Economics 326: Suggested Solutions 1

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1.(a) The old captain will stick with the surgeon if $p \geq 1/2$.

(b) A surgeon who sticks around has expected quality 1/4. Hence it is better to go for a new surgeon.

(c) The fact that the old Captain chooses not to take his old surgeon with him means that the surgeon must be terrible.

(d) The new Captain is indifferent between replacing him and not.

2. Suppose the market price is p. Then the expected reservation price of those participating is $E[r(\theta)|r(\theta) \leq p] = p/2$. Hence the willingness to pay of the buyer is $p/2 + 100$. Equilibrium means $p = 100 + p/2$ implying $p = 200$. The value of trade is $1/5(100) = 20$. With perfect information the value of trade is the difference in valuations, i.e. 100.

3. (a) Trade will occur if $v \geq r$.

(b) Since valuations are independent, the buyer is willing to pay 550. A seller will sell if $r \geq 550$, so that 55% of seller will sell.

(c) In (a) there is trade if $v \geq r$. In (b) there is trade if $E[v] \geq r$. For example, if $(v, r) = (100, 200)$ trade will occur under (b) but not (a). Trade under (a) is more efficient (in the pareto sense).

4. (a) Declare bankruptcy if $R + 20 \leq 120$. That is, if $R \leq 100$. This occurs with probability 1/2.

(b) Profits are $E_R[\max\{-20, R - 120\}] = 1/2(-20) + 1/2(100 + \theta/2 - 120) = \theta/4 - 20$. This is positive if $\theta \geq 80$.