Answers without explanation

2000 Spring 3. Signaling Quality

(a) omitted.

(b) Assume $c_L \geq c_H \geq 0$. Then we have two sets of conditions.

1. When $c_L \geq v_H - v_L \geq c_H$,
   high type chooses Free Sample and $p_H = v_H$, and low type chooses No FS and $p_L = v_L$.

2. When $v_H \geq v_L + c_L$,
   high type chooses FS and $p_H = v_L + c_L$, and low type chooses No FS and $p_L = v_L$.

(c) One equilibrium is that both choose No FS and $p = \frac{1}{2}v_H + \frac{1}{2}v_L$, which is always an equilibrium for any parameter value.[1]
The other is that both choose FS and $p = \frac{1}{2}v_H + \frac{1}{2}v_L$ under the condition that

$$\frac{1}{2}v_H - \frac{1}{2}v_L \geq c_L$$[2]

2000 Spring 4. Repeated Games

When $N = 1$, there is no SGPE in which (D,L) is ever played.

When $N = 2$, there is no SGPE in which (D,L) is ever played, either.

When $N = 3$, if $\delta \geq \frac{1}{\sqrt{3}} \approx 0.5774$, then there is a SGPE in which (D,L) is played in the first period and (U,L), and (D,R) in the following periods. If $\delta < 0.5774$, there is no SGPE in which (D,L) is ever played.

When $N = 4$, if $\delta \geq 0.5774$ approximately, then there is a SGPE in which (D,L) is played twice in the first and second periods, and (U,L) and (D,R) in the following periods. If $\delta \geq 0.48$ approximately[3], then there is a SGPE in which (D,L) is played in the first period, and (U,L), (D,R) and (D,R) in the following periods.[4] If $\delta < 0.48$, there is no SGPE in which (D,L) is ever played.

[1] One implicit assumption here is that $c_L \geq 0$ and $c_H \geq 0$.
[2] The term on the right hand side is originally $\max\{c_H, c_L\}$, but substituted by c_L under the assumption $c_L \geq c_H$.
[3] This is a solution to the inequality $2 + 3\delta^2 + 3\delta^3 \geq 3$
[4] Note that there is another equilibrium path since the payoff matrix is symmetric.