Assignment 12

You are required to submit this assignment by 31 October 2023.

1. A value based on an aggregating function which represents the concept of closeness of the solution to the ideal solution is called
   A. AHP
   B. TOPSIS
   C. Weight
   D. None of these

2. In the context of analytic hierarchy process (AHP), this multi-criteria decision-making (MCDM) technique
   A. provides a mechanism for expressing large and complex decision trees
   B. is a multi-attribute utility theory approach where the decision matrix is set
   C. is simpler than the decision matrix
   D. compares the criteria weights based on pairwise comparisons of criteria

3. Identify the correct statement characterizing the TOPSIS technique in MCDM?
   A. Separation measure of each possible ideal alternative is calculated
   B. Separation measure of each possible ideal alternative is calculated
   C. Separation measure of each possible positive ideal alternative is calculated
   D. None of these

4. The decision criteria which play into consideration "best-of-the-three" while selecting the alternative that yields maximum profit from all possible outcomes is known as
   A. minimum risk
   B. maximum risk
   C. minimum utility
   D. maximum utility

5. The decision criteria that establishes the concept of opportunity loss while taking into account competitiveness in a competitive view is
   A. maximum utility
   B. minimum risk
   C. minimum utility
   D. maximum risk

6. Which of these aspects is valid while employing the analytic hierarchy process (AHP) technique for decision-making?
   A. Numerical score is given to quantitative preference patterns
   B. We need to normalize the scores
   C. Non-normalize the scores
   D. None of these

7. A decision tree is used to
   A. highlight the representation of alternatives and categories of metrics
   B. represent a decision tree with decision and categories of metrics
   C. match representation of alternatives and categories of metrics
   D. schematic representation of alternatives and categories of metrics

8. Given three alternatives and their total weighted evaluation, which action should be undertaken?
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Weighted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.4</td>
</tr>
<tr>
<td>B</td>
<td>0.5</td>
</tr>
<tr>
<td>C</td>
<td>0.6</td>
</tr>
<tr>
<td>D</td>
<td>0.7</td>
</tr>
</tbody>
</table>

9. Which of these statements does not correctly refer to the representation of two different types of nodes using standard notations in a decision tree problem?
   A. Decision nodes are depicted as circles while event nodes are depicted as squares
   B. Decision nodes are depicted as squares while event nodes are depicted as circles
   C. Both decision nodes and event nodes are depicted as squares
   D. Both decision nodes and event nodes are depicted as circles

10. Pairwise comparisons of alternatives in analytic hierarchy process (AHP) are typically based on a scale from 1 to 9 where 1 represents the equal preference between the two alternatives
    A. AHP is used for a possible pair of alternatives in order to only the most important criterion
    B. AHP produces pairwise comparison matrices, which are square matrices with the number of rows and columns being the same as the number of criteria
    C. AHP produces pairwise comparison matrices, whose corresponding entries across the main diagonal are equal and whose non-diagonal entries consist of zeros