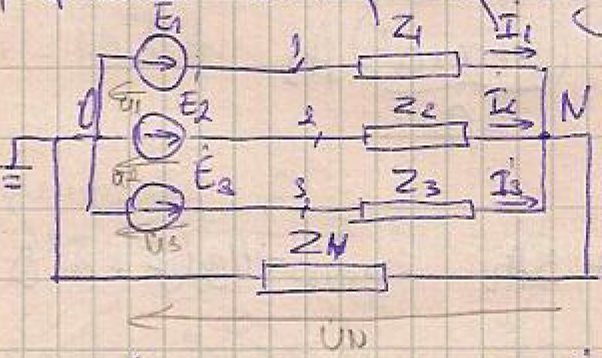
Въпрос 44 - да

Въпрос №43 Изследване на неТВ при статичен товар

1) Трифазна четирипроводна верига



ще приложим метода с възловите потенциали

$$\dot V_0 = 0$$

$$(Y_1 + Y_2 + Y_3 + Y_N)\dot V_N = Y_1\dot E_1 + Y_2\dot E_2 + Y_3\dot E_3$$

$$\dot V_N = \dot U_{N0} = \dot U_N = \frac{Y_1\dot E_1 + Y_2\dot E_2 + Y_3\dot E_3}{Y_1 + Y_2 + Y_3 + Y_N}$$

$$\dot U_i = \dot E_i \quad , i = 1,2,3$$

$$\boxed{\dot U_N = \frac{Y_1 . \dot U_1 + Y_2\dot U_2 + Y_3\dot U_3}{Y_1 + Y_2 + Y_3 + Y_N}}$$

$$Z_1\dot I_1 = \dot E_1 - \dot U_N$$

$$\dot I_1 = 1/Z_1(\dot E_1 - \dot U_N) = Y_1(\dot E_1 - \dot U_N) = Y_1(\dot U_1 - \dot U_N)$$

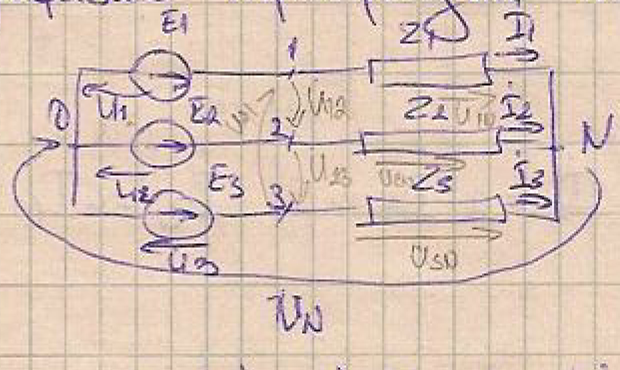
$$\dot I_2 = Y_2(\dot E_2 - \dot U_N) = Y_2(\dot U_2 - \dot U_N)$$

$$\dot I_3 = Y_3(\dot E_3 - \dot U_N) = Y_3(\dot U_3 - \dot U_N)$$

$$\dot I_N = Y_N\dot U_N$$

$$\dot I_N = \dot I_1 + \dot I_2 + \dot I_3$$

2) Трифазна трипроводна верига



$$U_N = \frac{Y_1 . \dot U_1 + Y_2\dot U_2 + Y_3 . \dot U_3}{Y_1 + Y_2 + Y_3}$$

$$\dot U_{1N} + \dot U_N - \dot U_1 = 0$$

$$\dot U_{1N} = \dot U_1 - \dot U_N = \dot U_1 - \frac{Y_1\dot U_1 + Y_2\dot U_2 + Y_3\dot U_3}{Y_1 + Y_2 + Y_3}$$

$$\dot U_{1N} = \frac{Y_2(\dot U_1 - \dot U_2) + Y_3(\dot U_1 - \dot U_3)}{Y_1 + Y_2 + Y_3}$$

$$\dot U_1 - \dot U_2 - \dot U_{12} = 0$$

$$\dot U_{12} = \dot U_1 - \dot U_2$$

$$U_{31} = \dot U_3 - \dot U_1$$

$$\dot U_{1N} = \frac{Y_2\dot U_{12} - Y_3\dot U_{31}}{Y_1 + Y_2 + Y_3}$$

аналогично за 2ра и 3та фаза

$$\dot U_{2N} = \frac{Y_3\dot U_{23} - Y_1\dot U_{12}}{Y_1 + Y_2 + Y_3} \qquad \dot U_{3N} = \frac{Y_1\dot U_{31} - Y_2\dot U_{23}}{Y_1 + Y_2 + Y_3}$$

$$\dot I_1 = Y_1 . \dot U_{1N}$$

$$\dot I_2 = Y_2 . \dot U_{2N}$$

$$\dot I_3 = Y_3 . \dot U_{3N} \qquad (\dot I_3 = -\dot I_1 - \dot I_2)$$

$$\dot U_{12} + \dot U_{23} + \dot U_{31} = 0$$