**QUESTION:** The alternatives shown below are to be compared on the basis of their capitalized equivalents (CE). At an interest rate of 10% per year, compounded continuously, which alternative should be selected?

<table>
<thead>
<tr>
<th></th>
<th>Alternative A</th>
<th>Alternative B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost, $</td>
<td>50000</td>
<td>90000</td>
</tr>
<tr>
<td>Annual cost, $/year</td>
<td>10000</td>
<td>4000</td>
</tr>
<tr>
<td>Salvage value, $</td>
<td>13000</td>
<td>15000</td>
</tr>
<tr>
<td>Life, years</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
Given: Annual cash flows at $i_p = 10\%$ compounded continuously

\[ i_p \neq i_c; M = \infty; K = 1; C = \infty; i_p = i_a = e^{r/K} - 1 = e^{0.10} - 1 = 0.1052 \ (10.52\%) \]

Find: $CE(10.52\%)$ for Alternative A and B and compare for best alternative

\[
CE_A = \frac{AE_A}{i_p}
\]

\[
AE_A = -$50000(A/P, 10.52\%, 3) \ - \ $10000 \ + \ 13000(A/F, 10.52\%, 3)
\]

Substitute the factors from the Formula Table 3.4 as follows:

\[
AE_A = -$50000 \left( \frac{0.1052(1 + 0.1052)^3}{(1 + 0.1052)^3 - 1} \right) \ - \ $10000 \ + \ 13000 \left( \frac{0.1052}{(1 + 0.1052)^3 - 1} \right)
\]

\[
AE_A = -$26382.2
\]

\[
CE_A = \frac{-$26382.2}{0.1052} = -$250781.37
\]

\[
CE_B = \frac{AE_B}{i_p}
\]

\[
AE_B = -$90000(A/P, 10.52\%, 6) \ - \ $4000 \ + \ 15000(A/F, 10.52\%, 6)
\]

Substitute the factors from the Formula Table 3.4 as follows:

\[
AE_B = -$90000 \left( \frac{0.1052(1 + 0.1052)^6}{(1 + 0.1052)^6 - 1} \right) \ - \ $4000 \ + \ 15000 \left( \frac{0.1052}{(1 + 0.1052)^6 - 1} \right)
\]

\[
AE_B = -$23060.5
\]

\[
CE_B = \frac{-$23060.5}{0.1052} = -$219206.27
\]

\[
CE_B > CE_A
\]

\[
-$219206 > -$250781
\]

Decision: Select Alternative B based on capitalized (or annual) equivalent method