Mata Kuliah.: Tgl : Hal. : /

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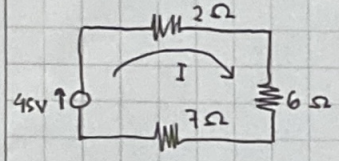
Nim : 22444308
Kelas : 1AEC4.

Daya resentif.

soal.

1) Hitung nilai i dan daya tiap resistor.



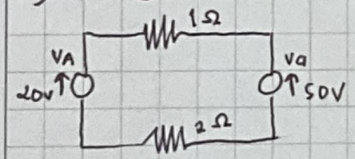
$I_1 + I_2 + I_3 = I_{total}$

$\frac{45}{2+6+7} \rightarrow \frac{45}{15} = 3A.$

$P_{R1} = (3)^2 \times 2 = 18w$ $P_{R2} = (3)^2 \times 6 = 54w$ $P_{R3} = (3)^2 \times 7 = 63w$

$P_{total} = 18+54+63 = 135\ w.$

2) Hitung nilai I dan daya pada V_A dan V_a



$\Sigma V = \Sigma E - \Sigma IR$

$20 - 50 - (I \times 1) + (I \times 2) = 0$

$-30 - 3I$

$-3I = 30$

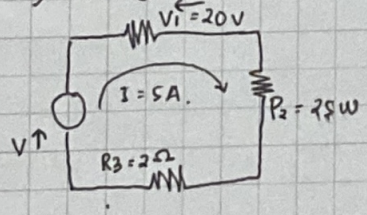
$I = -10A.$

$P_{VA} = V \times I = 20 \times 10 \rightarrow 200w$

$P_{Va} = V \times I = 50 \times 10 \rightarrow 500w$

$P_{total} = 500 - 200 = 300w.$

3) Hitung nilai V!



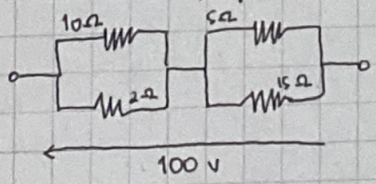
$\Sigma V = \Sigma E - \Sigma IR$

$V - 20 - \frac{25}{5} - (5 \times 2) = 0$

$V - 20 - 5 - 10 = 0$

$V = 35$ volt //

4) Resistor mana yang memiliki daya paling besar.



$R_t = R_{P1} + R_{P2}.$

$R_t = 1,67 + 3,75$

$R_t = 5,42$ //

$I_{total} = \frac{V}{R} \rightarrow \frac{100}{5,42} \rightarrow 18,45A$ //

$V_{P1} = I \cdot R_{P1} \rightarrow 18,45 \times 1,67 = 30,81$ volt.

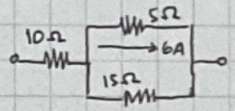
$V_{P2} = I \cdot R_{P2} \rightarrow 3,75 \times 18,45 = 69,19$ volt.

Resistor dg daya lebih besar $\rightarrow P_{R3} = 957,45\ w$

$P_{R1} = (30,81)^2 : 10 = 94,86\ w$ $P_{R2} = (30,81)^2 : 2 = 474,63w$

$P_{R3} = (69,19)^2 : 5 = 957,45\ w$ $P_{R4} = (69,19)^2 : 15 = 319,15\ w.$

5) Hitung daya total dr ketiga R.



$R_t = 10 + R_p = 10 + 3,75 \rightarrow 13,75\ \Omega$

$V_{R1} = I \cdot R_1 = 10 \cdot 6 \rightarrow 60$ $I_{R2} = \frac{60}{5} = 12A$ $I_{R3} = \frac{60}{15} = 4A.$

$P_{R1} = (6)^2 \times 10 = 360\ w$ $P_{R2} = (12)^2 \times 10 = 720\ w$ $P_{R3} = (4)^2 \times 10 = 240\ w$

$P_{total} = 360 + 720 + 240 = 1320\ w.$

6) Hitung resistansi dari lampu dg daya 25, 60, 75 dan 100 watt saat diberi tegangan 220 V.

$R = \frac{V^2}{P}$

$25w \rightarrow R = \frac{(220)^2}{25} = 1936\ \Omega$

$60w \rightarrow R = \frac{220^2}{60} = 806,67\ \Omega$

$75w \rightarrow R = \frac{220^2}{75} = 645,33\ \Omega$

$100w \rightarrow R = \frac{220}{100} = 484\ \Omega$

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