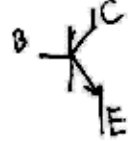


FDL. $V_{be}, R_b, R_c, R_e \rightarrow I_{CQ}, V_{CEQ}$

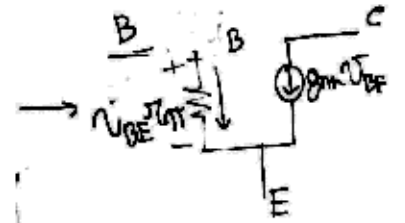


$$I_c = \beta_F I_b$$

$$\beta_F = \frac{I_c}{I_b}$$

↓ P. in R/P.

$$\beta_{F(DC)} = h_{FE} = \frac{dI_c}{dI_b}$$

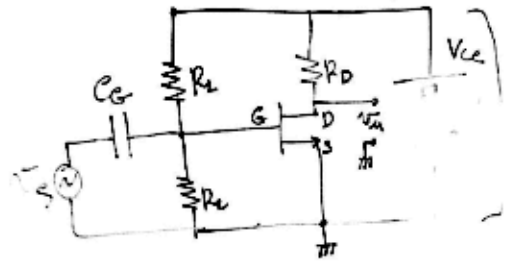


$$I_c = g_m V_{BE}$$

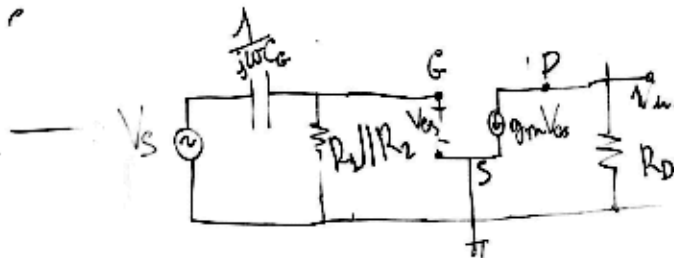
$$V_{BE} = i_b \cdot r_{\pi}$$

$$I_c = g_m i_b \cdot r_{\pi}$$

$$g_m r_{\pi} = \beta_F \rightarrow g_m = \frac{\beta_F}{r_{\pi}}$$

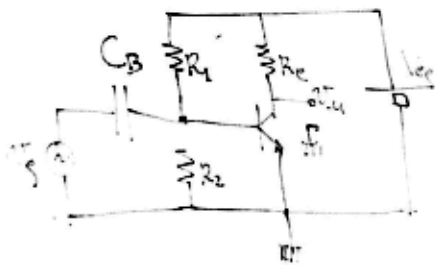


Small signal model
 $\rightarrow I_{DQ}, V_{GSQ} \rightarrow g_m$

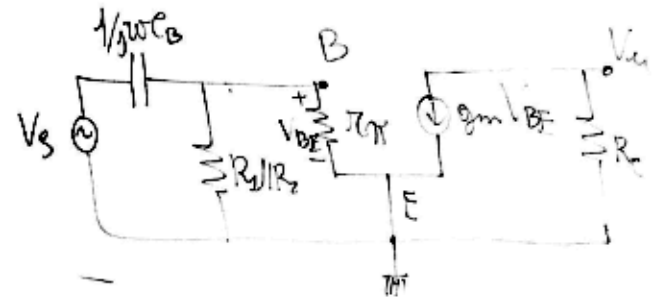


$$A_v(j\omega) = \frac{V_o(j\omega)}{V_s(j\omega)}$$

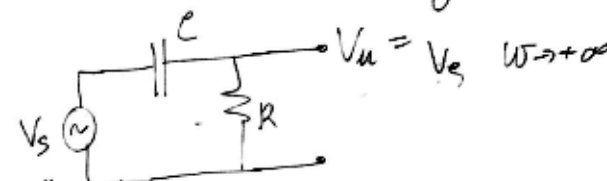
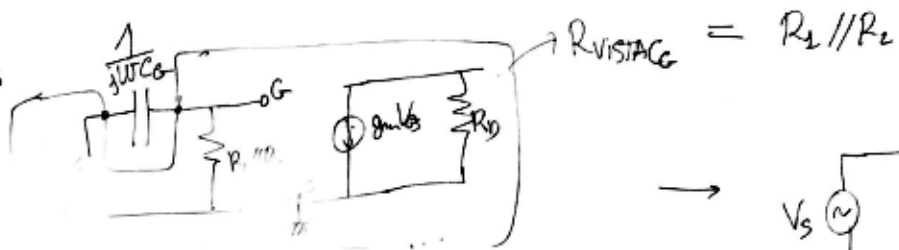
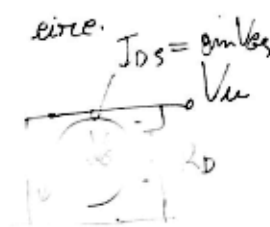
$$R_1 // R_2 = \frac{R_1 R_2}{R_1 + R_2}$$



Small signal model
 $I_{EQ}, I_{CQ}, V_{BEQ} \rightarrow g_m$
 $g_m = \frac{\beta I_{CQ}}{V_T}$



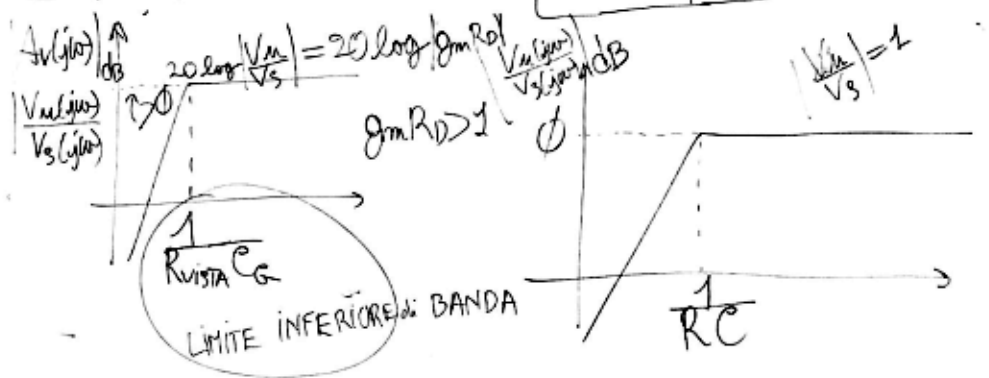
ω grandi \rightarrow C corto circe.

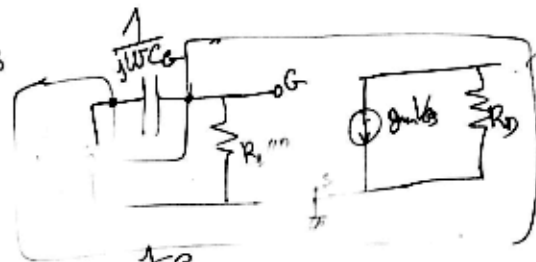
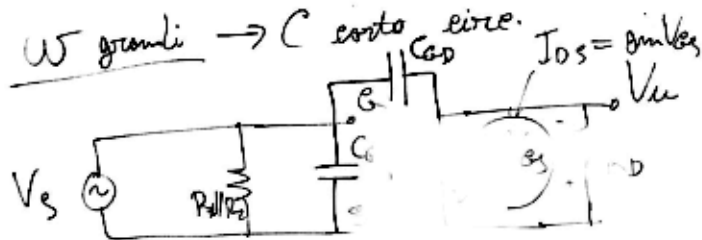


$A_{v\infty}$
 $\omega \rightarrow \infty$
 $V_u = -g_m V_{gs} \cdot R_D$
 $V_{gs} = V_s \rightarrow V_u = -g_m R_D V_s$
 $\frac{V_u}{V_s} = -g_m R_D$
 $\rightarrow \frac{1}{R_v C_g} = 2\pi \cdot 30$



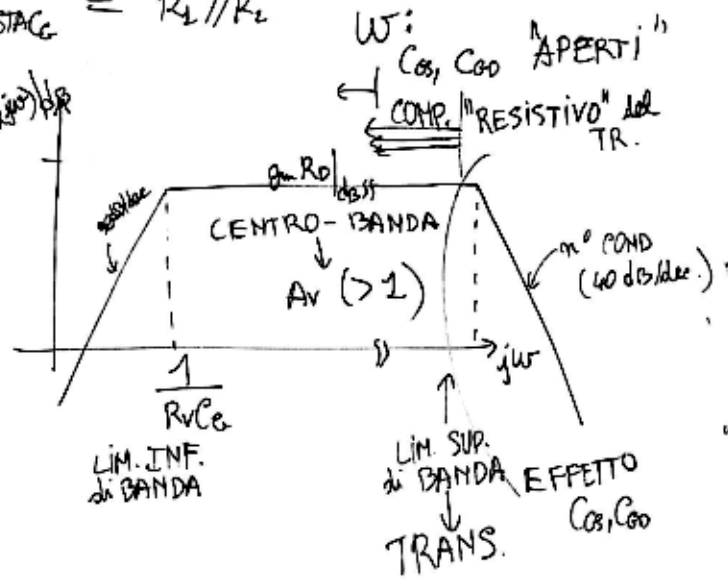
$R_{vISTAC} =$
 $= R_{THEVENIN}$ vista dai
 MORSETTI di C_g





$$R_{VISTAC_G} = R_D // R_L$$

$A(\omega)_{dB}$



$A_{V\infty}$

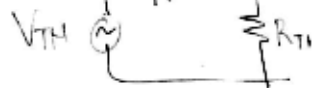
$\omega \rightarrow \infty$

$$V_u = -g_m V_{gs} \cdot R_D$$

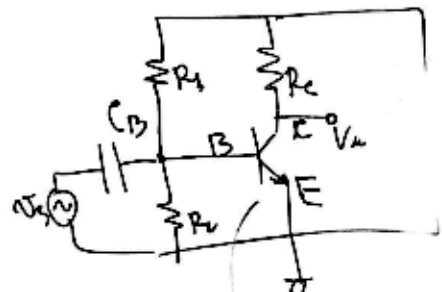
$$V_{gs} = V_s \rightarrow V_u = -g_m R_D V_s$$

$$\frac{V_u}{V_s} = -g_m R_D$$

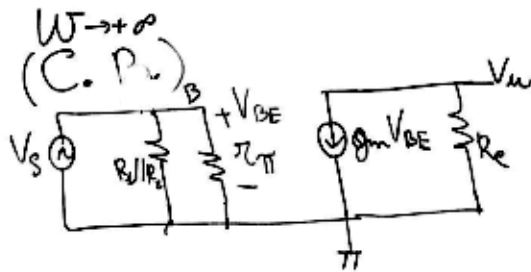
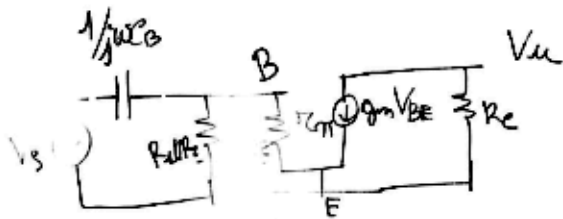
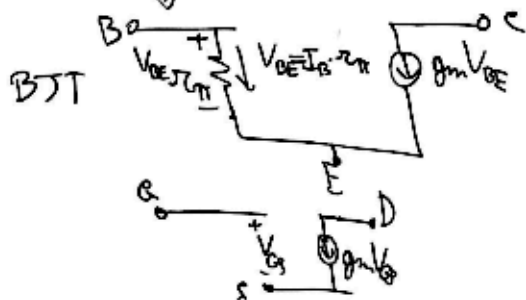
$$\rightarrow \frac{1}{R_g C_g} = 2\pi \cdot 30$$



$$R_{VISTAC_G} = R_{THEVENIN} \text{ vista dai MORSETTI di } C_g$$



MDL + di
RIP.
PAR. DIN.



$$V_{in} = + g_m V_{BE} \cdot R_e$$

$$V_{BE} = V_s$$

$$A_v = \frac{V_{out}}{V_s} = - g_m R_e$$

$$R_{vcb} = R_1 // R_2 // r_{\pi}$$

$\omega \rightarrow +\infty$
(C.P.)
 C_B CHIUSO
 $|A_v(j\omega)|_{dB}$
 ω_p

