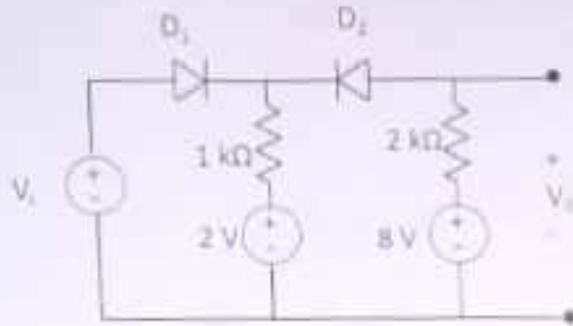


EE 101: Introduction to Electrical and Electronic Circuits, 2019

Quiz 3

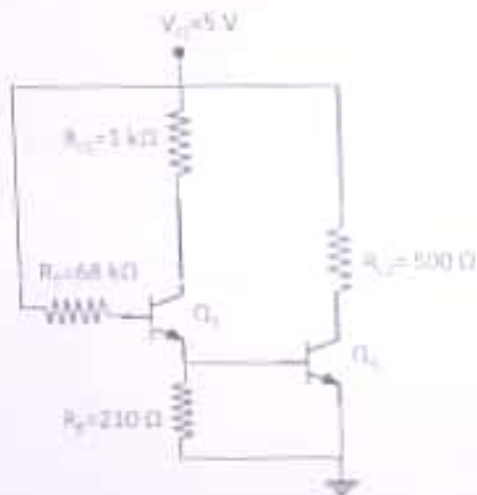
(Show all the steps in the solution properly. Weightage=7 %)

1) Consider the circuit with ideal diodes as shown below. Find out and plot the output voltage V_o as a function of V_i for $V_i = -10\text{ V}$ to $+10\text{ V}$. (Marks 3.5)



$$\begin{aligned} V_i < 4 & \quad 4\text{V} \\ 4 < V_i < 8 & \quad V_i \\ V_i > 8 & \quad 8\text{V} \end{aligned}$$

2) The BJTs Q1 and Q2 in the circuit below have beta values of β_1 and β_2 respectively. Find out the minimum values of β_1 and β_2 such that Q1 and Q2 are in saturation. (marks 3.5)



$$\begin{aligned} F &= 20 \\ h &= 10 \end{aligned}$$

$$\begin{aligned} 17 & \rightarrow 10 \\ 7 & \rightarrow 4 \\ 12 & \rightarrow 10 \end{aligned}$$