

1-masala (RL-zanjir)

Induktivligi $L = 0,40 \text{ H}$, qarshiligi $R = 5 \Omega$ bo'lgan RL-zanjir $\varepsilon = 20 \text{ V}$ manbaga ulanadi.

Topilsin:

- a) vaqt doimiysi τ
- b) stasionar tok I_0
- c) $t = 0,20 \text{ s}$ dagi tok
- d) shu vaqtda g'altakda saqlangan energiya W

2-masala (RL $\rightarrow$ uzish jarayoni)

RL-zanjirda stasionar tok $I_0 = 3 \text{ A}$ bo'lib turgan paytda kalit ochildi. Zanjir parametrlari: $L = 0,30 \text{ H}$, $R = 6 \Omega$.

Topilsin:

- a) vaqt doimiysi τ
 - b) $t = 0,10 \text{ s}$ dan keyingi tok
 - c) shu vaqtda rezistorda ajralgan quvvat
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3-masala (RC-zaryadlanish)

Qarshiligi $R = 4 \text{ k}\Omega$, sig'imi $C = 250 \mu\text{F}$ bo'lgan RC-zanjir $\varepsilon = 16 \text{ V}$ manbaga ulanadi.

Topilsin:

- a) τ
- b) boshlang'ich tok I_0
- c) $t = 2\tau$ da kondensator kuchlanishi
- d) shu vaqtda kondensator energiyasi

4-masala (RC-razryadlanish)

Sig'imi $C = 100 \mu\text{F}$ bo'lgan kondensator $U_0 = 12 \text{ V}$ gacha zaryadlangan. $U R = 2 \text{ k}\Omega$ rezistor orqali razryadlanmoqda.

Topilsin:

- a) τ
- b) $t = 0,5 \text{ s}$ dagi kuchlanish
- c) shu vaqtda tok
- d) shu vaqtda kondensatorda qolgan energiya

5-masala (RL va RC solishtirish)

RL-zanjir uchun: $L = 0,50 \text{ H}, R = 10 \Omega$
RC-zanjir uchun: $R = 10 \Omega, C = 0,050 \text{ F}$

Har ikki zanjir 20 V manbaga ulanadi.

Topilsin:

- a) har ikki zanjir uchun vaqt doimiysi
- b) qaysi zanjirda jarayon tezroq kechadi?
- c) vaqt doimiysi teng bo'lishi uchun C ning qanday qiymati kerak?

6-masala (AC — o'zgaruvchan tok)

Sinusoidal o'zgaruvchan tokda kuchlanish amplitudasi $U_0 = 310 \text{ V}$, tok amplitudasi $I_0 = 10 \text{ A}$, fazalar farqi $\varphi = 60^\circ$.

Topilsin:

- a) U^{ok}
- b) I^{ok}
- c) o'rtacha quvvat P
- d) quvvat koeffitsienti

7-masala (AC + energiya)

Elektr isitkich 220 V (o'rtacha kvadratik) kuchlanishga ulangan va undan 5 A tok o'tadi.

Topilsin:

- a) isitkich qarshiligi
- b) o'rtacha quvvat
- c) 10 minut ichida ajralgan energiya (Joul hisobida)

8-masala (Transformator — ideal)

Ideal transformatorning
birlamchi chulg'ami $N_1 = 800$,
ikkilamchi chulg'ami $N_2 = 200$.

Birlamchi kuchlanish $U_1 = 220 \text{ V}$.

Topilsin:

- a) U_2
- b) agar ikkilamchi tomonda $I_2 = 4 \text{ A}$ bo'lsa,
birlamchi tok
- c) uzatilayotgan quvvat

9-masala (Transformator — foydali ish koeffitsienti)

Transformatorning foydali ish koeffitsienti $\eta = 0,90$.
Birlamchi quvvat $P_1 = 1,1 \text{ kW}$.

Topilsin:

- a) ikkilamchi quvvat
- b) agar ikkilamchi kuchlanish $U_2 = 110 \text{ V}$ bo'lsa,
tok kuchi I_2

10-masala (ENERGIYA + INDUKSIYA)

Induktivligi $L = 0,20 \text{ H}$ bo'lgan g'altakdan tok 0 A dan 5 A gacha tekis ortdi.

Topilsin:

- a) magnit maydonda saqlangan energiya
- b) agar bu energiya $R = 4 \Omega$ rezistorda ajralsa,
unda ajraladigan maksimal tok
- c) g'altak energiyasi kondensator energiyasiga teng bo'lishi uchun
 C ning qanday qiymati kerak? ($U = 10 \text{ V}$ deb olinsin)