

REŠENJA ZADATAKA

$$1. a) R_1 = 113\text{k}\Omega; \quad R_2 = 7.78\text{k}\Omega; \quad R_3 = 14.1\text{k}\Omega; \quad R_4 = 1.2\text{k}\Omega.$$

$$b) a = \frac{v_i}{v_g} = [-g_{m1}(R_2 \parallel r_{\pi 2})] \cdot [-g_{m2}(R_3 \parallel (r_{\pi 3} + (\beta_0 + 1)R_4))] \cdot \frac{g_{m3}R_4}{1 + g_{m3}R_4} \approx 3825.1.$$

$$c) R_{ul} = r_{\pi 1} = 25\text{k}\Omega; \quad R_{izl} = R_4 \parallel \frac{r_{\pi 3} + R_3}{\beta_0 + 1} = 127\Omega.$$

4. a)

$$v_I[\text{V}] = -12\text{V} = \text{const}, \text{ za } -12\text{V} \leq v_G \leq -4.5\text{V} \text{ (IOP-neg. zasićenje, D-ON);}$$

$$v_I[\text{V}] = 2v_G[\text{V}] - 3, \text{ za } -4.5\text{V} \leq v_G \leq -1.5\text{V} \text{ (IOP-lin. režim, D-ON);}$$

$$v_I[\text{V}] = 4v_G[\text{V}], \text{ za } -1.5\text{V} \leq v_G \leq 3\text{V} \text{ (IOP-lin. režim, D-OFF);}$$

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