

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);

$V_{i\text{max}} = 3,7\text{V}$.

4. a)

$v_I[\text{V}] = 12\text{V} = \text{const}$, za $-12\text{V} \leq v_G \leq -4,8\text{V}$ (IOP-poz. zasićenje, D_1 -OFF, D_2 -ON);

$v_I[\text{V}] = -2v_G[\text{V}] + 2,4$, za $-4,8\text{V} \leq v_G \leq -1,2\text{V}$ (IOP-lin. režim, D_1 -OFF, D_2 -ON);

$v_I[\text{V}] = -4v_G[\text{V}]$, za $-1,2\text{V} \leq v_G \leq 1,2\text{V}$ (IOP-lin. režim, D_1 -OFF, D_2 -OFF);

$v_I[\text{V}] = -2v_G[\text{V}] - 2,4$, za $1,2\text{V} \leq v_G \leq 4,8\text{V}$ (IOP-lin. režim, D_1 -ON, D_2 -OFF);

$v_I[\text{V}] = -12\text{V} = \text{const}$, za $4,8\text{V} \leq v_G \leq 12\text{V}$ (IOP-neg. zasićenje, D_1 -ON, D_2 -OFF).