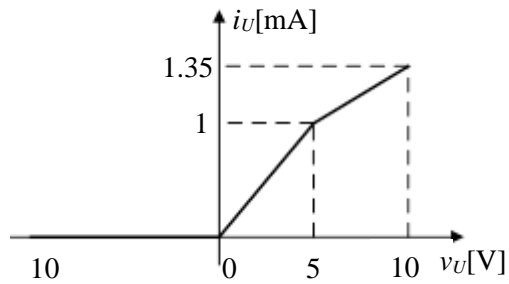


Osnovi analogne elektronike – januar 2023 – resenja

3.

$$v_U \in [-10V, 0V] \Rightarrow D \rightarrow OFF, Q \rightarrow DAR, i_U = 0$$

$$v_U \in [0V, 5V] \Rightarrow D \rightarrow ON, Q \rightarrow DAR, i_U = \frac{v_U}{R_G} = 0.2ms v_U$$



$$v_U \in [5V, 10V] \Rightarrow D \rightarrow ON, Q \rightarrow OFF, i_U = \frac{v_U - V_D + V_{CC}}{R_G + R_E} = 69.9\mu S v_U + 6.5mA$$

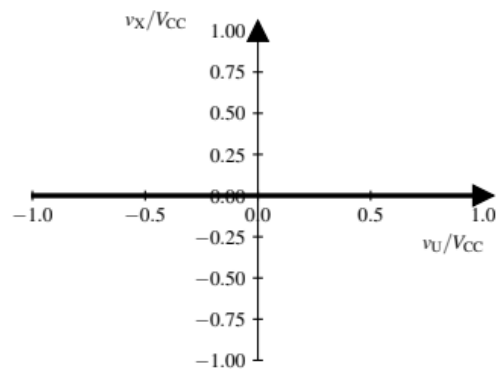
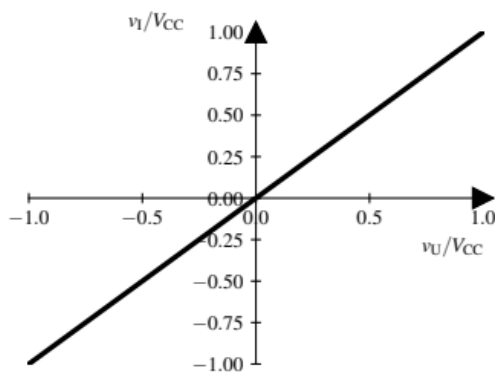
4. a) $R_S = 4k\Omega$

$$b) a_v = - (R_D / (R_F + R_D)) * (g_m R_F - 1), R_u = R_F / (1 - a_v)$$

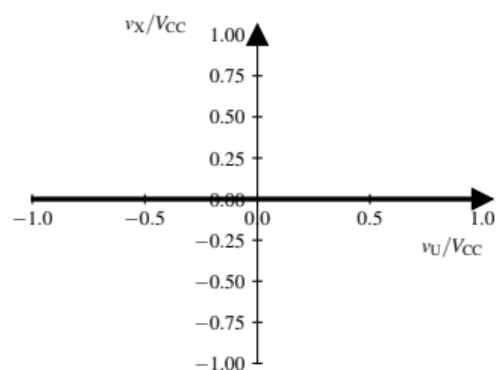
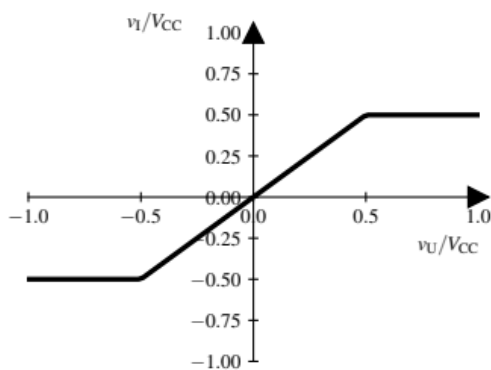
$$c) a_v = - 3.375, R_u = 2.28k\Omega$$

7.

(a) Tražene karakteristike su $v_I = v_U$, $v_X = 0$, a traženi dijagrami su na slikama.

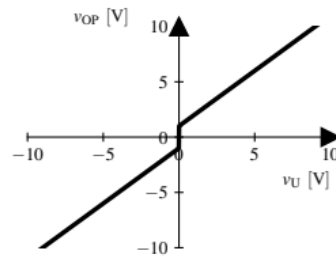
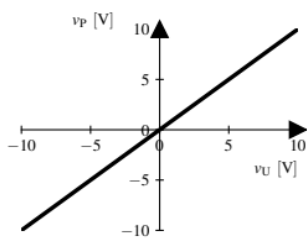


(b) Za izlazni napon važi $v_I = v_U$, za $|v_U| < V_{CC}/2$, dok je $v_I = V_{CC}/2$ za $v_U > V_{CC}/2$, odnosno $v_I = -V_{CC}/2$ za $v_U < -V_{CC}/2$. Traženi dijagrami su na slikama.

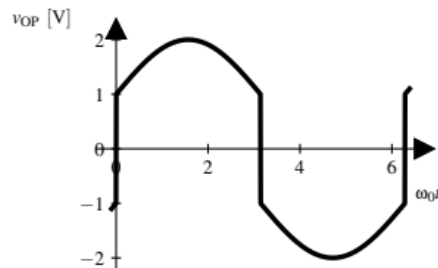
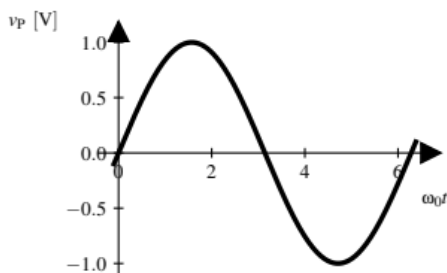


8.

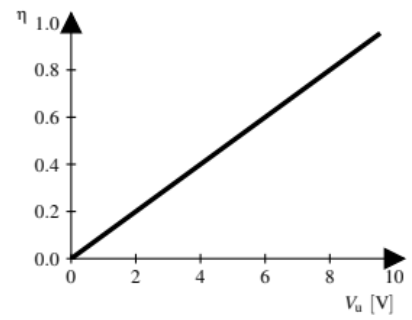
a) Tražene statičke karakteristike prikazane su na slikama.



b) Traženi dijagrami prikazani su na slikama:



c) Koeficijent korisnog dejstva dat je izrazom $\eta = V_0/V_{CC}$ a njegov dijagram prikazan je na slici:



d) Tražena otpornost je $R_{p,\min} = 0.8 \Omega$