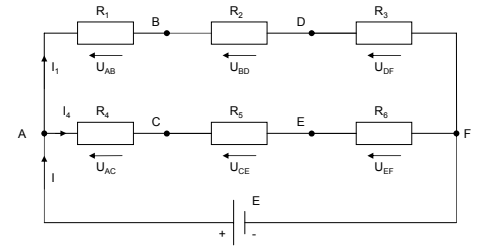


PRETVORBA SPOJA OTPORA U TROKUTU, U SPOJ ZVIJEZDA

1

Zadatak: 1.

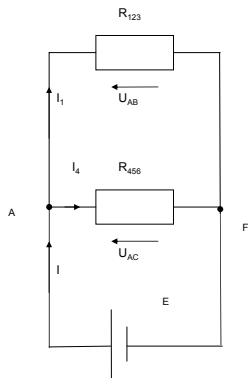
- R1 = 2 (W)
- R2 = 4 (W)
- R3 = 3 (W)
- R4 = 10 (W)
- R5 = 5 (W)
- R6 = 3 (W)
- E = 12 (V)



Odredi napone između točaka BC, DE, DC te BE

- R123 = R1 + R2 + R3 = 2+4+3 = 9 (W)
- R456 = R4 + R5 + R6 = 10+5+3 = 18 (W)

2



$$R = \frac{R_{123} \times R_{456}}{R_{123} + R_{456}} = \frac{9 \times 18}{9 + 18} = \frac{162}{27} = 6\Omega$$

$$I_1 = \frac{U_2}{R_2} = \frac{12}{4} = 3A$$

$$U_{AF} = I_1 \times R_{123} = 3 \times 9 = 27V$$

$$I_4 = \frac{U_{AF}}{R_{456}} = \frac{27}{18} = 1,5V$$

3

$$U_{AB} = I_1 \times R_1 = 3 \times 2 = 6V$$

$$U_{BD} = I_1 \times R_2 = 3 \times 4 = 12V$$

$$U_{DF} = I_1 \times R_3 = 3 \times 3 = 9V$$

$$U_{AC} = I_4 \times R_4 = 1,5 \times 10 = 15V$$

$$U_{CE} = I_4 \times R_5 = 1,5 \times 5 = 7,5V$$

$$U_{EF} = I_4 \times R_6 = 1,5 \times 3 = 4,5V$$

$$U_{BC} = U_{AC} - U_{AB} = 15 - 6 = 9V$$

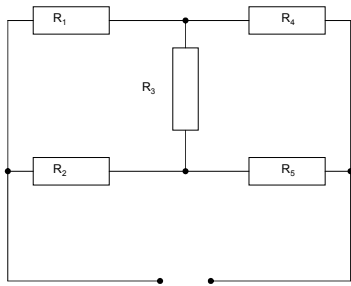
$$U_{DE} = U_{DF} - U_{EF} = 9 - 4,5 = 4,5V$$

$$U_{BE} = U_{AC} + U_{CE} - U_{AB} = 15 + 7,5 - 6 = 16,5V$$

$$U_{DC} = U_{EF} - U_{BD} - U_{DF} = 4,5 - 15 - 9 = -19,5V$$

4

PRIMJER 2:



$$R_1 = 1 (\Omega)$$

$$R_2 = 2 (\Omega)$$

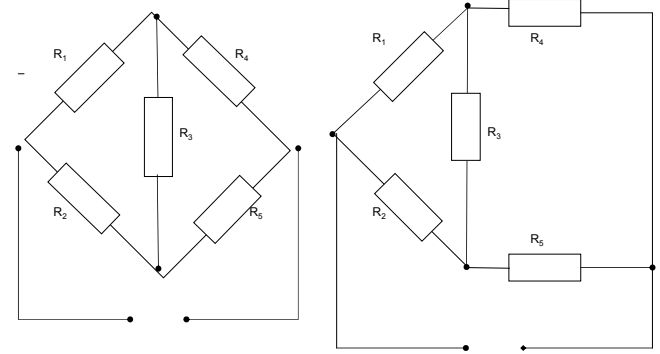
$$R_3 = 3 (\Omega)$$

$$R_4 = 4 (\Omega)$$

$$R_5 = 5 (\Omega)$$

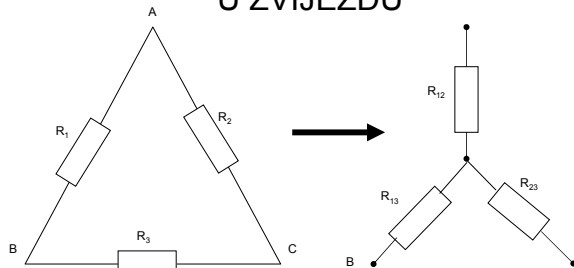
Odredi ukupni
otpor spoja.

5



6

PRETVORBA SPOJA OTPORA – TROKUT
U ZVIJEZDU



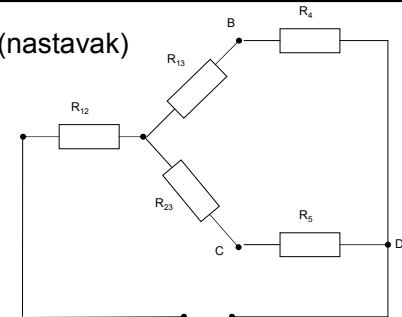
$$R_{12} = \frac{R_1 \times R_2}{R_1 + R_2 + R_3}$$

$$R_{23} = \frac{R_2 \times R_3}{R_1 + R_2 + R_3}$$

$$R_{13} = \frac{R_1 \times R_3}{R_1 + R_2 + R_3}$$

7

Primjer: 2. (nastavak)



$$R_{12} = \frac{R_1 \times R_2}{R_1 + R_2 + R_3} = \frac{1 \times 2}{1 + 2 + 3} = \frac{2}{6} = 0,33\Omega$$

$$R_{13} = \frac{R_1 \times R_3}{R_1 + R_2 + R_3} = \frac{1 \times 3}{1 + 2 + 3} = \frac{3}{6} = 0,5\Omega$$

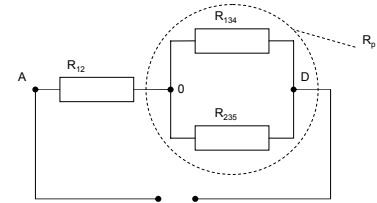
8

$$R_{23} = \frac{R_2 \times R_3}{R_1 + R_2 + R_3} = \frac{2 \times 3}{1 + 2 + 3} = \frac{6}{6} = 1\Omega$$

$$R_{134} = R_{12} + R_4 = 0,5 + 4 = 4,5\Omega$$

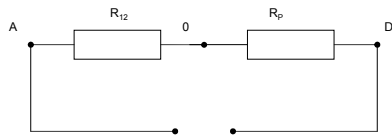
$$R_{235} = R_{23} + R_5 = 1 + 5 = 6\Omega$$

9



$$R_P = \frac{R_{134} \times R_{235}}{R_{134} + R_{235}} = \frac{4,5 \times 6}{4,5 + 6} = \frac{27}{10,5} = 2,57\Omega$$

10



$$R = R_{12} + R_P = 0,33 + 2,57 = 2,9\Omega$$

Primjer 3. ZZ br.

11