REŠENJA ZADATAKA

1. a) $R_1 = 606\Omega$; $R_2 \approx 2.2\text{k}\Omega$; $R_3 = 5\text{k}\Omega$.

b) $a = \dfrac{v_i}{v_u} = g_{m3} R_3 \dfrac{g_{m1}(R_1 \parallel r_{\pi 3})}{1 + g_{m1}\left(R_2 \parallel \dfrac{r_{\pi 2}}{\beta_0 + 1}\right)} \approx 1972$.

c) $R_{ul} = r_{\pi 1} + (\beta_0 + 1)\cdot\left(R_2 \parallel \dfrac{r_{\pi 2}}{\beta_0 + 1}\right) \approx 4.97\text{k}\Omega$; $R_{izl} = R_3 = 5\text{k}\Omega$.

d) $V_I = 0$;

$v_{IMAX} = 4.8\text{V}$ (Q_3 na granici zasićenja); $v_{IMIN} = -5\text{V}$ (Q_3 na granici zakočenja);

$V_{im\,max} = 4.8\text{V}$.

4.

$v_I[\text{V}] = 4.4\text{V}$, za $-5\text{V} \le v_G \le -4.4\text{V}$ (IOP-poz. zasićenje, D_1-OFF, D_2-ON);

$v_I[\text{V}] = -v_G[\text{V}]$, za $-4.4\text{V} \le v_G \le 0$ (IOP-lin. režim, D_1-OFF, D_2-ON);

$v_I[\text{V}] = \dfrac{2}{3} v_G[\text{V}]$, za $0 \le v_G \le 0.9\text{V}$ (IOP- neg. zasićenje, D_1-OFF, D_2-OFF);

$v_I[\text{V}] = 0.6\text{V}$, za $0.9\text{V} \le v_G \le 5\text{V}$ (IOP-neg. zasićenje, D_1-ON, D_2-OFF).