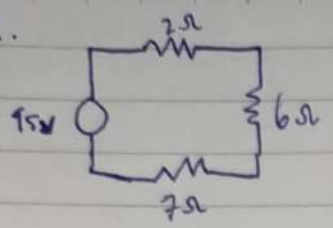
No.

Date

1.



$I_1 = I_2 = I_3 = I_{total} = \frac{45}{15}$

$= 3\ A$

$P_{total} = V_{total} \cdot I_{total}$

$= 45 \cdot 3$

$P_{total} = 135\ W$

$P_{total} = P_{R1} + P_{R2} + P_{R3}$

$= 18 + 54 + 63$

$= 135\ W$

$P_{R1} = (3)^2 \times 2$

$= 9 \times 2$

$P_{R1} = 18\ W$

$P_{R2} = (3)^2 \times 6$

$= 9 \times 6$

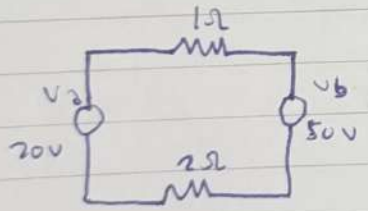
$P_{R2} = 54\ W$

$P_{R3} = (3)^2 \times 7$

$= 9 \times 7$

$P_{R3} = 63\ W$

2.



$\Sigma V = \Sigma E - \Sigma IR$ searah : $\Sigma V = 0$

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

$-30 - 3I = 0$

$-30 = 3I$

$-10\ A = I \rightarrow$ arah arus berbanding terbalik

$P_{Va} = 20 \times 10$

$= 200\ W$

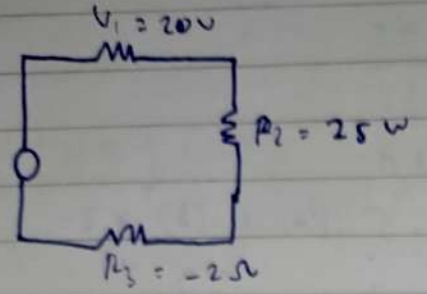
$P_{Vb} = 50 \times 10$

$= 500\ W$

$P_{total} = 500 - 200$

$= 300\ W$

3.



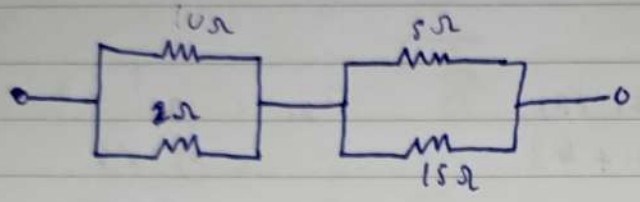
$V - 20 - \left(\frac{25}{5}\right) - (9 \times 2) = 0$

$V - 20 - 5 - 10 = 0$

$V - 35 = 0$

$V = 35\ V$

4.



$R_{total} = R_{P1} + R_{P2}$

$R_{P1} = 1,67\ \Omega$

$R_{P2} = 3,75\ \Omega$

$R_{total} = \left(\frac{1}{\frac{1}{2}+\frac{1}{10}} + \frac{1}{\frac{1}{5}+\frac{1}{15}}\right)$

$I_{total} = \frac{V_{total}}{R_{total}}$

$R_{total} = 5.42\ \Omega$

$I_{total} = \frac{100}{5.42}$

$I_{total} = 18.45\ A$

$V_{P1} = 18.45 \times 1,67$

$V_{P1} = 30,81\ V$

$V_{P2} = 18,45 \times 3,75$

$V_{P2} = 69,19\ V$

$P_{R1} = \frac{(30,81)^2}{10} = 94,86\ W$

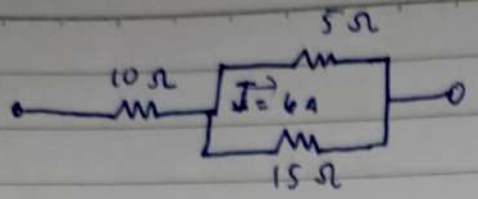
$P_{R2} = \frac{(30,81)^2}{2} = 474.63\ W$

$P_{R3} = \frac{(69,19)^2}{5} = 957,95\ W$

$P_{R4} = \frac{(69,19)^2}{15} = 319,15$

resistor yang memiliki daya paling tinggi adalah $R_3 = 5\Omega$ dimana dayanya $957,95\ W$

5.



$V_{R1} = 6 \times 5$ → $V_{R1} = V_{R2} = 30V$

$V_{R1} = 30V$

$I_{R2} = \frac{30}{15} = 2A$ $\quad I_3 = I_1 + I_2$

$V_{total} = 8 \times 13{,}75$ $\quad I_3 = 6 + 2$

$= 110V$ $\quad I_3 = 8A$

$R_{total} = 10 + \left(\frac{1}{\frac{1}{5} + \frac{1}{15}}\right) = 13{,}75\Omega$

$P_{total} = V_{total} \times I_{total}$ $\quad P_{R3} = \frac{(80)^2}{10} = 640W$ $\quad P_{R2} = \frac{(30)^2}{15} = 60W$

$= 110 \times 8$

$P_{total} = 880 W$ $\quad P_{R3} = 180W = \frac{(30)^2}{5}$

$P_{total} = 640 + 60 + 180$

$= 880 W$

6. $V = 220V$

$P_1 = 25W$

$P_2 = 60W$

$P_3 = 75W$

$P_4 = 100W$

$P = \frac{(V)^2}{R}$ $\quad R = \frac{(V)^2}{P}$

$R_1 = \frac{(220)^2}{25} = 1936\Omega$

$R_2 = \frac{(220)^2}{60} = 806.67\Omega$

$R_3 = \frac{(220)^2}{75} = 645{,}33\Omega$

$R_4 = \frac{(220)^2}{100} = 484\Omega$

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