ISPIT IZ OSNOVA ELEKTRONIKE **07.07.2011.**

ODSEK ZA TELEKOMUNIKACIJE I INFORMACIONE TEHNOLOGIJE
ODSEK ZA SIGNALE I SISTEME

REŠENJA ZADATAKA

1. a) $R_{E1} \approx 4.3\text{k}\Omega$; $R_{E2} \approx 1.7\text{k}\Omega$; $R_C \approx 5.3\text{k}\Omega$.

b) $a = \dfrac{v_i}{v_g} = -\dfrac{r_{\pi 1} \parallel R_B}{R_g + r_{\pi 1} \parallel R_B} g_{m1}\left[R_C \parallel \left(r_{\pi 2} + (\beta_0 + 1)R_{E1}\right)\right] \dfrac{g_{m2}R_{E1}}{1 + g_{m2}R_{E1}} \approx -199.9$.

c) $R_{ul} = R_g + R_B \parallel r_{\pi 1} \approx 2.54\text{k}\Omega$.

d) $R_{izl} = R_{E1} \parallel \dfrac{r_{\pi 2} + R_C}{\beta_0 + 1} \approx 75.9\Omega$

4.

$v_I[\text{V}] = -12\text{V}$, za $-12\text{V} \le v_G \le -4.5\text{V}$ (IOP-neg. zasićenje, D-ON);
$v_I[\text{V}] = 2v_G[\text{V}] - 3$, za $-4.5\text{V} \le v_G \le -1.5\text{V}$ (IOP-lin. režim, D-ON);
$v_I[\text{V}] = 4v_G[\text{V}]$, za $-1.5\text{V} \le v_G \le 3\text{V}$ (IOP-lin. režim, D-OFF);
$v_I[\text{V}] = 12\text{V}$, za $3\text{V} \le v_G \le 12\text{V}$ (IOP-poz. zasićenje, D-OFF).