BJT Transistor Circuits

Q-1. Consider the circuit as illustrated in figure on the right. Determine the following parameters

- I_B , I_C and I_E .
- V_{CE} , V_{CB} .
- α.

Q-2. Consider the circuit as illustrated in figure on the right. Determine the following parameters

- $I_{C(sat)}$, I_B and I_C .
- Is this transistor in saturation region?

Q-3.Consider the circuit as illustrated in figure on the right. Determine the following parameters

- $I_{C(sat)}$, I_B and I_C .
- Is this transistor in saturation region?



Q-4. Consider the circuit as illustrated in figure on the right.

- For this circuit, what is V_{CE} when $V_{in} = 0$.
- minimum *I_B* to saturate the transistor? (β=200)
- Calculate max. value of R_B if $V_{in} = 5v$.

Q-5. Consider the circuit as illustrated in figure on the right. Given $I_B = 50 \mu A$ and voltage drop across of 5v across R_C .

• Determine α , β .

Q-6. Consider the circuit as illustrated in figure on the right.

• Determine α , β .

Q-7. Consider the circuit as illustrated in figure on the right.

- Determine I_B , I_C .
- Determine V_{CE} , V_{BE} and V_{CB} .



Q-8. Consider the circuit as illustrated in figure on the right. given $\alpha = 0.98$ and base current $I_B = 30 \mu A$

- Determine β , .
- Determine I_B , I_C and I_E .
- Determine *R*_B.

Q-9. Consider the circuit as illustrated in figure on the right. given $V_{BB} = 6v$ and base current $I_B = 40\mu A$

- Determine I_B , I_C , I_E and α .
- Determine V_{CE} .
- Determine *R*_B.



Determine the DC load line.

Q-11. Consider the circuit as illustrated in figure on the right. Determine the DC load line. What will be the Q point if zero signal base current is $20\mu A$ and $\beta = 50$.









6v



Q-12. Consider the circuit as illustrated in figure on the right.

Determine the Q-point of transistor also draw the load line given $\beta = 100$.