Assignment 0

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

1. \(4X_1 + 5X_2 \leq 20\) is
   - A linear equation
   - A linear inequality
   - A nonlinear equation
   - A nonlinear inequality   
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - A linear inequality

2. The solution of \(X_1 + X_2 = 8\) and \(2X_1 + 3X_2 = 20\) is
   \(X_1 = 4\) and \(X_2 = 4\)
   \(X_1 = 2\) and \(X_2 = 6\)
   \(X_1 = 6\) and \(X_2 = 2\)
   \(X_1 = 3\) and \(X_2 = 5\)
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   \(X_1 = 4\) and \(X_2 = 4\)

3. Which of the following is not necessarily part of a linear programming problem
   - Objective function
   - Decision variable
   - Linear constraint
   - Nonlinear constraint
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - Nonlinear constraint

4. The solution of \(X_1 + X_2 \leq 8\) and \(2X_1 + 3X_2 \leq 20\) is
   \(X_1 = 4\) and \(X_2 = 4\)
   \(X_1 = 2\) and \(X_2 = 6\)
   - The system has infeasible solutions
   - The system has no solution
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - Fixed solutions

5. You wish to solve \(X_1 + X_2 + X_3 = 8\) and \(2X_1 + 3X_2 + X_3 = 20\). The system has
   - Unique solution
   - Infinite solutions
   - No solutions
   - Exactly two solutions
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - No solutions

6. You wish to solve \(X_1 + X_2 + X_3 = 8\) and \(2X_1 + X_2 + X_3 = 20\). You fix one of the variables to zero and solve for the other two. How many solutions do you have?
   - 1
   - 2
   - 3
   - 4
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - 2

7. The maximum value that \(5X_1 + 6X_2\) can take provided \(X_1\) and \(X_2\) satisfy \(X_1 \leq 8\) and \(X_2 \leq 20\) is
   - 0
   - 40
   - 120
   - 180
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - 120

8. Two companies have bid for 3 projects. One project is to be given to each company. The costs given by the two companies for the projects are given in the table.

<table>
<thead>
<tr>
<th>Company 1</th>
<th>Project 1</th>
<th>Project 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Company 2</td>
<td>15</td>
<td>19</td>
</tr>
</tbody>
</table>

The least cost allocation has cost =
   - 29
   - 36
   - 31
   - 27
   **Note:** the answer is incorrect.
   **Correct Answer(s):**
   - 31