1. Your company has been presented with an opportunity to invest in a project. The facts on the project are presented below:

<table>
<thead>
<tr>
<th>Investment required</th>
<th>LE60,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salvage value after 10 years</td>
<td>0</td>
</tr>
<tr>
<td>Gross income expected from the project</td>
<td>LE20,000,000/yr</td>
</tr>
<tr>
<td>Operating costs:</td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>LE2,500,000/yr</td>
</tr>
<tr>
<td>Materials, licenses, insurance, etc</td>
<td>LE1,000,000/yr</td>
</tr>
<tr>
<td>Fuel and other costs</td>
<td>LE1,500,000/yr</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>LE500,000/yr</td>
</tr>
</tbody>
</table>

The project is expected to operate for ten years. If your management expects to make 25% on its investments before taxes, would you recommend this project?

2. A firm is trying to decide which of two alternate weighing scales to install in its plant. The scale should allow better control of the filling operation and result in loss overfilling. If both scales have lives equal to six years, which one should be selected if the interest rate is 8% assuming in the information given below.

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Cost</th>
<th>Annual benefits</th>
<th>Salvage value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale A</td>
<td>LE2000</td>
<td>LE450</td>
<td>LE100</td>
</tr>
<tr>
<td>Scale B</td>
<td>LE3000</td>
<td>LE600</td>
<td>EL700</td>
</tr>
</tbody>
</table>

3. An investor paid LE8,000 to a consulting firm to analyze what he might do with a small parcel of land on the edge of town that can be bought for LE30,000. In their report, the consultants suggested four alternatives ($i = 10\%$):
<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Total investment including land</th>
<th>Annual benefits</th>
<th>Terminal value at end of 20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Do nothing</td>
<td>LE0</td>
<td>LE0</td>
<td>LE0</td>
</tr>
<tr>
<td>B: Vegetable market</td>
<td>LE50,000</td>
<td>LE5,100</td>
<td>LE30,000</td>
</tr>
<tr>
<td>C: Gas station</td>
<td>LE95,000</td>
<td>LE10,500</td>
<td>LE30,000</td>
</tr>
<tr>
<td>D: Small motel</td>
<td>LE350,000</td>
<td>LE36,000</td>
<td>LE150,000</td>
</tr>
</tbody>
</table>

4. Two pieces of construction equipment are being analyzed:

<table>
<thead>
<tr>
<th>Year</th>
<th>Alternative A</th>
<th>Alternative B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-EL2,000</td>
<td>-EL1,500</td>
</tr>
<tr>
<td>1</td>
<td>+LE1,000</td>
<td>+LE700</td>
</tr>
<tr>
<td>2</td>
<td>+LE850</td>
<td>+LE300</td>
</tr>
<tr>
<td>3</td>
<td>+LE700</td>
<td>+LE300</td>
</tr>
<tr>
<td>4</td>
<td>+LE550</td>
<td>+LE300</td>
</tr>
<tr>
<td>5</td>
<td>+LE400</td>
<td>+LE300</td>
</tr>
<tr>
<td>6</td>
<td>+LE400</td>
<td>+LE400</td>
</tr>
<tr>
<td>7</td>
<td>+LE400</td>
<td>+LE500</td>
</tr>
<tr>
<td>8</td>
<td>+LE400</td>
<td>+LE600</td>
</tr>
</tbody>
</table>

Based on an 8% interest rate, which alternative should be selected?

5. In a present worth analysis, one alternative has a net present worth of +LE420, based on a six-year analysis period that equals the useful life of the alternative. A 10% interest rate was used in the computations. The alternative is to be replaced at the end of the six years by an identical piece of equipment with the same cost, benefits and useful life. Based on a 10% rate, compute the net present worth of the equipment for the 12-year analysis period.

6. Consider five mutually exclusive alternatives:

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost</td>
<td>LE600</td>
<td>LE600</td>
<td>LE600</td>
<td>LE600</td>
<td>LE600</td>
</tr>
<tr>
<td>Annual benefits (first 5 years)</td>
<td>LE100</td>
<td>LE100</td>
<td>LE100</td>
<td>LE150</td>
<td>LE150</td>
</tr>
<tr>
<td>Annual benefits (last 5 years)</td>
<td>LE50</td>
<td>LE100</td>
<td>LE110</td>
<td>0</td>
<td>LE50</td>
</tr>
</tbody>
</table>
The interest rate is 10%. If all alternatives have a ten-year useful life, and no salvage value, which alternative should be selected?

7. A piece of machinery was purchased for an initial cost of LE100,000. It has an anticipated life of 10 years and its salvage value is predicted to be 15% of its initial value. What must the revenues be on an annual basis to make this a worthwhile purchase? Assume an interest rate of 10%.

8. Compare between the following two alternatives presented in the following table using the EUAC method. Consider \(i = 15\%\).

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Purchase cost</th>
<th>Annual revenue</th>
<th>Salvage value</th>
<th>Useful life</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>LE11000</td>
<td>LE3500</td>
<td>LE1000</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>LE18000</td>
<td>LE3100</td>
<td>LE2000</td>
<td>9</td>
</tr>
</tbody>
</table>

9. Two machines are being considered for purchase. If the MARR is 10%, which machine should be bought?

<table>
<thead>
<tr>
<th></th>
<th>Machine X</th>
<th>Machine Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost</td>
<td>LE200</td>
<td>LE700</td>
</tr>
<tr>
<td>Annual benefits</td>
<td>95</td>
<td>120</td>
</tr>
<tr>
<td>Salvage value</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>Useful life, years</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

10. A new restaurant is considering buying a new meat slicer system for LE50,000 that they estimate will save them LE11,000 per year in labor and operating costs. The same system with an auto loader system is EL68,000 and will save LE14,000 per year. If the life of both systems is expected to be 8 years and their MARR is 12% which, if either system, should be accepted?