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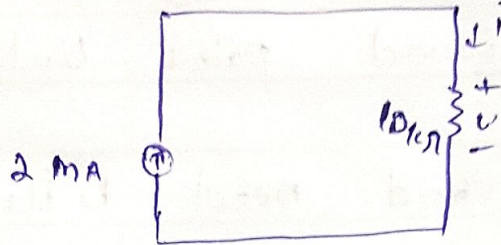
ID : 6966

Paper : Network Analysis 01

Program : B. tech Electrical

Submitted To : Eng. Amir Aman.

Question = 02 Part (A) (02)



for Voltage \Rightarrow

$$V = iR$$
$$V = (2) (10)$$
$$V = 20V$$

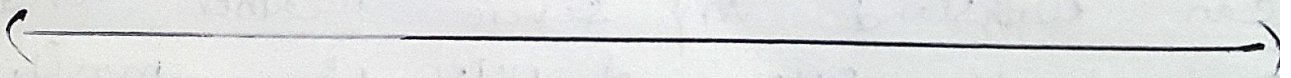
for Conductance \Rightarrow

$$G = \frac{1}{R} = \frac{1}{10} = 100$$

for Power \Rightarrow

$$P = V i = (20V) (2m)$$

$$P = 40W$$



Question 202 Part (B)

Solution.

$$P = 20 \cos^2(t) \text{ mW}$$

$$V = 10 \cos(t)$$

I & $R = ?$

Applying Formula.

$$P = VI = I^2 R$$

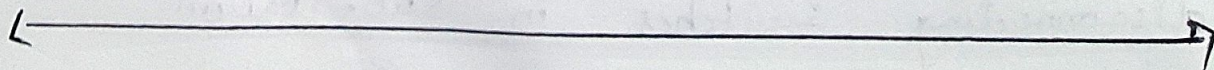
$$= \frac{20^2 \cos^2(t) \text{ mW}}{10 \cos^2(t) \text{ V}}$$

$$I = 2 \cos(t) \text{ mA}$$

$$V = IR$$

$$R = \frac{V}{I} \Rightarrow R = \frac{10 \cos(t) \text{ mW}}{2 \cos(t) \text{ mA}}$$

$$R = 5 \Omega$$



Question 202

find R_{ab}

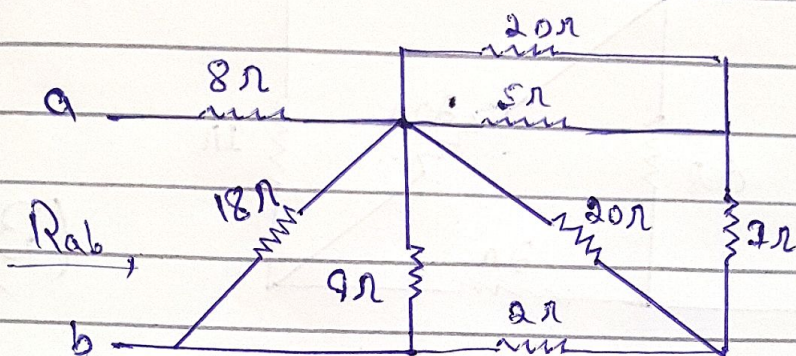
for the

Circuit

below

Answer #1

?



Formula

?

$$R_{ab} = \frac{R_1 \times R_2}{R_1 + R_2}$$

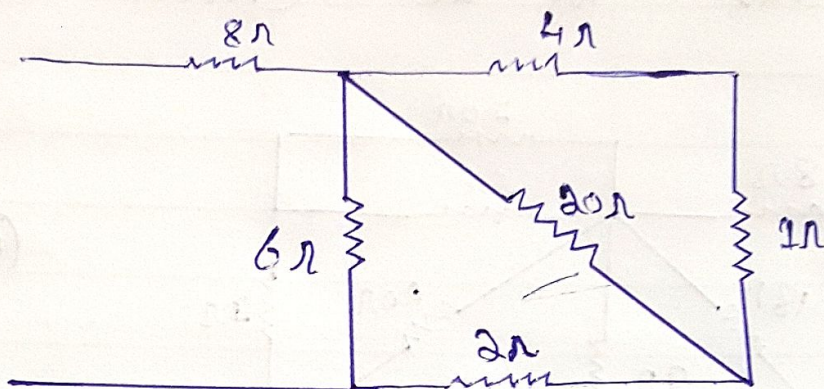
$$= \frac{9 \times 18}{9 + 18} = 6 \Omega$$

$$= \frac{R_3 \times R_4}{R_3 + R_4}$$

then $= \frac{5 \Omega \times 20 \Omega}{5 + 20 \Omega} = 4 \Omega$

Equivalent

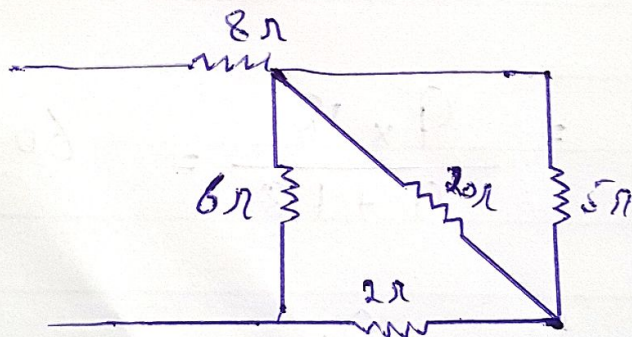
Circuit \rightarrow



(B)

$$R_{ab} = R_5 + R_6$$

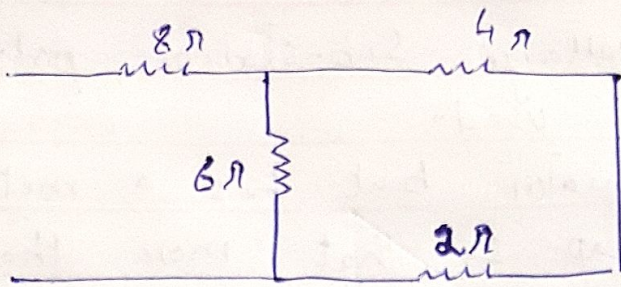
$$R_{ab} = 4 + 1 = 5$$



(C)

$$R_{ab} = \frac{R_7 \times R_8}{R_7 + R_8} = \frac{5 \times 20}{5 + 20} = \frac{100}{25} = 4$$

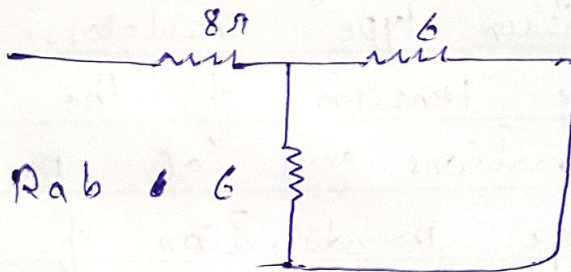
$$= 4$$



(D)

$$R_{ab} = R_9 + R_{10}$$

$$(4 + 6 = 10)$$

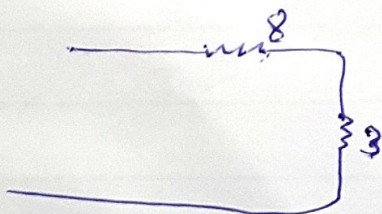


$$R_{ab} = 11$$

(E)

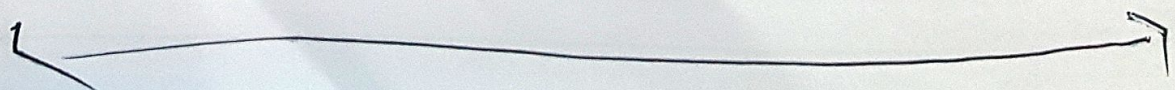
$$R_{ab} = \frac{R_{11} \times R_{12}}{R_{11} + R_{12}}$$

$$\frac{6 \times 6}{6 + 6} = \frac{36}{12} = 3$$



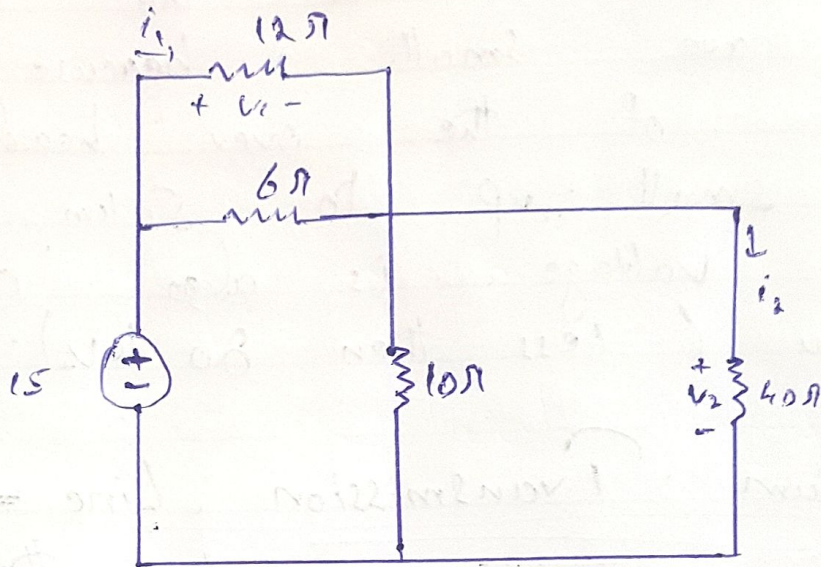
(F)

Thus $R_{eq} = 8 + 3 = 11$
 $= 11\ \Omega$



Question = 03 Part (A)

Answer -



~~12/6~~ $\rightarrow \frac{12}{6} = 2$

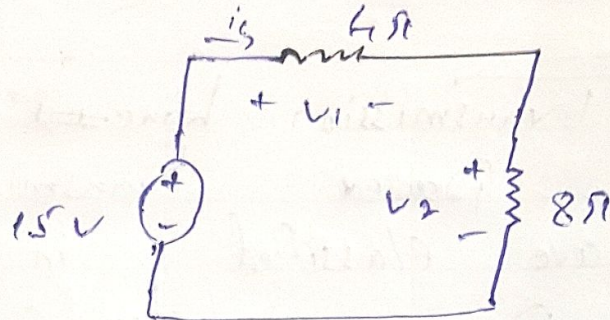
$$\frac{6 \times 12}{6 + 12} = \frac{72}{18} = 4\Omega$$

$\frac{10}{40} =$

$$\frac{10 \times 40}{10 + 40} = \frac{400}{50} = 8\Omega$$

$= 8\Omega$

Equivalent Circuit.



Now use voltage division for circuit.

$$V_1 = \left[\frac{4}{4+8} \right] (15) = 5V$$

$$V_2 = \left[\frac{8}{4+8} \right] (15) = 10V$$

$$i_2 = \frac{V_1}{12} = \frac{5}{12} = 416.7 \text{ mA}$$

$$i_2 = \frac{V_2}{40} = \frac{10}{40} = 250 \text{ mA}$$

$$P_{22} = V_1 i_1 = 5 \times \left(\frac{5}{12} \right) = 2.083 \text{ W}$$

$$= 2.083 \text{ W}$$

$$P_2 = V_2 i_2 = 10 \times (0.25)$$

$$= 2.5 \text{ W}$$

Question no 3

Part B

Solution.

?

$$R_2 = 10 \Omega$$

$$V_2 = 110 \text{ V}$$

$$I = ?$$

$$I = \frac{V}{R}$$

$$I = \frac{110}{10}$$

$$I = 11 \text{ A}$$

Ans

