JUST
Electronics I, EE 220

Second Exam
8-5-2004

Q1) (6 points) Find and sketch $v_o(t)$ for the circuit of figure 1 mark all voltages clearly, given that $V_{D1}= V_{D1}=0.7V$and $v_i(t)= 10\sin\omega t$, V.

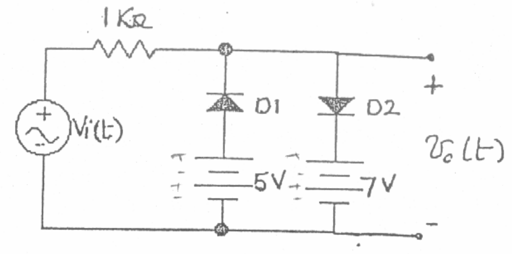

Figure 1

Q2) (10 points) For the circuit of figure 2, given that:

$$i_D(t) = \begin{cases} 2.5\times10^{-3}(v_D - 0.5)^2, & v_D \ge 0.5 \\ 0 & , \; v_D \le 0.5 \end{cases}$$

a. Find and sketch the DC and AC load line equations.
b. Find the total load voltage $v_L(t)$.

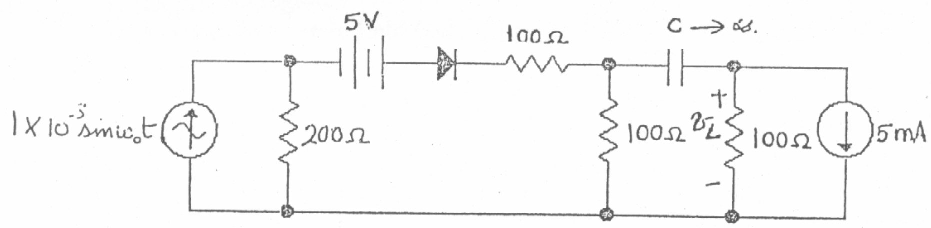

Figure 2

Q3) (9 points) For the transistor circuit of figure 3, given that $V_{BEQ}=0.7V$ and $\alpha=0.99$.

a. Find I_{BQ}, I_{CQ}, V_{CEQ}.
b. Find and plot the DC load line equation.
c. What is the maximum allowed peak to peak collector current swing?

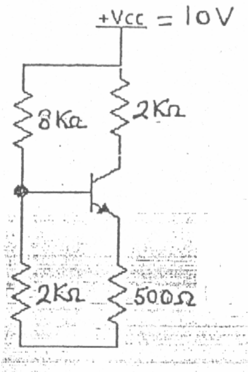

Figure 3