

1. Na realni izvor su priključena dva različita otpora i izmjerene su vrijednosti napona i struje
2 boda $U_1 = 18 \text{ V}$, $I_1 = 2 \text{ A}$ te $U_2 = 12 \text{ V}$, $I_2 = 8 \text{ A}$. Odredite parametre naponskog modela izvora E i R_i .

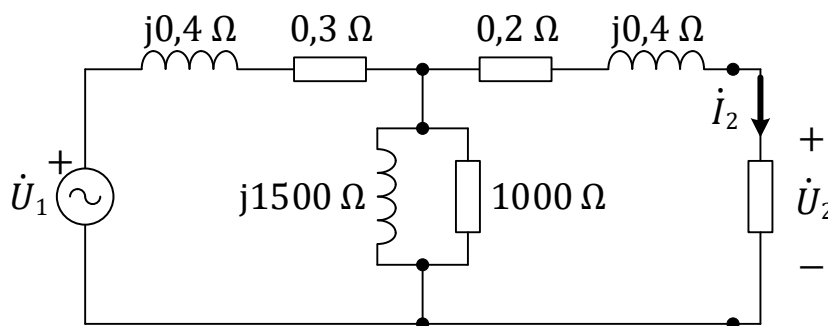
- A) $E = 10 \text{ V}$, $R_i = 3 \Omega$ B) $E = 15 \text{ V}$, $R_i = 2 \Omega$ C) $E = 20 \text{ V}$, $R_i = 1 \Omega$
D) $E = 10 \text{ V}$, $R_i = 1 \Omega$ E) $E = 20 \text{ V}$, $R_i = 2 \Omega$

2. Zadan je fazor struje $\dot{I} = 2\sqrt{2}\angle 30^\circ \text{ A}$. Odredite trenutnu vrijednost struje u $t = 15 \text{ ms}$. Zadano je $f = 50 \text{ Hz}$.
2 boda

- A) 1,41 A B) 0,707 A C) 0 A D) -1,73 A E) -3,46 A

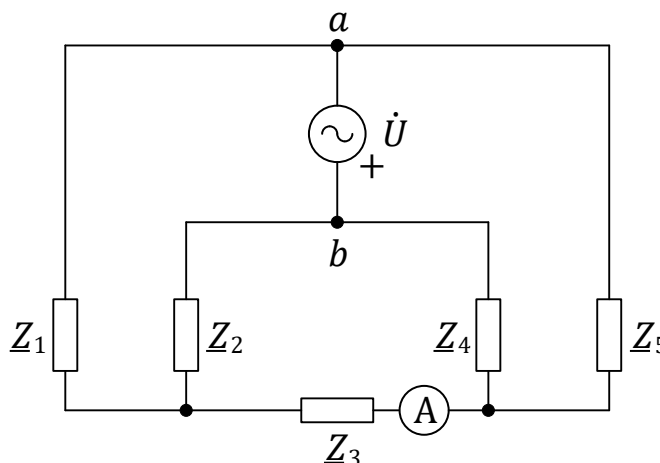
3. Odredite \dot{U}_1 u krugu prema slici ako je $\dot{U}_2 = 1000\angle 0^\circ \text{ V}$ i $\dot{I}_2 = 10\angle -30^\circ \text{ A}$.
3 boda

- A) $1008,9 + j4,6 \text{ V}$
B) $1217,2 - j3,1 \text{ V}$
C) $824,3 + j9,3 \text{ V}$
D) $-631,7 + j6,5 \text{ V}$
E) $-1416,3 - j11,7 \text{ V}$



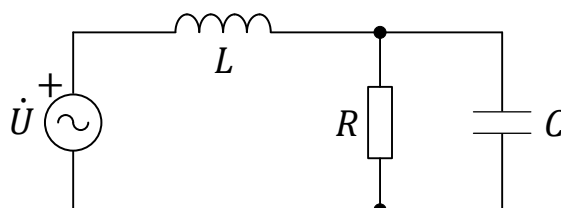
4. Za mrežu prema slici odredite pokazivanje ampermetra ako je zadano $\underline{Z}_1 = j2 \Omega$,
3 boda $\underline{Z}_2 = 2 + j2 \Omega$, $\underline{Z}_3 = j4 \Omega$, $\underline{Z}_4 = 3 \Omega$, $\underline{Z}_5 = 1,5 + j1,5 \Omega$ i $\dot{U} = 100\angle 0^\circ \text{ V}$.

- A) 1,6 A
B) 0 A
C) 3,2 A
D) 0,8 A
E) 2,4 A



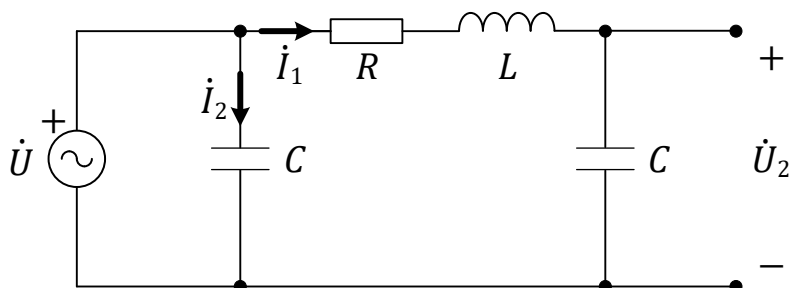
5. Za krug prema slici odredite radnu i jalovu snagu. Zadano je: $X_L = 3 \Omega$, $X_C = 2 \Omega$, $R = 2 \Omega$ i
3 boda $\dot{U} = 100\angle 0^\circ \text{ V}$.

- A) $P = 1000 \text{ W}$, $Q = 1000 \text{ VAr}$ (ind.)
B) $P = 2500 \text{ W}$, $Q = 2000 \text{ VAr}$ (kap.)
C) $P = 3000 \text{ W}$, $Q = 0 \text{ VAr}$
D) $P = 2000 \text{ W}$, $Q = 4000 \text{ VAr}$ (ind.)
E) $P = 1500 \text{ W}$, $Q = 3000 \text{ VAr}$ (kap.)



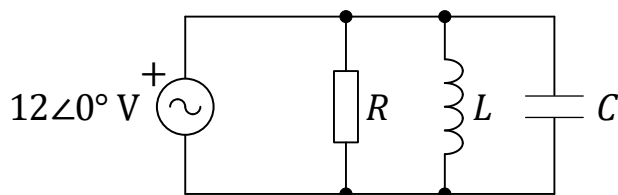
6. Za krug na slici odredite omjer fazora napona \dot{U}_2/\dot{U} . Zadano je: $R = 2\ \Omega$, $L = 0,02\ \text{H}$, $C = 2,5\ \text{mF}$ i $\omega = 100\ \text{s}^{-1}$.
3 boda

- A) $3 + j2$
B) $2 - j2$
C) $1 - j$
D) $2 + j4$
E) $1 - j3$



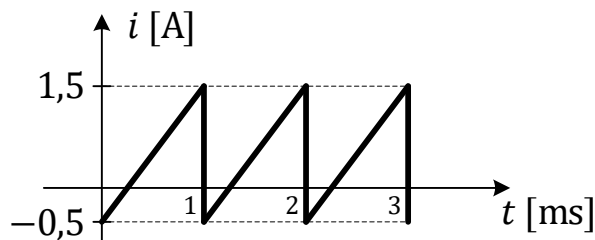
7. U krugu prema slici frekvencija je odabrana tako da admitancija ima minimalan iznos. Odredite struju izvora. Zadano je: $R = 15\ \Omega$, $L = 20\ \text{mH}$ i $C = 24\ \mu\text{F}$.
2 boda

- A) $0,8\ \text{A}$
B) $1,2\ \text{A}$
C) $0,3\ \text{A}$
D) $0\ \text{A}$
E) $1,6\ \text{A}$



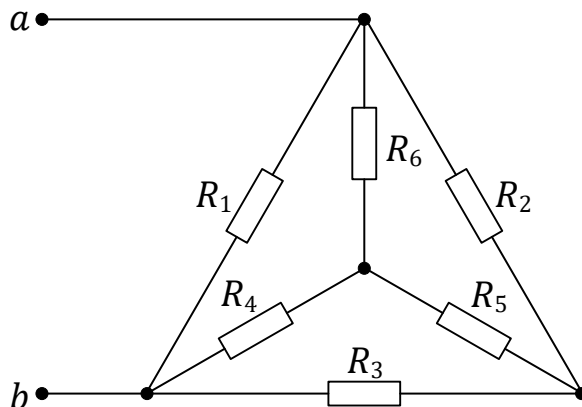
8. Odredite efektivnu vrijednost struje valnog oblika prema slici.
3 boda

- A) $0,34\ \text{A}$
B) $1,05\ \text{A}$
C) $0,58\ \text{A}$
D) $1,45\ \text{A}$
E) $0,76\ \text{A}$



9. Odredite ekvivalentni otpor spoja R_{ab} . Zadano je: $R_1 = 1\ \Omega$, $R_2 = 2\ \Omega$, $R_3 = 3\ \Omega$, $R_4 = 4\ \Omega$, $R_5 = 5\ \Omega$ i $R_6 = 6\ \Omega$.
3 boda

- A) $0,52\ \Omega$
B) $0,77\ \Omega$
C) $1,04\ \Omega$
D) $1,34\ \Omega$
E) $1,82\ \Omega$



10. Nelinearni element ima karakteristiku $I = 0,1U^2$. Odredite dinamički otpor pri $I = 2,5\ \text{A}$.
2 boda
- A) $1\ \Omega$ B) $1,5\ \Omega$ C) $2\ \Omega$ D) $2,5\ \Omega$ E) $3\ \Omega$

Točni odgovori: 1. C 2. E 3. A 4. B 5. D 6. C 7. A 8. E 9. B 10. A