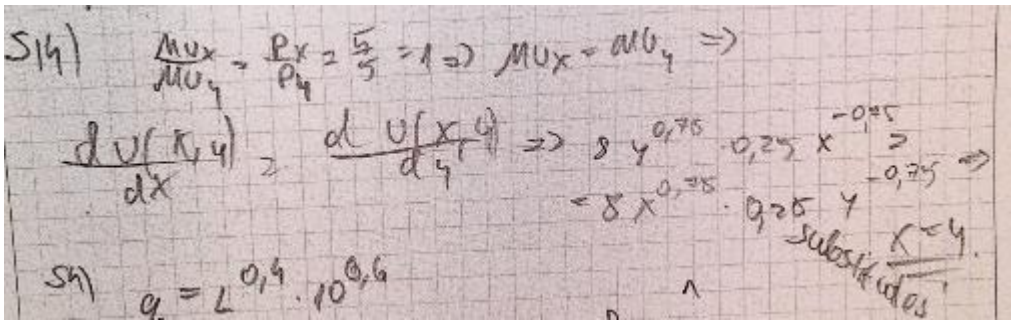
$P = \frac{1}{1+\frac{1}{\epsilon\_D}} * MC$, we find P=1000DKK (used definition of elasticity without absolute value).

S13 a Goods A and B are compements, good C is substitute.

b If good A decreased by 10%, quanity demanded of StreamPlus would increase by (1000-50*10-5+5-20*(1*(1-0.1)))/480*100-100=0.42%.

It starts with S followed by 6 numbers.

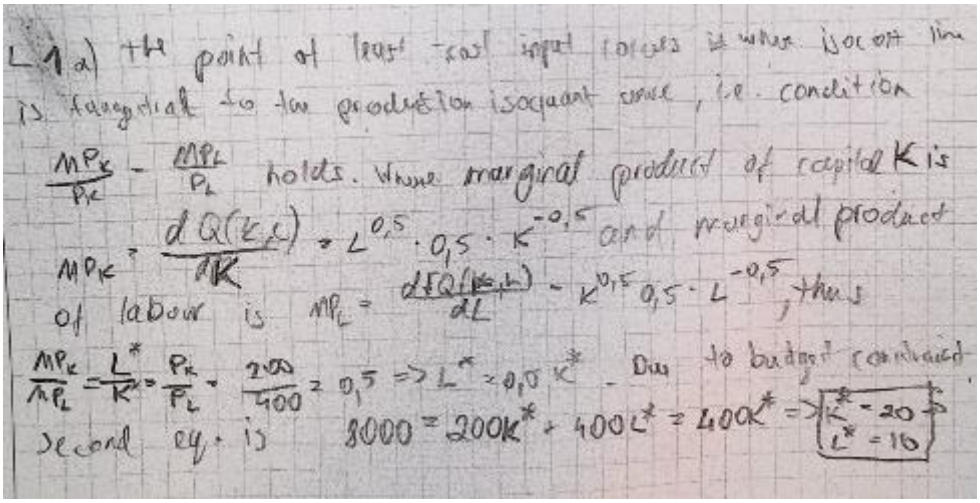
S14 1 unit of online news for even 1 unit of music streaming and 1 unit of music streaming for even 1 unit of online new.



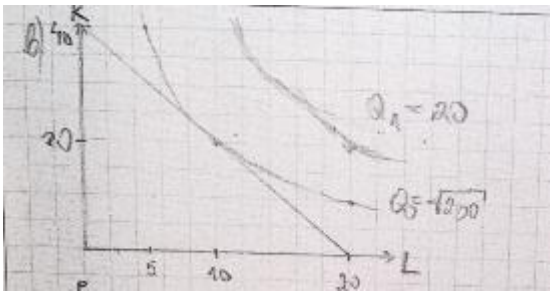
S15 a Short term price competition takes place, as lower price winner takes the market. Outcome in the long run is the Nash equilibrium with both firs leading to zero economic profit as price set is equal to marginal costs.

b Under Cournot Competition, in the short run and long run as firms are equivalent both take equal share of Q=1/(n+1)Q*, where n is nr of firms operating and Q* is competitive equilibrium (P=MC).

L1

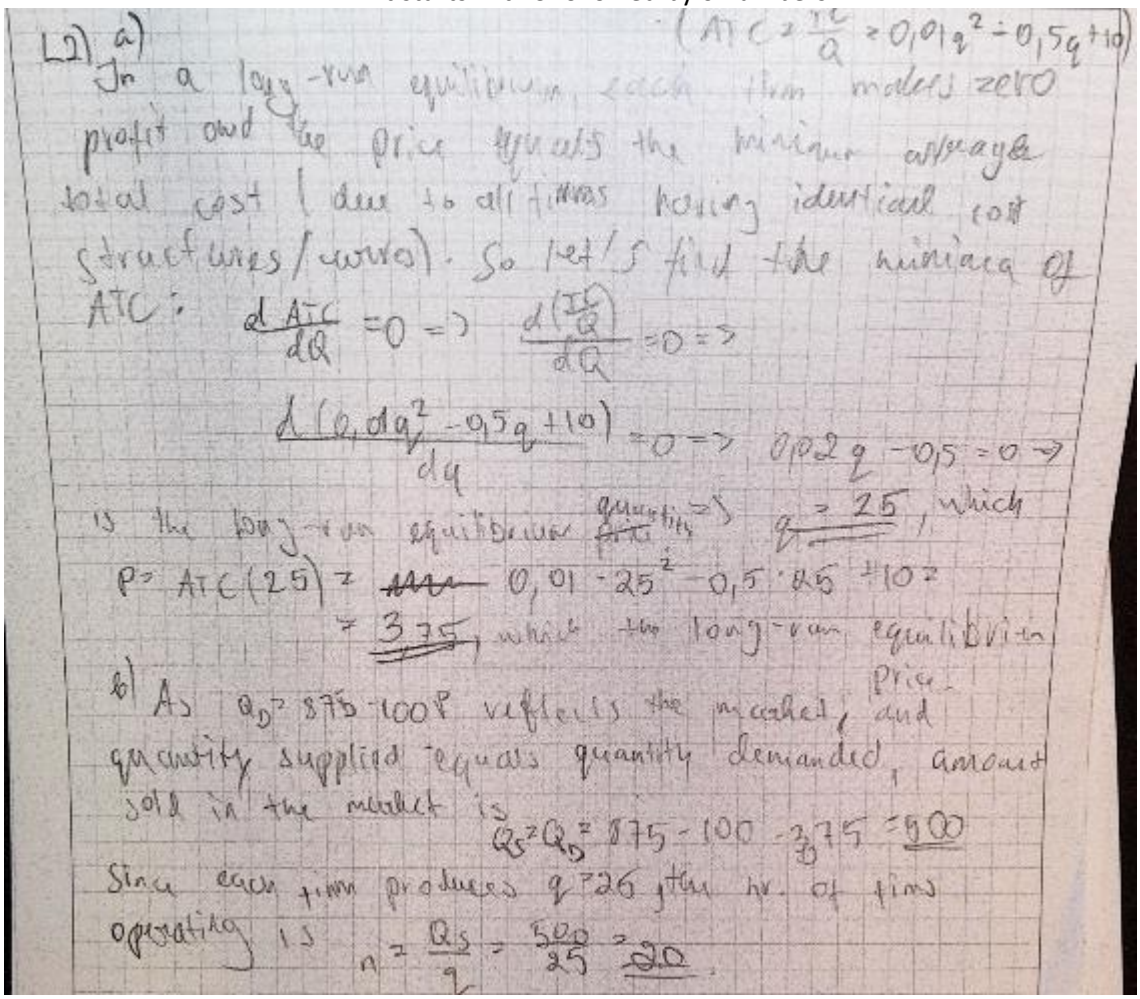


b



L2

It starts with S followed by 6 numbers.



L2c As monopolistic case demand is downward sloping (and firm is price maker), the P_M in the monopolistic case is smaller than allocative efficient, perfect competition price P_C. (because P on perfect competition is at minimum of ATC, while monopolistic does have markup thus is not at minima of ATC). In long run however, in both cases the economic profits are zero. About market quantity: there is excess capacity in case of monopolistic competition, i.e. Q_M < Q_C, where Q_M,Q_C stand for monopolistic and competitive competition respectively.

L3

L3)

AlphaTech \ BetaSoft	Rush	Be cautious
Rush	-5, -5	10, -10
Be cautious	-10, 10	5, 5

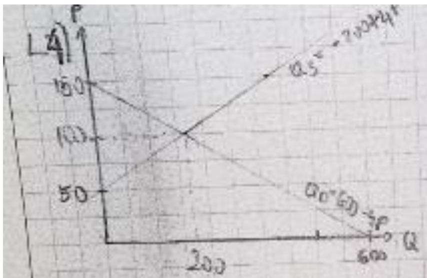
The payoff matrix, showing all outcomes based on chosen strategies, is shown on the left (in billions DKK). Dominant strategy of both firms is to rush, because

- if A rushes, B has option to rush resulting -5 or to be cautious resulting -10, thus B chooses to rush.
- if A is cautious, B has option to rush resulting +10 or to be cautious resulting +5, thus B chooses "Rush".
- and vice versa (switching roles of A and B).

The Nash Equilibrium in this case is both A and B choosing rush (due to previously explained), such situation is called the "prisoner's dilemma".

L4

L4)



a) $Q_D = Q_S \Rightarrow 600 - 4P = -200 + 4P \Rightarrow$
$\Rightarrow 800 = 8P \Rightarrow P = 100 \Rightarrow$
$Q_D = Q_S = 600 - 4 \cdot 100 = 200$

b) Socially optimal q and price includes the negative externality created by the pollution thus instead of $P_D = P_S$ we have $P_D - P_S = 4$. Let's solve the system of eq:

$$\begin{cases} P_D - P_S = 4 \\ Q_D = 600 - 4P_D \\ Q_S = -200 + 4P_S \\ Q_D = Q_S \end{cases}$$

$\Rightarrow -200 + 4P_S = 600 - 4 \cdot (P_S + 4) \Rightarrow 8P_S = 816 \Rightarrow P_S = 102$
$\Rightarrow P_D = 98$

c) A government might levy a specific tax of $T = 4$ on suppliers (flight companies), though it doesn't really matter whom they tax burden will be shared among participants. This focus more on nr of flights, not on pollution, therefore tradable pollution permits might be more effective, giving out only fixed nr of permits as demand curve is not always known, being a direct mean of controlling the total quantity of pollution emitted.

L5

L5) a) $TR = P \cdot Q$ $\quad MR = \frac{dTR}{dQ} = \frac{d(P\cdot Q)}{dQ} = \frac{d(120Q - 0{,}5Q^2)}{dQ} = 120 - Q$

b) $\frac{dTR}{dQ} = 0$ must hold when maximizing the revenue. Thus, $MR = 0 \rightarrow 120 - Q = 0 \rightarrow Q^* = 120$

c) For profit maximization, MR = MC is true, therefore under condition that MC = 0, revenue-maxing is also profit-maximizing choice!

d) $\varepsilon = \frac{\%\Delta Q_d}{\%\Delta P} = \frac{dQ/Q}{dP/P} = \frac{dQ}{dP} \cdot \frac{P}{Q} = \frac{1}{-0{,}5} \cdot \frac{60}{120} = -1$

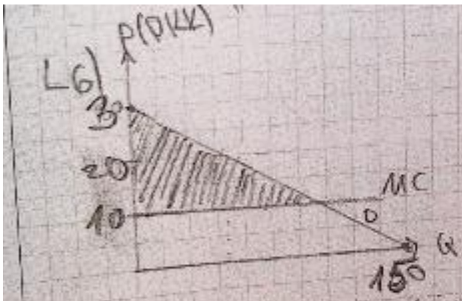
because $\frac{dP}{dQ} = -0{,}5$ and $P^* = 120 - 0{,}5Q^* = 120 - 0{,}5 \cdot 120 = 60$

This makes sense since we are at MR = 0.

e) No, the firm would not operate at the inelastic portion of the demand curve, because $MR = \frac{dTR}{dQ} = \frac{dPQ}{dQ} = P + \frac{dP}{dQ} \cdot Q =$

Because inelasticity of demand yields $-1 < \varepsilon < 0 \Rightarrow \frac{\varepsilon + 1}{\varepsilon} < 0$. $\left(= P + \frac{P}{\varepsilon} = P(1 + \frac{1}{\varepsilon}) < 0\right)$

L6)



The figure on the left shows linear demand curve of representative customer and constant marginal cost of MC = 100 DKK). With two-part tariff pricing strategy, optimal profit is achieved taking all the consumer surplus with P = MC = 10. For fixed fee T, we have

$T = \frac{(30 - 10) \cdot (150 - 5 \cdot 10)}{2} = 1000$ DKK.

NB! I did with MC = 10 DKK as MC = 100 DKK (60),

~~that matter once~~

L6 a

b A two-part pricing is 2nd degree price discrimination, thus government might want to interview If practice is discriminatory that is not based on evaluation of economic costs. Otherwise, it is perfectly legit strategy for firms to maximize its profits.