1. (26 pts) Find the values below. Show your work.
   a) $R_3 = ?$
   b) $R_4 = ?$
   c) $V_S = ?$
   d) $P_S = ?$

2. (25 pts) Use the method of superposition to find $I_{R2}$ and $V_{R1}$.
   
   Be sure to redraw the circuit as needed and to clearly show and circle your intermediate results.

3. (20 pts) a) Find and draw the Thévenin equivalent of the circuit shown.
   The load resistor is $R_L$.

   b) Find and draw the Norton equivalent of the same circuit.

   c) Find the load voltage using your Thévenin equivalent circuit.
4. (7 pts) Find $C_{eq}$ between terminals a and b.

5. (13 pts) The circuit below has been connected as shown for a long time

   a) Find the voltage across each capacitor.

   b) How much energy is stored in capacitor $C_2$.

The questions below are similar to what you might see on the FE exam. They expect you to average about 2 minutes per question.

6. (5 pts)
In the circuit shown, the power loss in $R_2$ is 0.6 W and the power loss in $R_3$ is 0.3 W. What is the value of the resistor, $R_3$?

   a) 100 Ω     b) 141 Ω     c) 283 Ω     d) 400 Ω

7. (4 pts)
In the circuit above, what is output power of the battery?

   a) 0.6 W     b) 0.9 W     c) 1.2 W     d) 1.5 W

Answers
1. a) 500-Ω     b) 625-Ω     c) 11.8-V     d) 0.33-W
2. 7-mA     -2-V
3. a) 100-Ω     b) 36-mA     c) 1.2-V
4. 3.6-µF     5. a) 24-V     8-V     b) 1.28-mJ
6. a) 7. d)