1. (a) The preferences are as follows:

<table>
<thead>
<tr>
<th>Preferences of a MALE:</th>
<th>Preferences of a FEMALE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>outcome</td>
<td>utility</td>
</tr>
<tr>
<td>$MF$</td>
<td>5</td>
</tr>
<tr>
<td>$MFF$</td>
<td>4</td>
</tr>
<tr>
<td>all</td>
<td>3</td>
</tr>
<tr>
<td>$MMF$</td>
<td>2</td>
</tr>
<tr>
<td>$MM$</td>
<td>1</td>
</tr>
<tr>
<td>alone</td>
<td>0</td>
</tr>
</tbody>
</table>

Ann: $D$

Charlie: $R$

Beth

Charlie: $D$

Dan: $R$

Dan: $D$

(b) There are 6 Nash equilibria: (D,D,D,D), (D,R,R,D), (R,D,R,D), (D,R,D,R), (R,D,D,R) and (R,R,R,R). They are highlighted above.

(c) Yes: (D,D,D,D) and (R,R,R,R) are strictly Pareto dominated by the other Nash equilibria.
2. (a) The game is as follows (vA means ‘veto A’, etc.)

(b) One backward induction solution is shown below (by thick arrows):
The other solution is shown below:

They are also shown below by writing out the strategies explicitly (the differences between the two are highlighted in bold face):

<table>
<thead>
<tr>
<th>backward induction solution 1</th>
<th>backward induction solution 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAYER 1</td>
<td>PLAYER 2</td>
</tr>
<tr>
<td>veto B</td>
<td>from left to right:</td>
</tr>
<tr>
<td></td>
<td>veto D, veto D, veto D, <strong>veto A</strong></td>
</tr>
<tr>
<td>PLAYER 3</td>
<td>from left to right:</td>
</tr>
</tbody>
</table>

The two solutions are equivalent in the sense that they give rise to the same outcome, namely that A is elected.