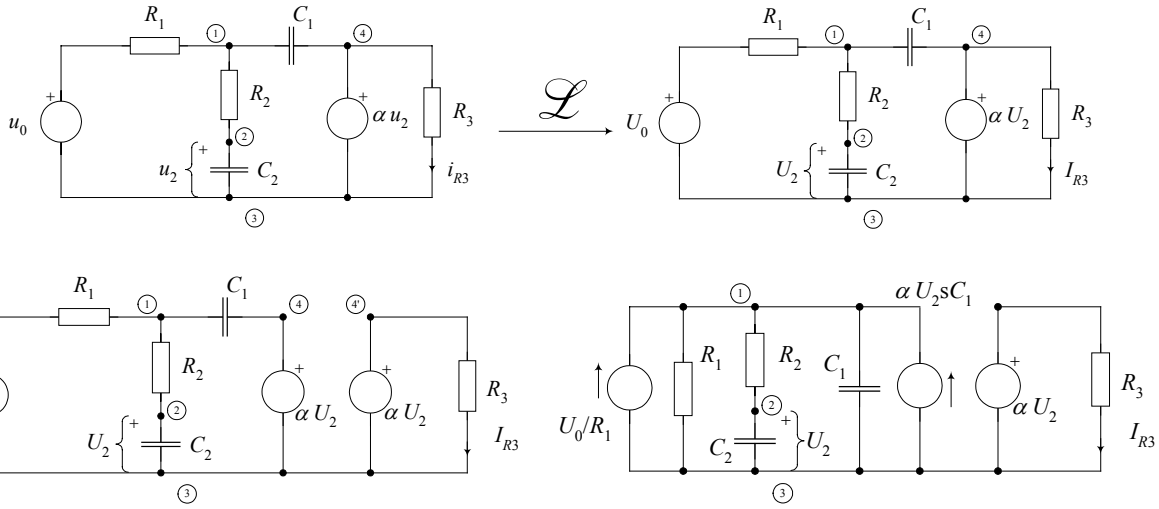
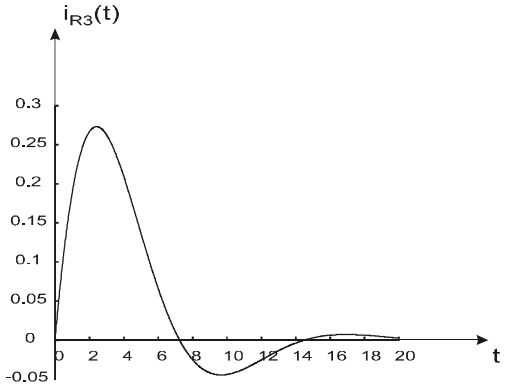
4. Odredite odziv $i_{R3}(t)$ mreže na slici ako je pobuda $u_0(t)=\delta(t)$. Zadano je: $R_1=R_2=1$, $R_3=2$, $C_1=C_2=2$, $\alpha=2$.

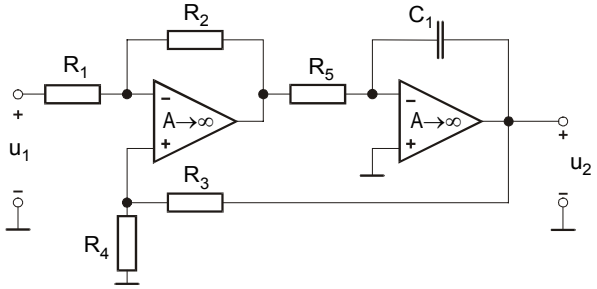


Rješenje: Primjena Laplaceove transformacije i transformacija naponskih izvora u strujne

$$i_{R3}(t)=\frac{1}{\sqrt{3}}\cdot e^{-\frac{1}{4}t}\cdot\sin\frac{\sqrt{3}}{4}t\cdot S(t)$$



5. Odrediti odziv $U_{izl}(s)$ za mrežu prikazanu slikom ako je pobuda $U_1(s)=\frac{1}{s}$. Zadano je $R_1=R_2=R_3=R_4=R_5=1$, $C_1=1$.



Rješenje:

$$U_{izl}(s)=U_6(s)=\frac{R_2(R_3+R_4)}{sC_1R_1R_5(R_3+R_4)+R_4(R_1+R_2)}\cdot U_1(s)$$

$$U_{izl}(s)=U_6(s)=\frac{1\cdot(1+1)}{s\cdot1\cdot(1+1)+1\cdot(1+1)}\cdot\frac{1}{s}=\frac{2}{2s+2}\cdot\frac{1}{s}=\frac{1}{s}\cdot\frac{1}{s+1}$$