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Assignment 04

1.

A.

P1 \ P2	H	F
H	+7, +7	+0, +3
F	+3, +0	+4, +4

B. If both players hunt, they both get the highest yield of meat, ∴ strictly dominant strategy

C. (H, H), ~~(H, H)~~ ~~one~~ is a ~~both~~ nash equilibria since ~~they~~ it ~~are~~ is the best responses to each other.

2.

A.

P1 \ P2	AH	TCP
AH	-3, -3	0, -4
TCP	-4, 0	-1, -1

B. If both players use the TCP, they both experience slightly bad internet.
- If one knew the other was using AH, would also use AH to avoid -4.
- If you knew the other was using TCP, would use AH to get 0 lag.

∴ Using AH is the strictly dominant strategy

C. (TCP, TCP) is a NE bc it is the best responses to each others strategy since it cuts the losses of both parties

3.

A.

P1 \ P2	Swerve	Straight
Swerve	0, 0	-10, +10
Straight	+10, -10	-50, -50

B. - If p1 knows P2 will swerve, staying Straight is optimal
- If P1 knows P2 will stay straight, swerving will prevent -50 for both
∴ No dominant strategy

C. (0, 0) is a NE bc it is the best response to each other's strategy
* I don't think there's an NE

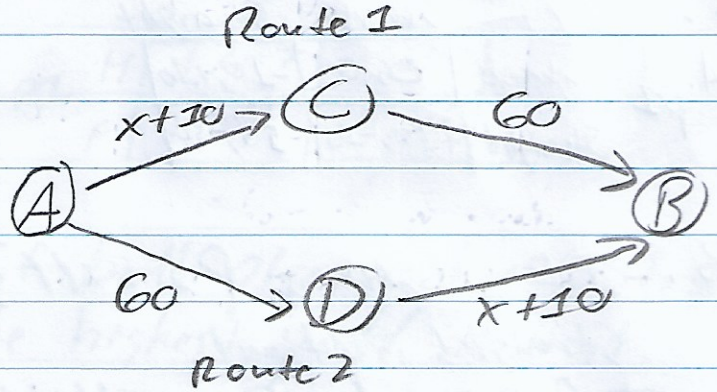
4.

A.

P1 \ P2	Rock	Paper	Scissors	Lizard	Spock
Rock	0, 0	-1, +1	+1, -1	+1, -1	-1, +1
Paper	+1, -1	0, 0	-1, +1	-1, +1	+1, -1
Scissors	-1, +1	+1, -1	0, 0	+1, -1	-1, +1
Lizard	-1, +1	+1, -1	-1, +1	0, 0	+1, -1
Spock	+1, -1	-1, +1	+1, -1	-1, +1	0, 0

5.

A.



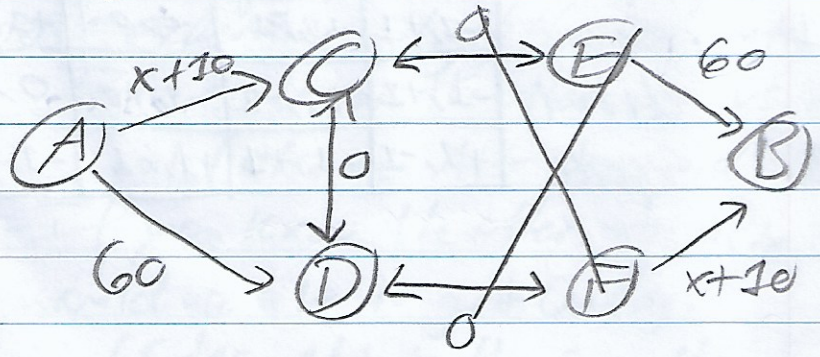
B. If all cars chose to use Route 1, the travel time would be:

$80+10+60 = 150$ mins

C. Since the only NE can be an equal balance of cars, the NE value of $x = 40$. This prevents an uneven balance and the incentive to switch due to congestion

(40,40)

D. hahaxd



E. $80+10+80+10 = 180$

F. $60+60 = 120$

G. Increases. If taken path + CDB, results in worse time because would want to take the potentially faster path

H. I: x+10+60 30:100
II: 60+x+10 30:100
III: x+10+x+10 20:60
IV: 60+60

By assigning 30 cars to R1, 30 to R2, and 20 to R3, reduces total time possible from 110 → 100. R1:100, R2:100, R3:60

6

A. My firm should submit bid of value c. This is because if c is the winning bid, and say value d is the second place bid, the payoff is c-d. Since we would only have to pay d if we win, there's no reason to bet any higher or lower. If we don't win, payoff=0. Strictly positive gain.

B. our bid depends on other firms who show up because it essentially increases the possibility of a firm that bids higher than our true value of c. Depending upon the true value of each non-firm, our bid's likelihood to succeed fluctuates. Since the values are private, cannot know for sure how to change our own bid true value, so best plan is sticking with our value c.

7,

A.

b_1 \ b_2	1	3
1	1	1
3	1	3

This formation be of second price auction (why the 1's win)

each choice has a probability of 0.25,

$\therefore 0.25(1+1+1+3) = 6/4$

B. With 3 bidders there would be 8 combinations possible, with (3,3,3) giving the highest expual of 3, any other combination would yield 1.

$\therefore \frac{1}{8}(1+1+1+1+1+1+1+3) = \frac{10}{8}$

C. Increasing bidders decreases the chances of the highest expected value of 3. This is because all bidders must me-bid in order to yield 3, and the more bidders there are the more possible it becomes that they bet low thus reducing the expected revenue from the max.