(1) a.

	L	C	R
T	3,1	2,2	0,0
B	2,2	0,0	3,1

For Player 2, R is strictly dominated By L:

	L	C
T	3,1	2,2
B	2,2	0,0

Now For Player 1, B is strictly dominated By T:

	L	C
T	3,1	2,2

correct

and now for Player 2, L is strictly dominated By C, so the IDS-Strategy is (T,C)

b.

	L	C	R
T	5,7	3,2	1,0
B	2,1	3,3	4,6

No, there is no strictly or weakly dominated strategy for either player.

~~c.~~ center is dominated by a mixed strategy,
but then no strategy is dominated in the reduced game

One such mixed strategy is 1/2L + 1/2R, but there is a range of values. The best one would have slightly more L than R as the payoff is higher.

c.

	L	C	R
T	4,6	0,6	3,5
B	4,3	1,2	1,3

There is no strictly dominated strategy. If we use IWDS, ~~it depends on which column we eliminate first, as Both C and~~ L weakly dominates C & R:

deleting center first results in (top,left
deleting right first, gives (bottom, left)

The option i said is also okay, deleting the column strategies first leads to multiple outcomes

	L
T	4,6
B	4,3

~~A strictly dominated~~ But the payoffs from B & T are the same for player 1 so both survive.

IWDS is also unsatisfactory because it is order-dependent and can remove Nash-equilibria in some games.

d. Strictly dominated strategies are never best responses so they cannot be part of a Nash equilibrium. And if only one strategy remains after elimination then, each player's remaining strategy must be the best response. Hence, that must be a unique Nash equilibrium.

d, e: correct

e. In a Nash equilibrium, each player's strategy is the best response. And a best response cannot be strictly dominated as it wouldn't be the best response then.

5 a.

	L	R
U	0,1	2,2
D	3,0	0,3

(U, R) is the pure Nash equilibrium,

L is strictly dominated by R:

	R
U	2,2
D	0,3

D is strictly dominated by U. in the reduced game

As (U, R) is the result of IDS, it is the unique Nash equilibrium.

b.

	L	R
U	0,3	2,2
D	3,0	0,3

there is no pure Nash equilibrium

Let r Be the ProBaBility that Column Plays R, then the Payoffs for row are:

$$u_1(U) = \cancel{0} \; 0(1-r) + 2r = 2r$$

$$u_1(D) = 3(1-r) + 0r = 3 - 3r$$

if $r \leq \frac{3}{5}$, Playing D is Better. therefore, the optimal ProBaBility ~~of~~ d of row Playing ~~D~~ D is:

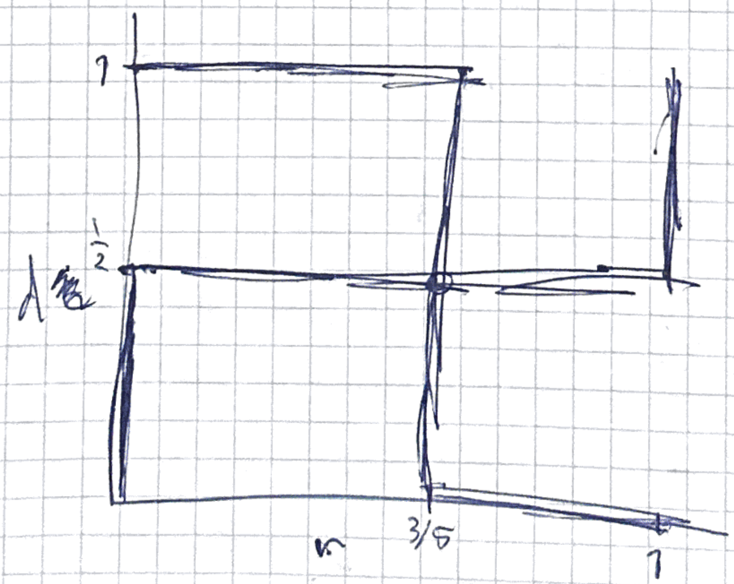
$$d^*(r) = 1 \text{ if } r < \frac{3}{5},\; d^*(r) = [0,1] \text{ if } r = \frac{3}{5} \text{ and}$$
$$d^*(r) = 0 \text{ if } r > \frac{3}{5}$$

$$u_2(L) = 0d + 3(1-d) = 3 - 3d$$

$$u_2(R) = 3d + 2(1-d) = 2 - d \quad \textbf{2+d}$$

$$r^*(d) = 0 \text{ if } d < \frac{1}{2} \quad r^*(d) = [0,1] \text{ if } d = \frac{1}{2}, \quad r^*(d) = 1 \text{ if}$$

r is correct,
d should be 1/4



Looks like a swastika lol

notation: (3/5R+2/5L, 1/4D+3/4D)

So the mixed equilibrium is at $r = \frac{3}{5}$, $d = \frac{1}{2}$

c.

$U_1(U) = 0(1-r) + 2r = 2r$

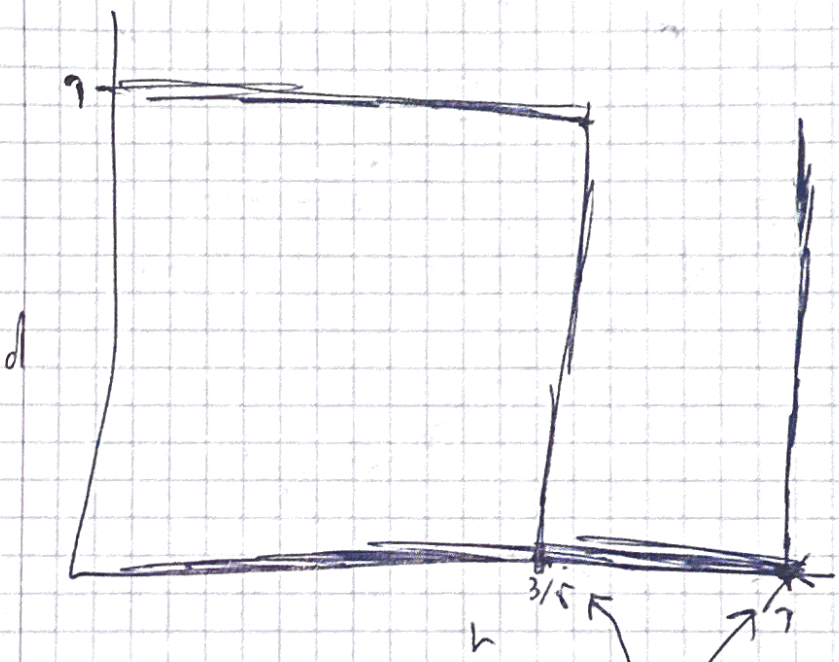
$U_1(D) = 3(1-r) + 0r = 3-3r$

So d stays the same.

$U_2(L) = 0d + 2(1-d) = 2-2d$

$U_2(R) = 3d + 2(1-d) = 2-d$

$\hat{r}(d) = 1$ if $d > 0$, $\hat{r}(d) = [0,1]$ if $d = 0$



overlapping, so the Nash equilibrium is when row plays U and Column plays R with probability between $\frac{3}{5}$ and 1

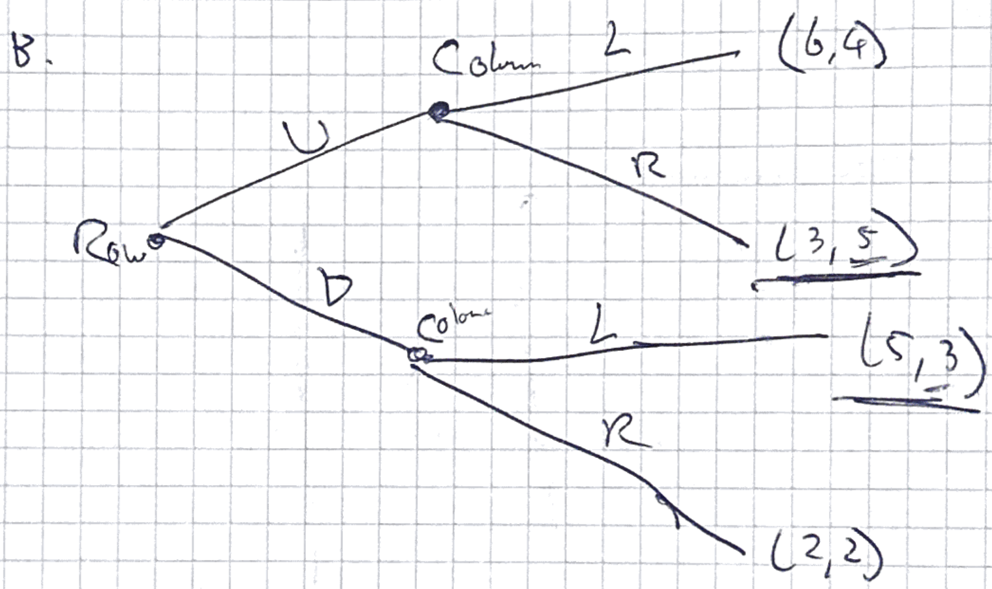
good!

6 a.

	L	R
U	6,4	3,5
D	5,3	2,2

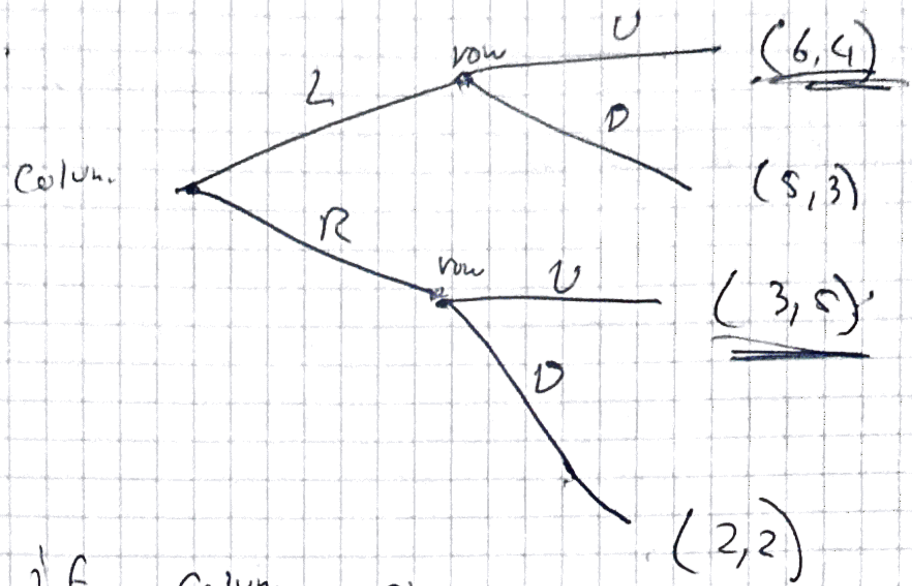
So (U,R) as they are the Best responses. say: its IDS so unique

B.



If row plays U, column would play R,
if row plays D, column would play R.
(D,L) gives row a best payoff than (U,R)
SPE: (D, RL)
So their is the Sub game-Perfect-Equilibrium
It is a Nash-equilibrium of the sequential game as they are the Best responses,
Best not of the original simultaneous game.

c.



If colum plays L, row plays U,
If colum plays R, row ~~plays~~ also plays U.
As ~~[illegible]~~ (U,R) leads ~~the~~ to the higher payoff, that is the SPE: (UU,R)

(R, UU)

(10)

a. (D,D) for both, D ~~[illegible]~~ strictly dominates.

b. If the game is played a finite "N" number of times, there is only one Nash equilibrium and it is to ~~defect~~ always defect for both players.
In the final round, each player will defect as there is no point in cooperating, if you now step back one period this is true again as you know that both are gonna defect anyway in the next period etcetera.

c. ~~the payoff from always cooperating is~~

$\cancel{5 + 5\delta + 5\delta^2 + 5\delta^3 \ldots}$

the value of cooperating forever is

$$5 + 5\delta + 5\delta^2 + 5\delta^3 + 5\delta^4 \ldots$$

$$= \frac{5}{1-\delta}$$

If a player deviates, they get 8 that period and afterwards 4 forever!

$$8 + 4\delta + 4\delta^2 + 4\delta^3 + 4\delta^4 \ldots$$

$$= 8 + \delta\frac{4}{1-\delta}$$

$$\frac{5}{1-\delta} = 8 + \delta\frac{4}{1-\delta}$$

$$5 = 8 - 8\delta + 4\delta = 8 - 4\delta$$

$$4\delta = 3$$

$$\delta = \frac{3}{4}$$

So if $\delta < \frac{3}{4}$, "triggering" is profitable and so the Nash equilibrium

d. only if indeed $\delta > \frac{3}{4}$, then cooperating is ~~[illegible]~~ the Nash equilibrium and the subgame where one defects is also Nash equilibrium.
But for $\delta < \frac{3}{4}$, the first cooperation is not a best-response, so it is not SPE as SPE requires a Nash equilibrium in every subgame.

Also: Because of how it is phrased, if player 1 plays D, and player 2 plays C in a round:
The strategy says play C for player 1 in the next round but that is not nash, should be D in the next round.
Though this is not very relevant because it would never happen that player 1 plays D and player 2 plays C but it is technically a subgame.
So even if delta is greater or equal to 3/4, it is not SPNE, so the answer to the question is NO
IF you want to word it to get SPNE you should say: if ANY (including yourself) player plays D, you play D in the next round

e. - Minimax punishment: the lowest payoff a player i can be forced to receive by others, assuming that i is maximizing their payoff. The strategy is the one that yields this.

- A strategy is individually rational if for every player, the payoff is higher than the minimax punishment payoff.

~~A payoff of feasible of feasible payoff pair is a~~

I don't know the last one

f. ~~[illegible]~~ the folk theorem is that ~~[illegible]~~ cooperation is possible with a certain strategy and patience δ.