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.

$V_0 = 0$ Volts

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

$P_{supplied by \ V_1} = -533.33$ Watts

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

$R_{eq} = 7.5$ Ohms
Write the Node Analysis equation for Node #2 for the circuit below for the voltages as assigned.

\[
\left(-\frac{1}{20}\right) V_1 + \left(\frac{7}{100}\right) V_2 + \left(0\right) V_3 = \left(\begin{array}{c} 5 \\ 6 \end{array}\right)
\]

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

\[
Z_{EQ} = 1.562 \angle 51.34^\circ \text{ Ohms}
\]

Find \( V_0 \) for the circuit below.

\[
V_0 = -\frac{240}{7} = -34.286 \text{ Volts}
\]
What is the power factor for $V_{\text{Source}}$ and for $Z_B$ in the circuit below?

$Z_A = 20+j 20$

$V_s = 120/60^\circ \text{V}_{\text{RMS}}$

$Z_B = 20-j 50$

Power Factor for $V_{\text{Source}} = 0.8$

Power Factor for $Z_B = 0.3714$

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

$80\text{V}$

20Ω

I_1

2A

2A

10Ω

I_Z

20Ω

(70)I_1 + (-10)I_2 = (20)

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

20V

V_1

10kΩ

10nA

V_2

20kΩ

V_3

V_1

10kΩ

2A

10kΩ

20V

5kΩ

(0)V_1 + (\frac{3}{20k})V_2 + (\frac{1}{20k})V_3 = (8\text{m})