Problem 1:

a) A gamble [pays of 5000\$ with probability =] and gives out [-1250 with probability =].

Check Fair: 5000 x = + (-1250 x =) = 0 [in deed Fair]

Bob would end up 6100 with pulsability $\frac{1}{5}$, -150 (in debt) with probability $\frac{4}{5}$.

Therefore, his expected untility is: $\frac{1}{5} \cdot 2 + \frac{4}{5} \cdot 0 = \frac{2}{5} = 0.4 \times 1$.

b) A gamble [pays off 2000 with probability $\frac{1}{80}$, $\frac{2000}{79}$ with probability $\frac{79}{86}$.] Check Fair: $2000 \times \frac{1}{80} + (-\frac{2000}{79} \frac{79}{80}) = 25 - 25 = 0$ Bob would end up 3100 with probability $\frac{1}{80}$, $\frac{2000}{79} \approx 1074.68$ with

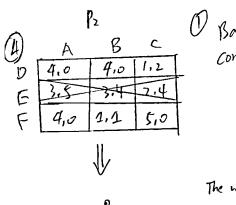
Probability 80.

Therefore, his expected utility is: \$\frac{1}{80} \cdot 2 + \frac{79}{80} \cdot 1 = \frac{81}{80} > 1

As a result, the mixed strategy for this game is.

(NO other Nich equilibrium because all cases are considered)

 $[(\frac{1}{4}c, \frac{1}{4}D), (\frac{1}{4}A, \frac{1}{4}B)]$



O Based on the observation.
Conside player 1- play (67 D, 33 F), Which dominates E.

67 - 4 + 33 · 1 = 3.01 23 5 2.32 72

The we cross out E.

DIT'S obvious that Player 2 play (=B, =, c) dominates A.

Then A-can be crossed out.

(3) Compute mixed strategy rash equibrium:

49 + (1-8) = 9 + (5-59) => 9=7 0 + 1 - p = 2p = $p = \frac{1}{3}$

As a result, [(4B, 2c), (3D, 3F)] is the mixeh strategy hash equilibrium. (There is no pure stronty equilibrium in this game]

This is the only wash equilibrum because.

ONO. Mixed strategy between DE that dominates E.

@ No mixed strategy EF that dominates D

1) No mixed Avadegy AB that dominates C.

1) No mixen Strategy between AC that dominates B.

And finally, No pure strategy Nash equilibrium as well.

Since there is a Lotted line between L.M. which means a player connot distibuish between Z states. As a result, LR of player 2 - stonds for: (Lif player 1 choose Lor M. R if player I choose R.

b): Let player 2 play R when player 1 plays R. As a result, player 1 actually is forced to play (L,M). Hence R for player 1 can be eliminated.

Now we have the 5 ame with imported infunction:

L R (91) calculating mixed shortly equilibrium:

$$V = \frac{3.3}{2.4} = \frac{2.4}{3.3} = \frac{1}{2}$$
 $V = \frac{1}{2}$
 $V = \frac{1}{2}$

As a result, the mixed strategy would be: L(をし、され),(ゼレ、ゼR)」

d) D. In the subgame after player 1 chooses R, subgame is 4,2-11. player 2 will choose L because it will give you higher payoff. In the whole Jame tree, (R, LL) is also a Nash equilibrium. As a result (R, LL) is subgain perfect equilibrium, (R, RL) is also a subgaine perfect equilibrium

In then subspire on the left with imperfect information, there is no pure strategy hash equilibrihert.

Due to the Same reason