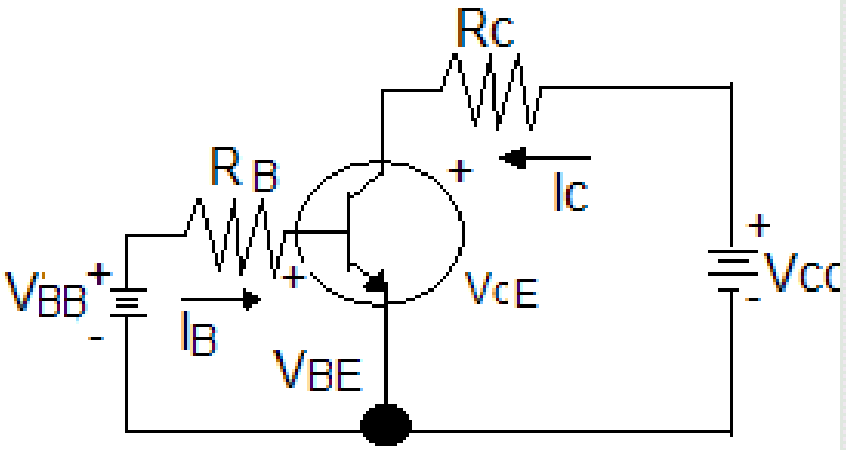
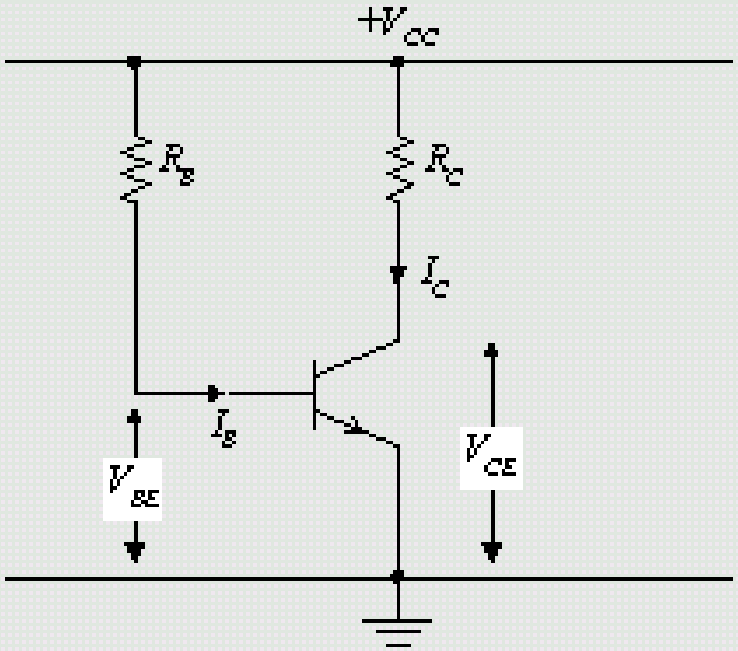
Bias Transistor

Bias Basis





Tegangan kolektor-emitor cutoff : $V_{CE} = Vcc$

Arus kolektor saturasi : $I_C = \frac{V_{CC}}{R_C}$

Arus Basis : $I_B = \frac{V_{BB} - V_{BE}}{R_B}$

Arus Kolektor aktif : $I_C = I_B \beta dc$

Tegangan kolektor-emitor aktif : $V_{CE} = V_{CC} - I_C R_C$

Contoh 1.

Sebuah rangkaian transistor bias basis, V_{CC} = 10 V, R_B = 330 kΩ, R_C = 470 Ω, trasistor dengan $\beta dc = 200$ **.**

Tentukanlah Q point

Jawab

Diketahui :

V_{CC} = 10 V , R_B = 330 kΩ, R_C = 470 Ω, βdc = 200 .

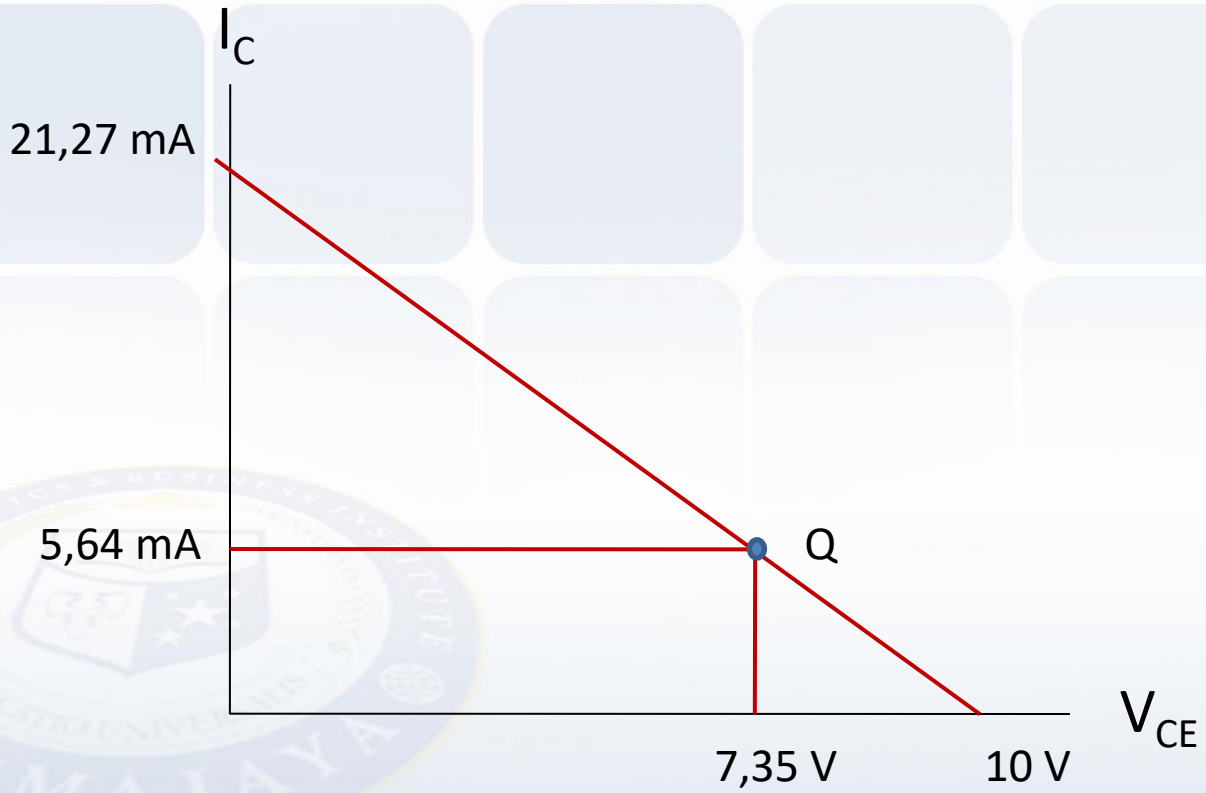
Di tanya : Q point

$I_B = V_{CC}-V_{BE}/R_B$ = 10-0,7/330k = 28,2 µA.

$I_C = I_b \beta dc$ = **28,2 µA .200 = 5,64 mA.**

$V_{CE} = V_{CC} – I_C R_C$ = 10-5,64mA.470 = 7,35 V.

V_{CE} cut of = Vcc = 10 V.
I_C saturasi = V_{CC}/Rc = 10/470 = 21,27 mA



Contoh 2.

Sebuah rangkaian transistor bias basis, V_{CC} = 15 V, R_B = 500 kΩ, R_C = 3 kΩ, trasistor dengan βdc = 100 .

Tentukanlah Q point

Jawab

Diketahui :

V_{CC} = 15 , R_B = 500 kΩ, R_C = 3 kΩ, βdc = 100 .

Di tanya : Q point

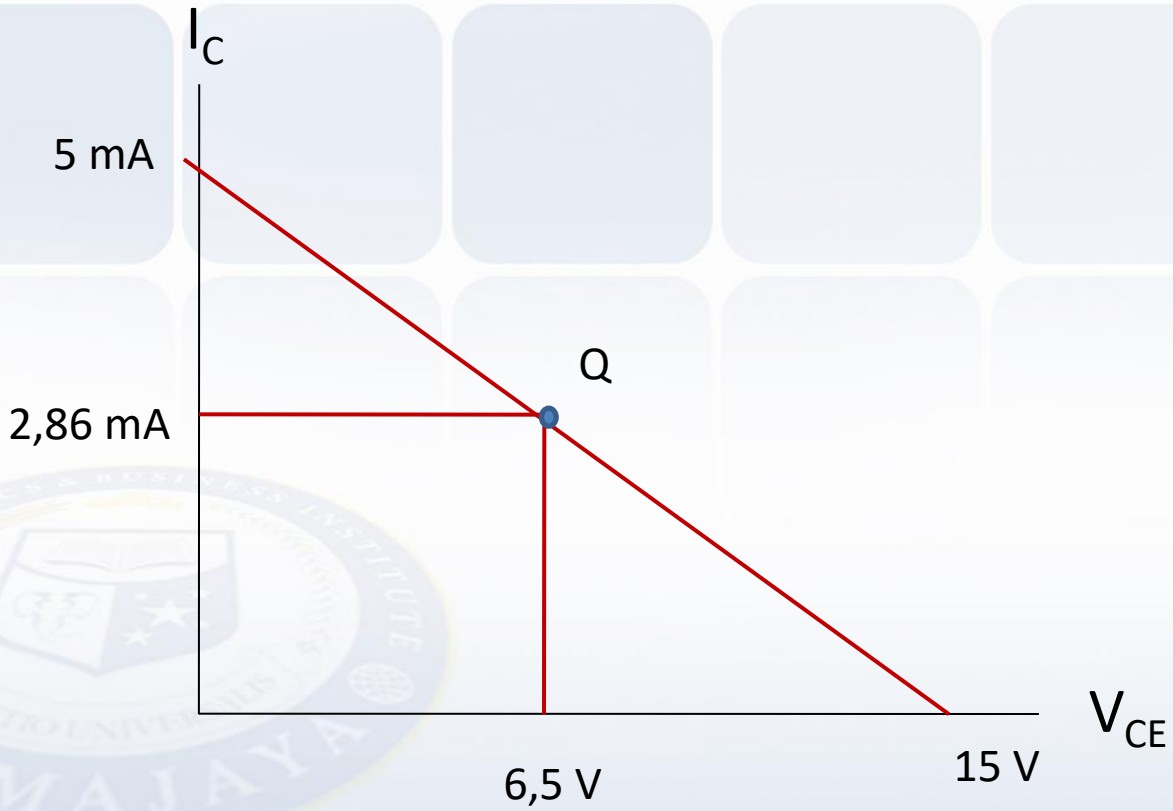
$I_B = V_{CC}-V_{BE}/R_B$ = 15-0,7/500k = 28,6 µA.

$I_C = I_b \beta dc$ = 28,6 µA .100 = 2,86 mA.

$V_{CE(aktif)} = V_{CC} – I_C R_C$ = 15-2,86mA.3 kΩ

= 6,5 V.

V_{CE} cut of = Vcc = 15 V.
I_C saturasi = V_{CC}/Rc = 15/3 kΩ = 5 mA



end