

THIRD MIDTERM

5

Name (print) Tsipser Name (signed) _____

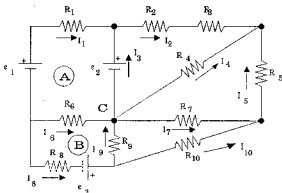
Discussion Instructor (circle): Granada Hansen Li Zhukov

Discussion Section # _____

SHOW ALL WORK!!!!**REPORT ALL NUMBERS TO THREE SIGNIFICANT FIGURES!**Use the conversion constants and data given on the front page.

Given the network shown.

- (a) How many total junctions are there?
 (b) How many unknown currents are there?
 (c) Write down the loop equations for interior loops A and B. Traverse the loops *clockwise*.
 (d) Write down the junction equation for junction C.
 (e) How many loop equations will be needed for a complete solution?



4 (a) 6

4 (b) 10

8 (c) A: $\mathcal{E}_1 - I_1 R_1 - \mathcal{E}_2 + I_6 R_6 = 0$

B: $-I_6 R_6 + I_9 R_9 - \mathcal{E}_3 + I_8 R_8 = 0$

5 (d) $I_6 - I_3 - I_4 - I_7 + I_9 = 0$

4 (e) 5