1. 
   a) No dominated strategies 
   b) A is dominated by B for P1 and a is dominated by b for P2 
   c) Only survivor of IDSDS is (B,c) 
   d) As there is only a single surviving strategy profile, it must be the unique NE

2. 
   a) 
   
<table>
<thead>
<tr>
<th></th>
<th>Call right back</th>
<th>Wait</th>
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</thead>
<tbody>
<tr>
<td>Call right back</td>
<td>(0,0)</td>
<td>(1,2)</td>
</tr>
<tr>
<td>Wait</td>
<td>(1,1)</td>
<td>(-1,-1)</td>
</tr>
</tbody>
</table>

   b) 2 pure NE, (C,W) and (W,C) 
   c) Mixed NE where P1 plays C with probability ½ and W with probability ½ and P2 plays C with probability ½ and W with probability ½ 
   d) Open ended. Payoff dominance, risk dominance, reputation of the players are all possible things to think about.

3.
a) 

b) P1 strategy set: (SS, SL, LS, LL)  
P2 strategy set: same as P1  
c) P1 on vertical and P2 on horizontal  

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>SL</th>
<th>LS</th>
<th>LL</th>
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<tr>
<td>SS</td>
<td>(10,10)</td>
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<td>(90,-10)</td>
<td>(90,-10)</td>
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<td>SL</td>
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<td>(0,100)</td>
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<tr>
<td>LL</td>
<td>(0,100)</td>
<td>(0,100)</td>
<td>(0,100)</td>
<td>(0,100)</td>
</tr>
</tbody>
</table>

d) NE at (SS,SS)
4.

a) See b

b) Best response function is \( BR_i(H_i) = \frac{(900-H_i)}{2} \) so the best response to \( H_i = 600 \) is \( h_i = 150 \).

c) One potential NE is the symmetric one in which all players fish for the same number of hours. In this case, \( H_i = 8h_i \)

Plugging this into BR function gives \( h_i = 90 \) so an NE would be for everybody to fish for 90 hours.

d) Social function is \( U(H) = H(1000-H)-100H \). This is maximized at \( H=450 \).

e) In the NE, \( H = 9*90 = 810 \). Social utility is \( 810(190)-100(810) = 72900 \). Social optimum utility is \( 450(550-450)-100(450) = 202500 \). Efficiency loss is \( 1 - \frac{72900}{202500} = 64\% \).

This is a tragedy of the commons as everybody competing for the scarce resource causes the community to overfish relative to social optimal, hurting payoffs for everybody.