ISPIT IZ OSNOVA ELEKTRONIKE **21.09.2009.**

ODSEK ZA TELEKOMUNIKACIJE I INFORMACIONE TEHNOLOGIJE
ODSEK ZA SIGNALE I SISTEME

REŠENJA ZADATAKA

1. a) $I_{D1} = 2\text{mA}$; $I_{D2} = 1.25\text{mA}$; $V_I = 5\text{V}$.

b) $a = \dfrac{v_i}{v_g} = \dfrac{g_{m1}R_3}{1+g_{m1}R_3} \cdot \dfrac{g_{m2}R_4}{1+g_{m2}R_4} = 0.879$.

c) $R_{ul} = R_1 \parallel R_2 = 333.3\text{k}\Omega$; $R_{izl} = R_4 \parallel \dfrac{1}{g_{m2}} = 190.5\Omega$.

4. a) $R_2 = -R_1\left(1 + \dfrac{V_P}{V_Z + V_{EB}}\right) = 1.25\text{k}\Omega$.

b) $v_P = -5\text{V} = const$, za $0 \le i_P \le I_{PMAX}$;
$i_P = I_{PMAX} = const$, za $-5\text{V} \le v_P \le 0$.

c) $I_{PMAX} = -\dfrac{P_{DQ1\max}}{V_{EB} + V_u} = 0.8\text{A}$; $R_S = \dfrac{V_{EB}}{I_{PMAX}} = 0.875\Omega$.

d) $R_{0\max} = \dfrac{V_P - 2V_{EB} - V_u}{I_{Z\min} + \dfrac{I_{PMAX}}{\beta_{F1}}} = 560\Omega$.