Examination Rules

1. All books, notes, and personal items (with the exception of pencils, eraser, eight sheets of unmarked scratch paper, and ladies' purses) must be left in the back of the room.

2. The examination is Closed Book, Closed Note, and Closed Reference.

3. All problems will be graded on correct answer only. Each answer is valued at 10 points.

4. Answers must be placed in the indicated space for a problem to be eligible for grading.

5. The examination must be submitted to the examination proctor prior to 9:15 am to be graded.

6. Academic misconduct (i.e. plagiarism or cheating) will not be tolerated. Any suspected instance of academic misconduct will be investigated thoroughly. Any student involved in academic misconduct will be prosecuted to the full extent allowed under university policy. This penalty will include an automatic grade of "F" in the course without the opportunity for withdrawal. If the offense is the second offense at UAB, permanent dismissal from UAB will result.

7. No student may leave their seat without the permission of the examination proctor unless in the process of submitting the examination for grading and leaving the room.

I have read and understand the above stated examination rules.

Signature

PRINTED NAME (FIRST/ M.I./LAST)  STUDENT NUMBER
Find the contribution to $V_0$ from the 40-Volt source in the circuit below.

\[ V_0 = 0 \text{ Volts} \]

Find the power supplied by $V_1$ in the circuit below.

\[ P_{\text{Supplied by } V_1} = -144.286 \text{ Watts} \]

Find the Thevenin’s Theorem Equivalent Resistance at terminals A and B in the circuit below.

\[ R_{E_Q} = 8 \text{ Ohms} \]
Write the Node Analysis equation for Node #2 for the circuit below for the voltages as assigned.

\[
\left(\frac{-1}{10}\right) V_1 + \left(\frac{1}{5}\right) V_2 + \left(0\right) V_3 = \left(1\right)
\]

Find the Norton's Theorem Equivalent Impedance at terminals A and B for the circuit below.

\[
Z_{eq} = 1.5 \angle 14.47^\circ \text{ Ohms}
\]

Find \(V_0\) for the circuit below.

\[
V_0 = 6.4 \text{ Volts}
\]
What is the power factor for \( V_{\text{Source}} \) and for \( Z_B \) in the circuit below?

\[
\begin{align*}
Z_A &= 10 + j10 \\
V_s &= 120/60^\circ \text{ V}_{\text{RMS}} \\
Z_B &= 10 - j30
\end{align*}
\]

- Power Factor for \( V_{\text{Source}} = 0.7071 \) (Leading)
- Power Factor for \( Z_B = 0.3162 \) (Leading)

Write the Mesh Equation for Mesh #1 for the circuit below for the current flows as assigned.

\[
\begin{align*}
(5\,5)I_1 + (-5)I_2 &= (-30)
\end{align*}
\]

Write the Node Analysis equation for Node #2 for the circuit below for the voltages as assigned.

\[
\begin{align*}
(0)V_1 + (\frac{11}{50\,\text{k}\Omega})V_2 + (\frac{-1}{50\,\text{k}\Omega})V_3 &= (1\,\text{m})
\end{align*}
\]