

Nama: Sania Ratnaningsih

Prodi: Tekom C

Nim: 233051022

01003

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Latihan

1. Pengkalian Seri

$R_1 = 10 \text{ k}\Omega$   
 $R_2 = 15 \text{ k}\Omega$   
 $R_3 = ?$

$I = 2 \text{ A}$   
 $V = 5 \text{ V}$

$R_{\text{total}} = 30 \text{ k}\Omega$   
 $R = 10 \text{ k}\Omega + 15 \text{ k}\Omega + 5 \text{ k}\Omega$   
 $R_{\text{total}} = 30 \text{ k}\Omega$

$V = I \cdot R$   
 $5 \text{ V} = 2 \text{ A} \cdot 30 \text{ k}\Omega$   
 $I = 0.00016 \text{ A}$

2.  $R_1 = 25 \text{ k}\Omega$   $R_2 = 10 \Omega$   $R_3 = 150 \Omega$   
 $V = 15 \text{ V}$  :  
 $R_T =$   
 $I =$

3.  $V = 5 \text{ V}$   
 $R_T = 100 \text{ k}\Omega$   
 $R_1 = 25 \text{ k}\Omega$   $R_2 = 15 \text{ k}\Omega$   
 $R_3 =$   $I =$

Nilai Resistor

1. Hijau - Orange - Hitam - Perak  $\pm 0.1\%$   
 $R = 53 \times 10^3 = 53000 = 53 \text{ k}\Omega = 53.3 \text{ k}\Omega$

2. Kuning - Merah - Merah - Emas  $\pm 0.5\%$   
 $R = 42 \times 10^2 = 4200 = 4.2 \text{ k}\Omega = 4.4 \text{ k}\Omega$

3. Hijau - Hijau - Orange - x  $\pm 20\%$   
 $R = 55 \times 10^3 = 55000 = 55 \text{ k}\Omega = 49 \text{ k}\Omega - 66 \text{ k}\Omega$

4. Orange - Orange - Kuning - Perak  $\pm 0.1\%$   
 $R = 33 \times 10^4 = 330000 = 330 \text{ k}\Omega = 363 \text{ k}\Omega$

5. Abu - Hitam - Merah - emas  $\pm 0.5\%$   
 $R = 80 \times 10^2 = 8000 = 8 \text{ k}\Omega = 7.6 \text{ k}\Omega - 8.4 \text{ k}\Omega$

6. Ungu - Hijau - Hitam - x  $\rightarrow 20\%$   
 $R = 75 \times 10 = 750 - 20\% = 600 \Omega = 60.0 k \Omega - 30.0 k \Omega$

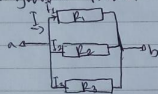
7. Ungu - Merah - Ungu - Perak  $\rightarrow 10\%$   
 $R = 72 \times 10^1 = 720.000.000 - 10\% = 648 m \Omega - 792 m \Omega$

8. Hijau - Hijau - Hijau - x  $\rightarrow 20\%$   
 $R = 55 \times 10^3 = 5.500.000 - 20\% = 4.4 m \Omega - 6.6 m \Omega$

9. Biru - Hijau - Ungu - emas  $\rightarrow 5\%$   
 $R = 65 \times 10^1 = 650.000.000 - 5\% = 617,5 m \Omega - 682,5 m \Omega$

10. Kuning - Hijau - Biru - x  $\rightarrow 20\%$   
 $R = 45 \times 10^6 = 45.000.000 = 95 m \Omega - 36 m \Omega - 54 m \Omega$

\* Rangkaian Paralel

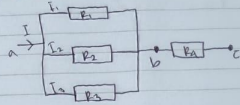


1.  $V_{ab} = 15V$   
 $R_1 = 15 k \Omega, R_2 = 50 \Omega, R_3 = 100 \Omega$   
 $R_T =$

2.  $V_{ab} = 5V$        $R_1 = 10 \Omega$   
 $I_1 = 0,5A$        $R_2 = 150 k \Omega$   
 $R_T =$        $R_3 = 200 \Omega$

3.  $V_{ab} = 5V$   
 $R_1 = 150 k \Omega, R_2 = 25 k \Omega$   
 $R_3 = 100 \Omega$   
 $I_1 =$        $I_2 =$        $I_3 =$

\* Rangkaian Kombinasi



$$\begin{aligned} 1. R_1 &= 100 \, \Omega & R_A &= 100 \, k \, \Omega \\ R_2 &= 1 \, k \, \Omega & R_c &= \\ R_3 &= 15 \, k \, \Omega & & \end{aligned}$$

2. Dari soal 1 : berapa  $V_{oc}$ ?  
bila  $I = 2 \, A$

$$\begin{aligned} 3. R_1 &= 100 \, k \, \Omega \\ R_2 &= 1 \, k \, \Omega \\ R_3 &= ? \\ R_A &= 150 \, k \, \Omega \\ \text{Bila } I &= 2 \, A \\ V_{oc} &= 1 \, V \end{aligned}$$

JAWABAN

\* Rangkaian Seri

$$\begin{aligned} 1. V &= I \cdot R & R &= 10 \, k \, \Omega + 15 \, k \, \Omega + 5 \, k \, \Omega \\ &= 1 \cdot 30 & &= 30 \, k \, \Omega \\ &30 \, k & & \\ I &= 0.00016 \, A \end{aligned}$$

$$\begin{aligned} 2. V &= I \cdot R & R &= 25.5 \, k \, \Omega + 10 \, \Omega + 150 \, \Omega \\ 15 &= I \cdot 25.720 & R_{total} &= 25.720 \, \Omega \\ I &= 15 & & \\ &25.720 & & \\ I &= 0.00058 \end{aligned}$$

$$\begin{aligned}
 3. V &= I \cdot R & R &= 25k\Omega + 15k\Omega + 60k\Omega \\
 S &= I \cdot R & R_{\text{total}} &= 100k\Omega \\
 S &= I \cdot 100k \\
 I &= \frac{S}{100k} \\
 I &= 0.00005
 \end{aligned}$$

4. Kombinasi Paralel

$$1. \frac{1}{R_{\text{total}}} = \frac{1}{15k} + \frac{1}{50} + \frac{1}{100}$$

$$\frac{1}{R_{\text{total}}} = \frac{1}{15k} + \frac{200}{15k} + \frac{150}{15k}$$

$$= \frac{951}{15k}$$

$$R = \frac{15k}{951} = 15.75\Omega$$

$$2. \frac{1}{R_{\text{total}}} = \frac{1}{10} + \frac{1}{150k} + \frac{1}{200}$$

$$\frac{1}{R_{\text{total}}} = \frac{1}{150k} + \frac{15000}{150k} + \frac{750}{150k}$$

$$= \frac{15.751}{150k}$$

$$R = \frac{150k}{15.751} = 9152\Omega$$

$$3. I = \frac{V_{\text{ek}}}{R}$$

$$I = \frac{5V}{150k} = 0.000033 A$$

$$I = \frac{5V}{25k} = 0.0002 A$$

$$I = \frac{5V}{100} = 0.05 A$$

\*) Kombinasi Kombinasi

$$1. R_{tp} = \frac{1}{R_t} = \frac{1}{100} + \frac{1}{1000} + \frac{1}{15k}$$

$$= \frac{100}{15k} + \frac{15}{15k} + \frac{1}{15k}$$

$$= \frac{116}{15k}$$

$$R = \frac{15k}{116} = 90,36$$

$$R_{tp} = 90,36$$

$$R_t = 90,36 + 100k$$

$$= 100,090 \Omega$$

$$2. V = I \cdot R$$

$$= 2 \cdot 100,090 \Omega$$

$$= 200,180 V = 2 kV$$

$$3. R_t = R_p + R_A$$

$$= R_p + 150.000$$

$$R = \frac{V}{I} = \frac{15}{2} = 7,5 \Omega$$