REŠENJA ZADATAKA

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

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

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

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.

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

$v_I[\text{V}] = 2v_G[\text{V}] - 3$, za $-4{,}5\text{V} \leq v_G \leq -1{,}5\text{V}$ (IOP-lin. režim, D-ON);

$v_I[\text{V}] = 4v_G[\text{V}]$, za $-1{,}5\text{V} \leq v_G \leq 3\text{V}$ (IOP-lin. režim, D-OFF);

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