

REŠENJA ZADATAKA

1. a) $I_{C1} = 1\text{mA}$; $I_{C2} = 1\text{mA}$; $I_{C3} = 1\text{mA}$.

b) $a = \frac{v_i}{v_g} = g_{m1}R_{C1}g_{m2}R_{C2} \frac{g_{m3}R_{E3}}{1 + g_{m3}R_{E3}} \approx 9807$.

c) $R_{ul} = r_{\pi1} \rightarrow \infty$; $R_{izl} = R_{E3} \parallel \frac{r_{\pi3} + R_{C2}}{\beta_0 + 1} = R_{E3} \parallel \frac{1}{g_{m3}} \approx 24.9\Omega$.

d) $V_I = 0$;

$v_{IMAX} = 5\text{V}$ (Q_3 na granici zakočenja); $v_{IMIN} = -3.7\text{V}$ (Q_2 na granici zasićenja);

$V_{immax} = 3.7\text{V}$.

4.

$v_I[\text{V}] = 12\text{V} = \text{const}$, za $-5\text{V} \leq v_G \leq -4\text{V}$ (IOP-poz. zasićenje, D-OFF, T-OFF);

$v_I[\text{V}] = -3v_G[\text{V}]$, za $-4\text{V} \leq v_G \leq 0.4\text{V}$ (IOP-lin. režim, D-OFF, T-OFF);

$v_I[\text{V}] = -0.75v_G[\text{V}] - 0.9$, za $0.4\text{V} \leq v_G \leq 5\text{V}$ (IOP-lin. režim, D-ON, T-DAR).