1 Marking scheme

The exam paper for COMP2111 is multiple choice with possibly multiple correct answers. The marking is explained in the paper as follows

**Marking scheme:** If there are $N$ correct answers across the paper ($Q \leq N \leq 5 \times Q$), where $Q$ is the number of questions in the paper, then each correct selection to a question will earn you $\frac{1}{N}$ of the maximum mark, and each incorrect selection will result in $\frac{0}{N}$ of the maximum mark being deducted.

You can never get less than zero for any question.

Examples: Assume a paper with 30 questions and five choices in each question. Assume the total number of correct choices across the whole paper is 100 and suppose the total mark for the paper is 100.

In one question you select

- 1 correctly and make no other choice: your mark will be $(1/100) \times 100 = 1$ mark.
- 1 correctly and 1 incorrectly: your mark will be $(1 - 0.5)/100 \times 100 = 0.5$ mark.
- 2 correct and 1 incorrect: your mark will be $(1 + 1 - 0.5)/100 \times 100 = 1.5$ mark.
- 1 correct and 2 incorrect: your mark will be $(1 - 0.5 - 0.5)/100 \times 100 = 0$ mark.
- 1 correct and 3 incorrect: your mark will be $\max(1 - 1, 5, 0)/100 \times 100 = 0$ mark.

2 Analysis of guesswork

You might be interested in the following analysis. The table shows expected scores for a weight of 0.5 for incorrect selections.

<table>
<thead>
<tr>
<th>Number of correct answers</th>
<th>Number chosen</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.1</td>
<td>0.3</td>
<td>0.9</td>
<td>1.3</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>0.3</td>
<td>1.2</td>
<td>2.1</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0</td>
<td>0.3</td>
<td>1.5</td>
<td>2.7</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
<td>3.3</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Table 1: Expected Score (unit = 1.0); weight = 0.5

Table 1 shows the expected score on pure guess work as a function of the number of selected answers and the actual number of correct answers. Some of the numbers in this table have been interpolated and may be slightly inaccurate, but this won’t affect overall trends indicated by the table.

The results show that guessing more than 1 answer is not very successful. A large number of guesses does not yield significant scores unless there are three or more correct answers.

**Important** These tables are given for information and should not be taken as advice on how to answer questions in general. The information only has relevance when answers are being guessed. If a question was being answered on pure guesswork then the table suggest that making one selection would be better than making two; making three selections would be marginally better than making one provided that there were three or more correct answers in the set of 5.