



SUMMER – 14 EXAMINATION

Model Answer

Subject Code: **Correction in model answer paper 17215.**

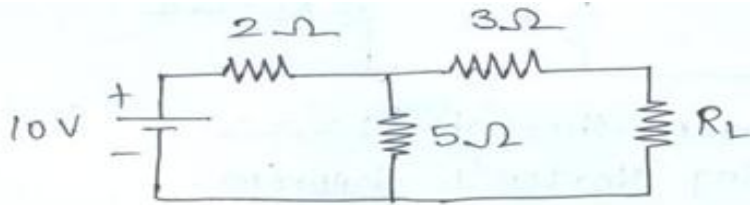
Given below:

Q.6. Attempt any four of the following:

(16 Marks)

f). Calculate the value of  $R_L$ , so that power transferred is maximum in the circuit given below.

Ans:



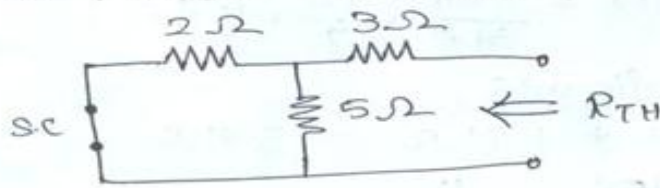
To find:  $R_L$  (For maximum power transfer)

Soln:

1) To find equivalent resistance  $R_{TH}$ .

Hence, the  $R_L$  should be open and voltage source to be short circuited.

Hence, circuit becomes.





$$\begin{aligned}R_{TH} &= (2\Omega // 5\Omega) + 3\Omega \\&= \frac{2 \times 5}{2+5} + 3 \\&= \frac{10}{7} + 3 \\&= 1.42 + 3 \\R_{TH} &= 4.42 \Omega\end{aligned}$$

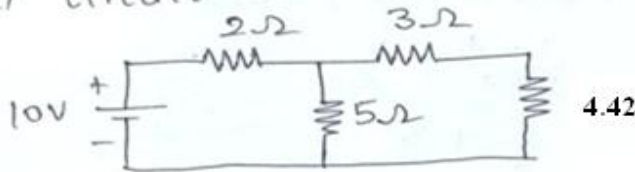
2 Marks

- 2) For maximum power transfer to take place,  
 $R_L = R_{TH}$ .

1 Mark

$$\therefore R_L = 4.42 \Omega$$

- 3) Final circuit



1 Mark