

## ENEE 302-----HOMEWORK 2

03/05/02

Due :03/12/02    DK

1. In Fig.1. Given  $V_E$  is  $-5V$  find the values of  $I_c$ ,  $I_E$  and  $V_o$ .(25pts)

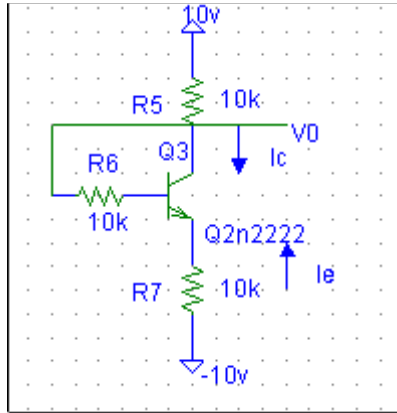


Fig.1.

2. For the circuit given in Fig.2. plot  $i_c$  vs  $v_{ce}$  for  $I_B = 20\mu A, 40\mu A, 60\mu A$ .

Hint: Enable the DC Sweep in analysis setup and chose voltage source and linear. Give the start value of  $V_{BB}$  be 0 and end value be 10V. Then chose nested sweep and do the same for  $V_{CC}$ .

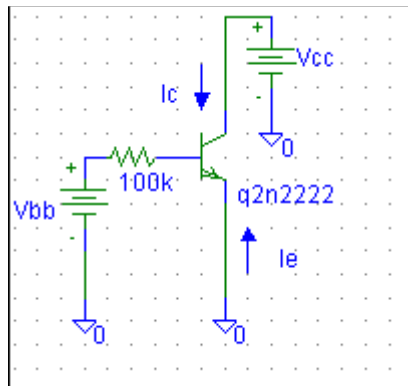


Fig.2.

3. In Fig.3. design the circuit by calculating the values of  $R_1$  and  $R_2$  (Assume  $I_c \sim I_e$ )(20 pts)

$I_C = 1mA$

a) Assume  $\alpha = 1$

b) Assume  $\beta = 50$

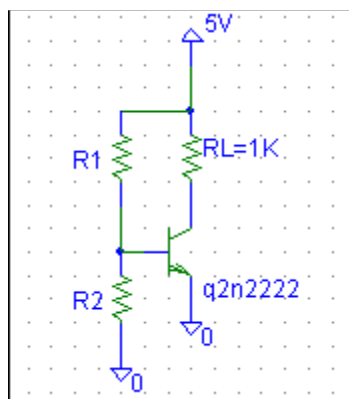


Fig.3.

4. In Fig.4. The circuit is to work as an inverter. Plot the values of  $V_i$  for  $V_o$  varying from  $-5V$  to  $+5V$ . In case the given circuit is incorrect draw the revised circuit and plot  $V_i$  vs  $V_o$ . (25 pts)

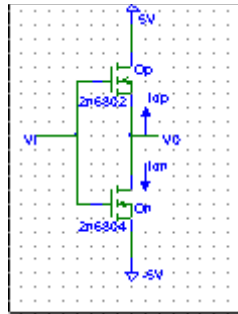


Fig.4.