UCBE 2021

Sample Questions Solution Outline

1. No, depends on whether homeowners are net home-sellers or home-buyers.

2. Price stability and full employment. 0%-0.25%

3. If the economy is operating at capacity, or insufficient aggregate supply, or public investments crowding out private investments.

4. Technological progress, and it is now less profitable to keep patients overnight since many procedures no longer require it

5. 16. First calculate expected number of flips to reach HHH through recurrence formulae on the states of flip results, then consider number of flips required to get a T from that state.

6. Yes. By drawing the demand function and finding the consumer surplus for this specific pricing we can see that net consumer surplus is positive.

7.
   a) Confess, Confess. Not optimal, because Not Confess, Not Confess is a Pareto improvement.

   b) $p > \frac{1}{2}$. To find this we set up the inequality U(NC) > U(C) where U(NC) denotes the discounted payoff from not deviating, and U(C) denotes the discounted payoff from deviating.

8.

a) Price: 1.64. Quantity: 4.18.

b) Increases by 2.57.

c) 1.11

9.

a) $\frac{(a-c)^2}{2b}$. Plotting the inverse demand function and marginal cost function on a graph, this would be the triangle denoting consumer surplus had there not been first degree PD.

b) 0. All consumer surplus is extracted by producer as producer surplus.

c) 0. First degree PD is socially efficient in terms of output.

10.

a) Output: $\frac{a-c}{4}$. Profit: $\frac{(a-c)^2}{16}$. Solve the unconstrained optimization problem $\max_{q_1}(a - q_1 - q_2 - q_3)q_1 - cq_1$ for firm 1, and accordingly for firm 2 and 3 using symmetry to find quantity. Profit can be found by revenue minus cost.

b) $\frac{(a-c)^2}{9}$. "Merging" simply changes the 3-firm oligopoly into a 2-firm oligopoly. Same method as the previous part.