ISPIT IZ OSNOVA ELEKTRONIKE **20.09.2019.**

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

REŠENJA ZADATAKA

1. a) $I_{D1} = 500\mu\text{A}$; $V_{S1} = -2\text{V}$; $V_{D1} = 5\text{V}$.

b) $a = \dfrac{v_p}{v_u} = g_{m1}\left(R_D \parallel R_P\right) = 7.5$; $g_{m1} = 1\text{mS}$

c) $v_{P\min} = -V_D - V_T = -6\text{V}$; $v_{P\max} = I_{D1}\left(R_D \parallel R_P\right) = 3.75\text{V}$; $V_P = 0$;
$V_{pm\max} = \min\left\{v_{P\max} - V_P ; V_P - v_{P\min}\right\} = 3.75\text{V}$

4.

$v_I[\text{V}] = V_{EE} = -12\text{V} = const$, za $-12\text{V} \le v_G \le -4{,}5\text{V}$ (IOP- neg. zas., D_1-ON, D_2-OFF);
$v_I[\text{V}] = 2v_G[\text{V}] - 3$, za $-4{,}5\text{V} \le v_G \le -1{,}5\text{V}$ (IOP- lin. režim, D_1-ON, D_2-OFF);
$v_I[\text{V}] = 4v_G[\text{V}]$, za $-1{,}5\text{V} \le v_G \le 1{,}5\text{V}$ (IOP- lin. režim, D_1-OFF, D_2-OFF);
$v_I[\text{V}] = 2v_G[\text{V}] + 3$, za $1{,}5\text{V} \le v_G \le 4{,}5\text{V}$ (IOP- lin. režim, D_1-OFF, D_2-ON);
$v_I[\text{V}] = V_{CC} = 12\text{V} = const$, za $4{,}5\text{V} \le v_G \le 12\text{V}$ (IOP- poz. zas, D_1-OFF, D_2-ON).