

Pripremni zadaci za kolokvijum iz Elektrotehnike

Naizmjenične struje

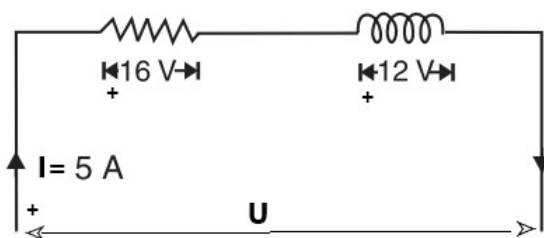
1. Periodičan vremenski promenljiv električni napon se menja po zakonu $u(t) = 10(\sin \omega t)^2$. Osnovna perioda T ovog napona je:

- a) $T = \frac{2\pi}{\omega}$ b) $T = \frac{\pi}{\omega}$ c) $T = \frac{4\pi}{\omega}$ d) $T = \frac{\omega}{\pi}$

2. Srednja vrednost električnog napona $u(t) = 1 + \sin \omega t$ je

- a) $U_{sr} = 0$ b) $U_{sr} = 2\pi$ c) $U_{sr} = 1$ d) $U_{sr} = \frac{1}{\pi}$

3. U kolu na slici 1 efektivna vrednost impedanse Z je



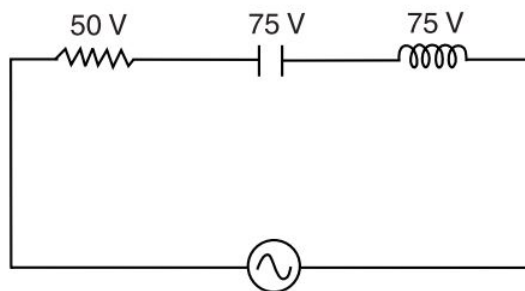
Slika 1

- a) $Z = 5\Omega$ b) $Z = 4\Omega$ c) $Z = \frac{28}{5}\Omega$ d) $Z = 2\Omega$

4. Potrošač čija je impedansa $\bar{Z} = 4 - j3$ priključen je na napon $\bar{U} = 25e^{j0}$. Kompleksna prividna snaga \bar{S} je:

- a) $\bar{S} = 100 - j75VA$ b) $\bar{S} = 100 + j75VA$ c) $\bar{S} = 75 + j100VA$ d) $\bar{S} = 1000 + 625VA$

5. U kolu na slici (2) faktor snage $\cos \phi$ je



Slika 2

- a) $\cos \phi = 0$ b) $\cos \phi = 1$ c) $\cos \phi = \frac{1}{3}$ d) $\cos \phi = \frac{2}{3}$

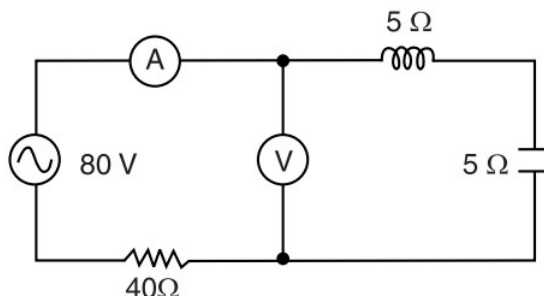
6. Impedansa kola naizmjenične struje iznosi $\bar{Z} = 3 - j4$. Susceptansa tog kola je:

- a) -0.25 b) 0.2 c) 0.16 d) 0.25

7. Kada je potrošač priključen na naizmjenični napon $u(t) = 100 \sin(\omega t + \frac{\pi}{2})$ trenutna vrednost struje potrošača je $i(t) = 5 \sin(\omega t + \frac{\pi}{3})$. Impedansa \bar{Z} tog potrošača je

- a) 20Ω b) $20e^{-j\frac{\pi}{3}}\Omega$ c) $\frac{20}{\sqrt{2}}e^{-j\frac{\pi}{6}}\Omega$ d) $20e^{j\frac{\pi}{6}}\Omega$

8. U kolu na slici (3) struja kroz ampermetar I_A i napon koji pokazuje voltmetar U_V su:



Slika 3

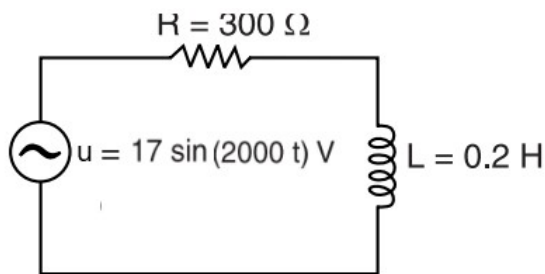
a) $I_A = \frac{8}{5} A, U_V = 104 V$

b) $I_A = 8 A, U_V = 80 V$

c) $I_A = 2 A, U_V = 20 V$

d) $I_A = 2 A, U_V = 0 V$

9. Impedansa \bar{Z} kola na slici (4) je



Slika 4

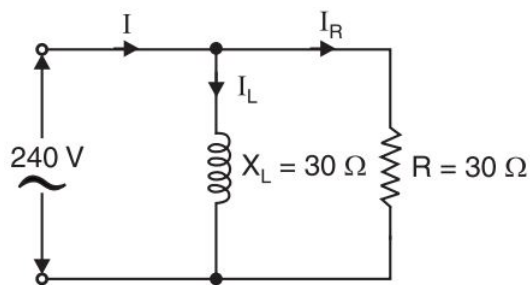
a) $\bar{Z} = 300 + j0.2 \Omega$

b) $\bar{Z} = 300 + j400 \Omega$

c) $\bar{Z} = 300 + j4000 \Omega$

d) $\bar{Z} = 300 - j400 \Omega$

10. Aktivna snaga kola na slici 5 je:



Slika 5

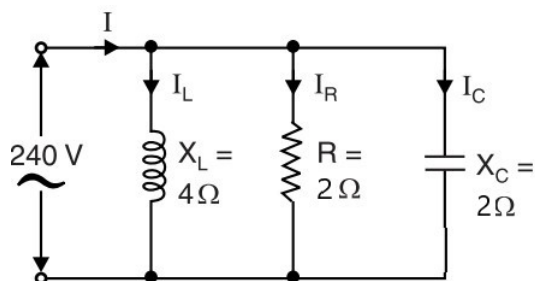
a) $P = 1920 W$

b) $P = 3840 W$

c) $P = 192 W$

d) $P = 960 W$

11. Admitansa \bar{Y} kola na slici je:



Slika 6

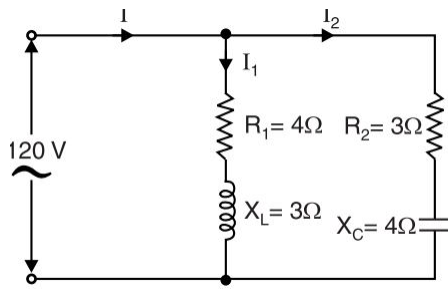
a) $\bar{Y} = j0.25 S$

b) $\bar{Y} = 0.5 + j0.25 S$

c) $\bar{Y} = 0.5 - j0.25 S$

d) $Y = 0.5 S$

12. Kolo na slici (7) je :



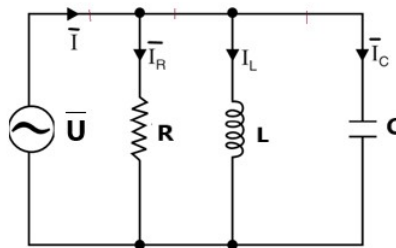
Slika 7

- a) Pretežno inuktivno
 b) Pretežno kapacitivno
 c) Antirezonantno
 d) Ne može se odrediti priroda kola

13. Ako admitansa potrošača iznosi $0.1S$ a konduktansa tog potrošača 0.03 tada je faktor snage tog potrošača:

- a) $\cos \phi = \frac{1}{3}$
 b) $\cos \phi = \frac{3}{100}$
 c) $\cos \phi = \frac{3}{10}$
 d) $\cos \phi = 1$

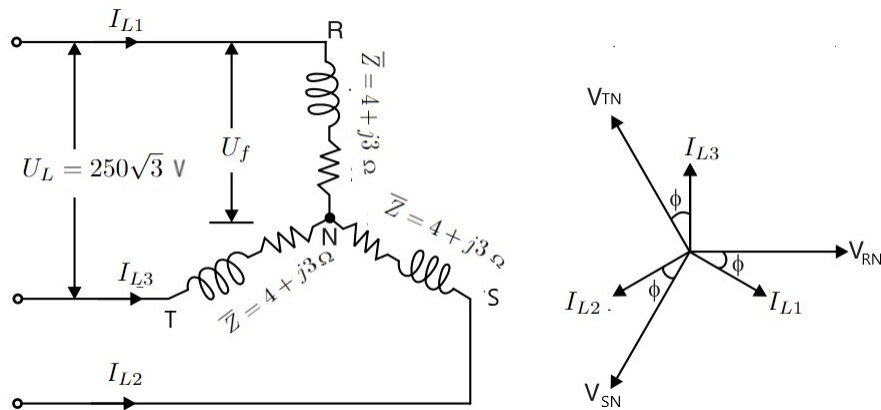
14. Ako ekvivalentna admitansa kola na slici (8) iznosi $\bar{Y} = 1e^{j\frac{\pi}{6}}$ tada je vrednost otpornika R u paralelnoj grani:



Slika 8: Caption

- a) $R = 1\Omega$
 b) $R = \frac{1}{2}\Omega$
 c) $R = 2\Omega$
 d) $R = \frac{2}{\sqrt{3}}\Omega$

15. Za trofazni naizmenični sitem prikazan na slici (9) kompleksna predstava prividne snage \bar{S} je:



Slika 9: Caption

- a) $\bar{S} = 10000 + j7500VA$
 b) $\bar{S} = 10000 - j7500VA$
 c) $\bar{S} = \sqrt{3}(10000 + j7500)VA$
 d) $\bar{S} = \sqrt{3}(10000 - j7500)VA$