Econ 384 - Midterm B

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Short Answer

1) $c_2 = i_2 + (1+r)i_1 - (1+r)c_1$

2) $\Rightarrow U(c_2) > U(c_1)$

3) $4CR = 10\%(4) = 40\%$

4) → Leader can calculate Follower's reaction
→ Leader can manipulate Follower
→ Leader has higher Q & π.

5) Limit pricing
- By keeping prices low, the dominant firm can keep the competitive Fringe small

6) (i) Many Firms
(ii) Differentiated Products
(iii) Easy entry & exit
(iv) Firms choose price

7) Dominant Strategy → Action that gives highest payout regardless of opponent

Best response → Action that gives highest payout given opponent's action

A player with a dominant strategy has a best response that never changes

Short Answer

(8) (ie)

A

B:	a	b
c	5, 20	30, 10
b	10, 0	20, 5

(9) Grim trigger → "If you cheat once, I'll cheat every turn after

Goal: Encourage Co-operation / Discourage Cheating.

(10) (i) Players are impatient

(ii) Interactions are infrequent

(iii) Cheating is ~~easy~~ hard to detect

(iv) One-time cheating gain is relatively ~~small~~ large

Part B

① $PV = (B_0 - C_0) + \frac{(B_1 - C_1)}{(1+r)^1} + \dots \frac{(B_T - C_T)}{(1+r)^T}$

$= -\$219 + \frac{\$900}{(1.03)^{35}} = -\$219 + \$320$

$= \$101$ Million Benefit

② Bertrand → Price Competition
→ Rivals undercut price to capture whole demand
→ This continues until $P = MC$
(Perfect Competition Outcome)

Short Run → Bertrand (unlimited supply)
Long Run → Cournot (Firms choose Supply)

PART C

① Tablet

$P_T = 50 - Q_T/2 + 1/4 P_i$

$MR_T = 50 - Q_T + 1/4 P_i$

$MR_T = MC_T$

$50 - Q_T + 1/4 P_i = 20$

$Q_T = 30 + 1/4 P_i$

Ipad

$P_i = 200 - Q_i + P_T$

$MR_i = 200 - 2Q_i + P_T$

$MR_i = MC_i$

$200 - 2Q_i + P_T = 20$

$Q_i = 90 + P_T/2$

$Q_T = Q_T$

$100 - 2P_T + 1/2 P_i = 30 + 1/4 P_i$

$70 + 1/4 P_i = 2P_T$

$35 + 1/8 P_i = P_T$

$Q_i = Q_i$

$200 - P_i + P_T = 90 + P_T/2$

$110 + P_T/2 = P_i$

$P_i = 110 + \frac{35 + 1/8 P_i}{2}$

$= 127.5 + 1/16 P_i$

$15/16 P_i = 127.5$

$P_i = 136$

$P_T = 35 + 1/8(136)$

$P_T = 52$

$Q_T = 100 - 2P_T + 1/2 P_i$

$= 100 - 2(52) + 1/2(136)$

$Q_T = 64$

$Q_i = 200 - P_i + P_T$

$= 200 - 136 + 52$

$Q_i = 116$

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$\pi_T = (P_T - MC_T) Q_T$

$= (52 - 20) 64$

$= \$2,048$

$\pi_i = (P_i - MC_i) Q_i$

$= (136 - 20) 116$

$= \$13,456$

64 tablets are sold for $52 each for profits of $2,048.

116 ipads are sold for $136 each for profits of $13,456.

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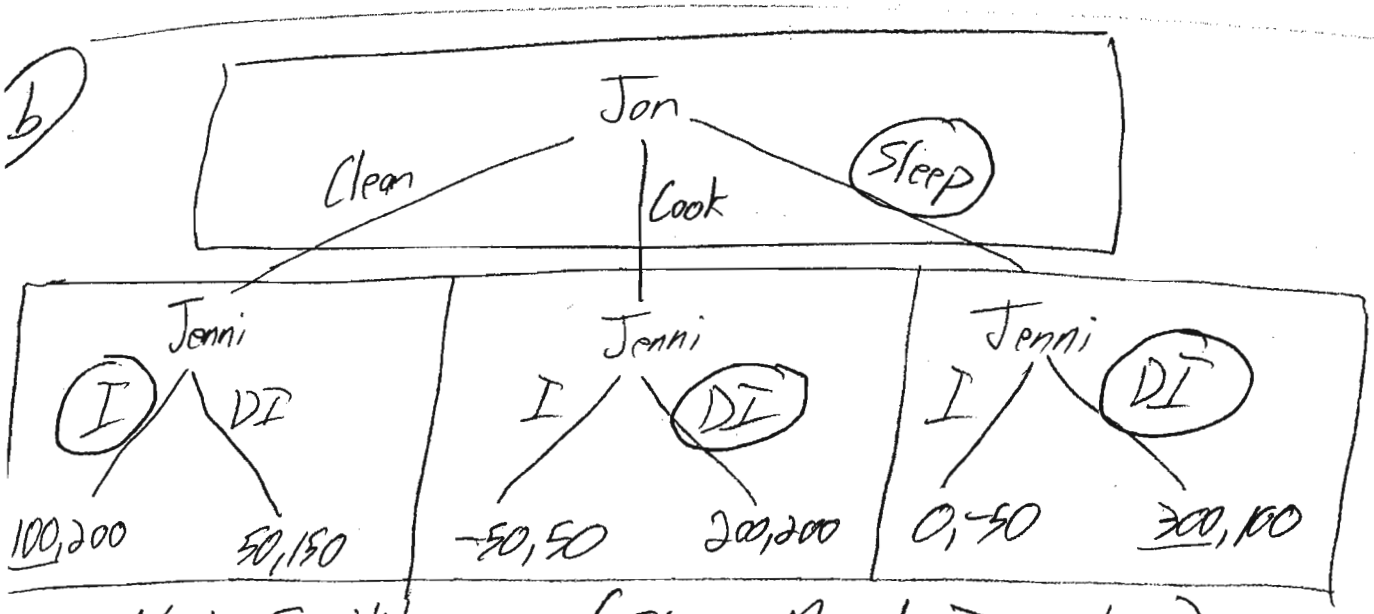
PART C

(2a)

Jon \ Jenni	Invite	Don't Invite
Clean	100, 200	50, 150
Cook	-50, 50	200, 200
Sleep	0, -50	300, 100

Nash Equilibrium: (Clean, Invite) + (Sleep, Don't Invite)

(b)



Nash Equilibrium: (Sleep, Don't Invite)
Jon gets a certain return of 300 instead of a risk of getting 100.