Consider the following profit payoff table:

<table>
<thead>
<tr>
<th>PROFIT</th>
<th>act a₁</th>
<th>act a₂</th>
<th>act a₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>state s₁</td>
<td>100</td>
<td>-10</td>
<td>-40</td>
</tr>
<tr>
<td>state s₂</td>
<td>80</td>
<td>0</td>
<td>-20</td>
</tr>
<tr>
<td>state s₃</td>
<td>60</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>state s₄</td>
<td>20</td>
<td>40</td>
<td>20</td>
</tr>
</tbody>
</table>

#1-a. Determine the maximin act. (10 points)

#1-b. Specify the regret table. (10 points)

<table>
<thead>
<tr>
<th>REGRET</th>
<th>act a₁</th>
<th>act a₂</th>
<th>act a₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>state s₁</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>state s₂</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>state s₃</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>state s₄</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#1-c. Determine the minimax regret act. (10 points)
#2. Consider the following profit table:

<table>
<thead>
<tr>
<th>PROFIT</th>
<th>act $a_1$</th>
<th>act $a_2$</th>
<th>$P(s)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>state $s_1$</td>
<td>100</td>
<td>80</td>
<td>.4</td>
</tr>
<tr>
<td>state $s_2$</td>
<td>60</td>
<td>90</td>
<td>.6</td>
</tr>
</tbody>
</table>

#2-a. Determine the optimal expected value act. (10 points)

#2-b. Determine the gross value of the perfect predictor. (10 points)
#3. Consider the foregoing profit table and a one-trial experiment:

![Profit Table](image)

(If you prefer to use a decision tree, then show your work on the next page.)

#3-a. Determine the posterior probabilities. (10 points)

![Posterior Probabilities Table](image)

#3-b. Determine the conditional expected utilities. (10 points)

![Conditional Expected Utilities Table](image)
#3-c. Determine the Bayes strategy. (5 points)

#3-d. Determine the gross value of the experiment. (10 points)

#3-e. Determine the maximum amount you would be willing to pay for this experiment. (10 points)
#4 Suppose an individual is indifferent between a gamble paying $1,000 with probability 0.1 and $0 with probability .9, and a sure payment of $200. On a scale from 0 to 10, determine the individual’s utility for $200. (5 points)