REŠENJA ZADATAKA

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

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

c) $R_{ul} = r_{\pi 1} \to \infty$; $R_{izl} = R_{E3} \parallel \dfrac{r_{\pi 3} + R_{C2}}{\beta_0 + 1} = R_{E3} \parallel \dfrac{1}{g_{m3}} \approx 24.9\,\Omega$.

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);

$V_{im\max} = 3.7\text{V}$.

4.

$v_I[\text{V}] = 12\text{V}$, za $-3\text{V} \le v_G \le -2.4\text{V}$ (IOP-poz. zasićenje, D-OFF, T-OFF);

$v_I[\text{V}] = -5 v_G[\text{V}]$, za $-2.4\text{V} \le v_G \le 0.28\text{V}$ (IOP-lin. režim, D-OFF, T-OFF);

$v_I[\text{V}] = -1.4\text{V}$, za $0.28\text{V} \le v_G \le 3\text{V}$ (IOP-lin. režim, D-ON, T-DAR).

$i[\text{mA}] = 0$, za $-3\text{V} \le v_G \le 0.28\text{V}$;

$i[\text{mA}] = v_G[\text{V}] - 0.28$, za $0.28\text{V} \le v_G \le 3\text{V}$.