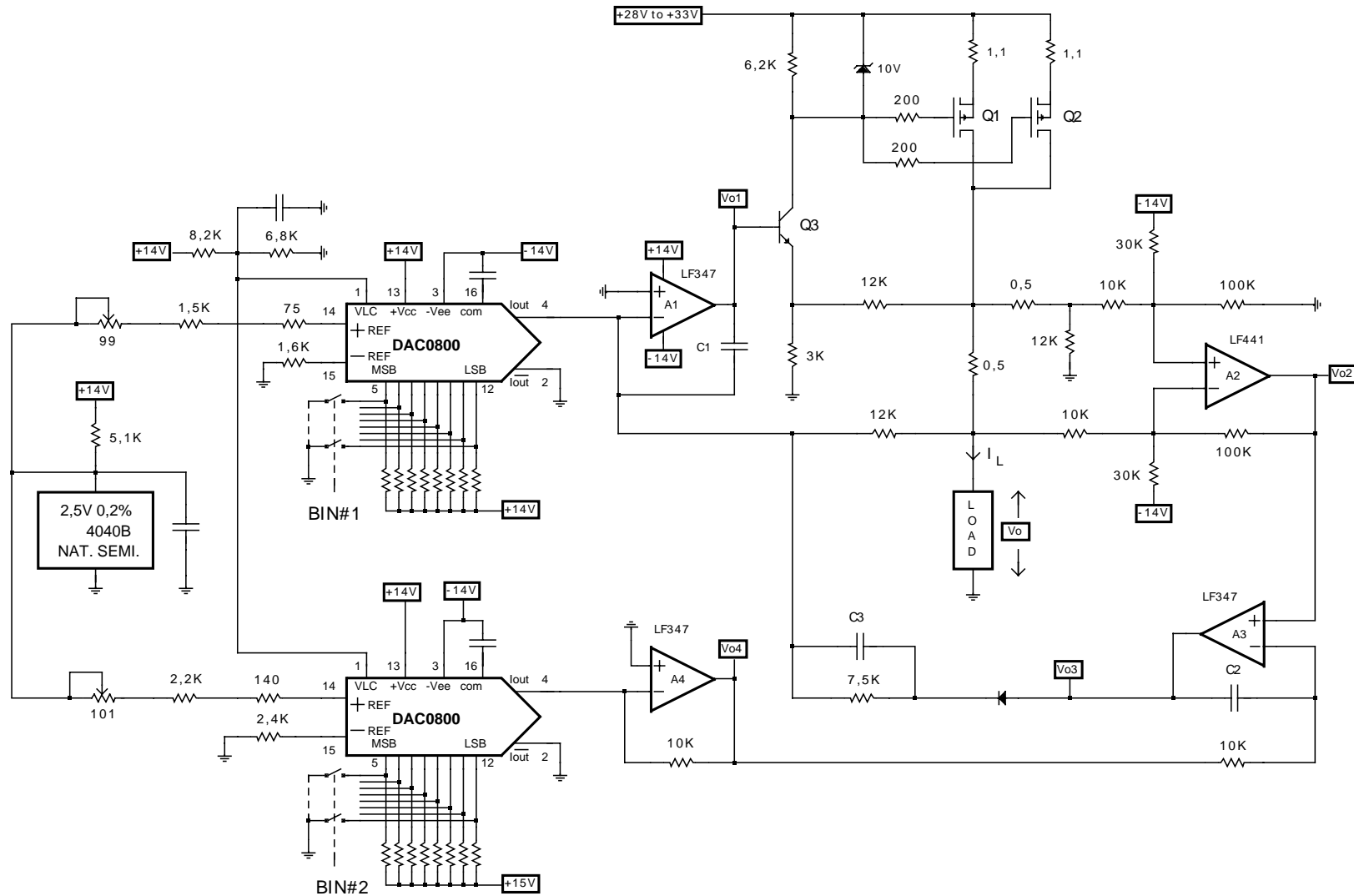


# ELECTRONICS 3

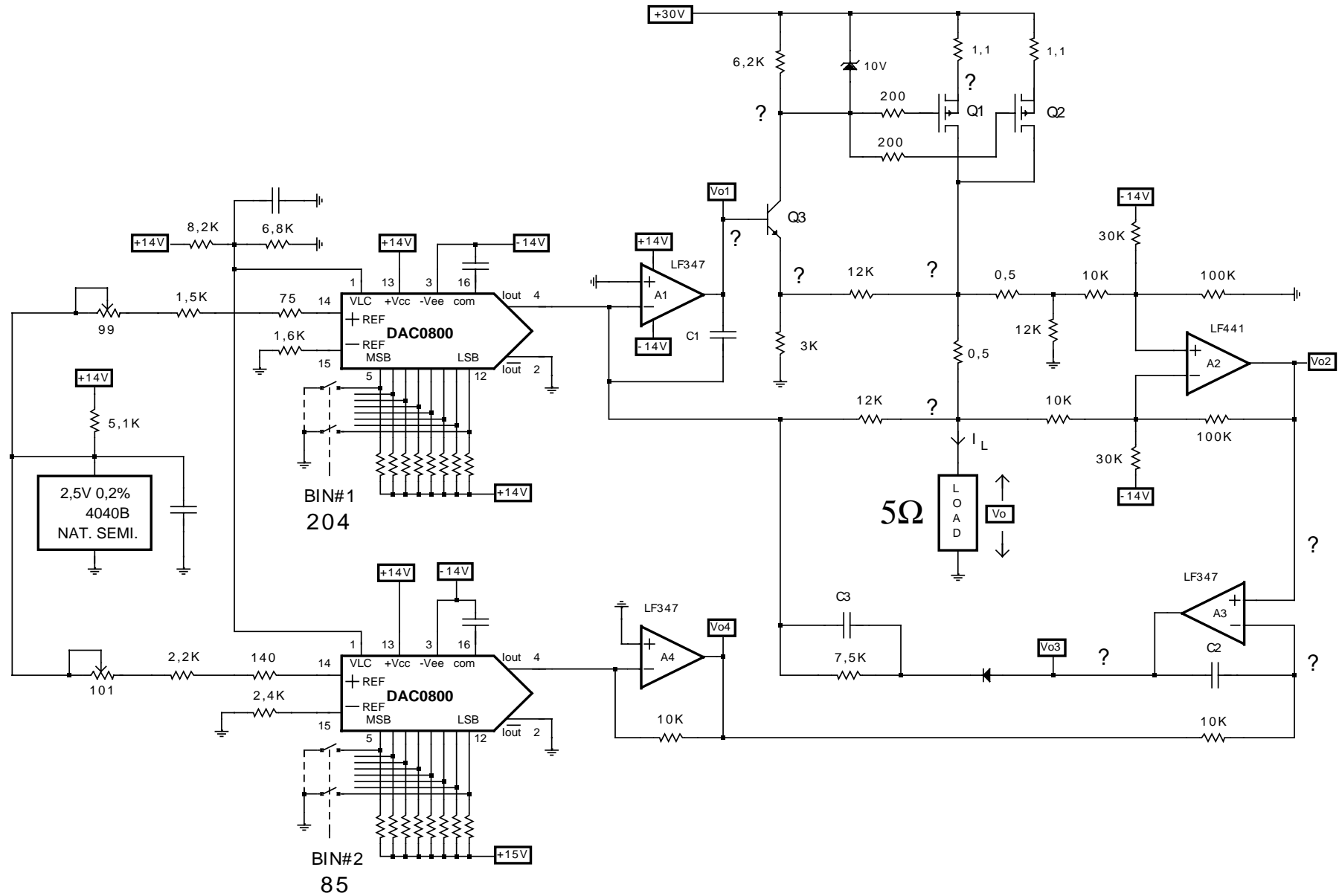
# PROGRAMMABLE POWER SUPPLY EXERCISE

- No.1**
- A)** Determine the voltage range of  $V_O$  and its step size and the current limit range in the load with its step size as well. Assume that the binary inputs range from 0 to 255.
- B)** Determine all of the resistors that are wrong and change them to appropriate values - explain why they are wrong. Assume  $V_{GS} = -5,5V$  max for the MOSFETs and  $V_{E3} = I_{E3} \times (3K \parallel 12K) + V_{D1} \times (3K / (3K + 12K))$



**No.1 C)**

Determine all of the voltages where question marks are shown assuming that  $BIN_1 = 204$  and  $BIN_2 = 85$  and  $R_{LOAD} = 5\Omega$ . Also assume that  $V_{GS} = -4V$  for the MOSFETs and  $V_{E3} = I_{E3} \times (3K \parallel 12K) + V_{D1} \times (3K / (3K + 12K))$



**No.1 D**

The voltages shown on the circuit diagram below were taken for troubleshooting purposes. Assuming that all the resistors and the wiring are correct, determine which components are possibly faulty and explain why.

