ODSEK ZA TELEKOMUNIKACIJE I INFORMACIONE TEHNOLOGIJE ODSEK ZA SIGNALE I SISTEME ODSEK ZA FIZIČKU ELEKTRONIKU

## REŠENJA ZADATAKA

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

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

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

## 4.

$$\begin{split} &v_I[V] = 12 \text{V , za } - 12 \text{V} \leq v_G \leq -7.2 \text{V (IOP-poz. zasićenje, } D_1\text{-ON, } D_2\text{-OFF, } D_3\text{-ON, } D_4\text{-OFF)}; \\ &v_I[V] = -10 v_G[V] - 60 \text{ , za } -7.2 \text{V} \leq v_G \leq -6 \text{V (IOP-lin. režim, } D_1\text{-ON, } D_2\text{-OFF, } D_3\text{-ON, } D_4\text{-OFF)}; \\ &v_I[V] = 0 \text{ , za } -6 \text{V} \leq v_G \leq 6 \text{V (IOP-lin. režim, } D_1\text{-ON, } D_2\text{-ON, } D_3\text{-ON, } D_4\text{-ON)}; \\ &v_I[V] = -10 v_G[V] + 60 \text{ , za } 6 \text{V} \leq v_G \leq 7.2 \text{V (IOP-lin. režim, } D_1\text{-OFF, } D_2\text{-ON, } D_3\text{-OFF, } D_4\text{-ON)}; \\ &v_I[V] = -12 \text{V , za } 7.2 \text{V} \leq v_G \leq 12 \text{V (IOP-neg. zasićenje, } D_1\text{-OFF, } D_2\text{-ON, } D_3\text{-OFF, } D_4\text{-ON)}. \end{split}$$