

# Osnovi elektronike SI

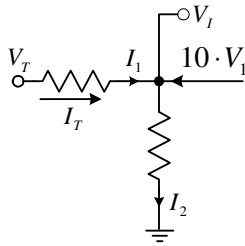
## Rešenja – prvi kolokvijum 31.10.2009.

### 1. zadatak

a)  $I_{RS} = 0$ ; b)  $R_{EKV} = 8k\Omega$ .

### 2. zadatak

Uprošćena šema:



Na osnovu uprošćene šeme se vidi da je  $I_2 = I_1 + 10V_1 = V_1 / R_1 + 10V_1 = 10^{-3}V_1 + 10V_1 \approx 10V_1$

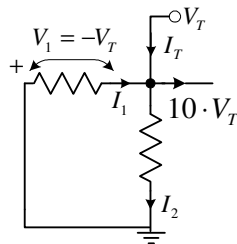
Na osnovu toga je  $V_I = I_2 R_2 = 100 \cdot 10V_1 = 10^3 V_1$

Kako je  $V_I = V_T - V_1 \Rightarrow 10^3 V_1 = V_T - V_1 \Rightarrow 1001V_1 = V_T \Rightarrow V_1 \approx 10^{-3} V_T$

a)  $I_T = I_1 = V_1 / R_1 = 10^{-3} V_T / 10^3 = V_T / 10^6 \Rightarrow R_u = V_T / I_T = 10^6 = 1M\Omega$

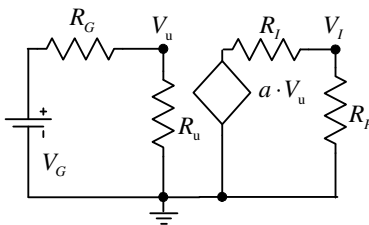
c) Pošto se test generator postavlja na mesto pobudnog generatora, razlika je samo u nazivu, ako se preimenuje  $V_T$  u  $V_u$  lako se dobija  $V_1 = 10^{-3} V_u$ ,  $V_I = 10^3 V_1 \Rightarrow V_I = V_u \Rightarrow a = 1$

b) Izlazna otpornost se određuje prema šemi:



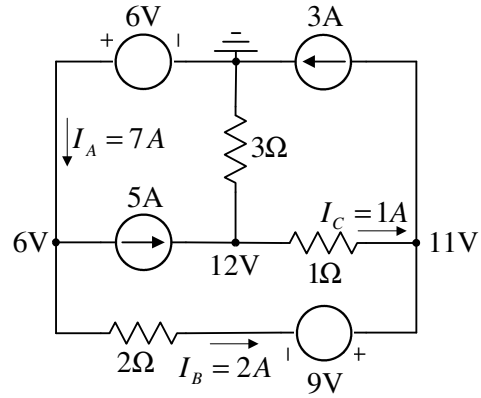
$I_T = 10V_T + V_T / R_1 + V_T / R_2 \approx 10V_T \Rightarrow R_I = V_T / I_T = 1 / 10 = 0.1\Omega$

d) Zbog toga što je  $R_u \gg R_G$  i  $R_I \ll R_P \Rightarrow V_P \approx a \cdot V_G = V_G$



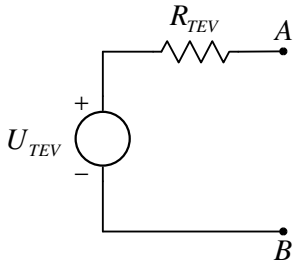
### 3. zadatak

a), b) Traženi potencijali i struje su prikazani na sledećoj slici:



### 4. zadatak

a)  $U_{TEV} = -1V$  ;  $R_{TEV} = 2\Omega$  .



b)  $P_{5A} = 45W$  .