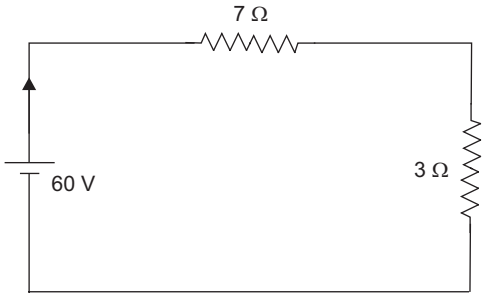

Fig. 1.23.

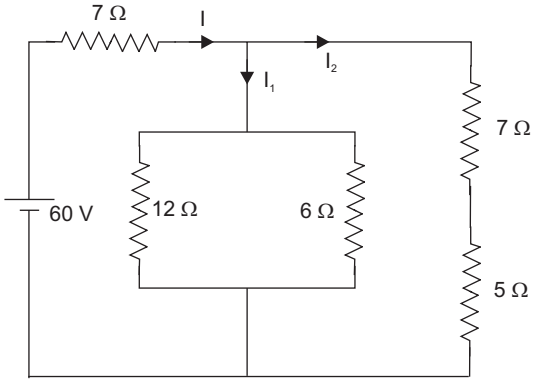

Fig. 1.23A.

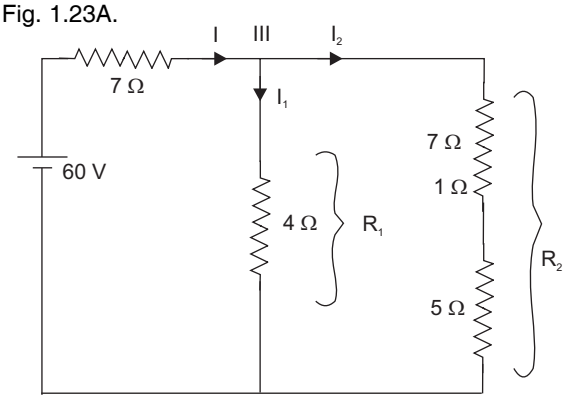

Fig. 1.23B. Circuit for illustration 18 with current directions marked, for evaluation of I_2

The current I hence is, 60/10 = 6 A

The power delivered by the source is the product of its V and I. That is 60 × 6 = 360 W **(Ans).**

The current I will flow through 7 ohms resistor also. The power absorbed by it will be

(6^2) (7) = 252 W **(Ans).**

Referring to Fig. 23-B and applying the current division technique of equation (1.29).

$$I_2 = \frac{I(R_1)}{R_1 + R_2} = \frac{6 \times 4}{4 + 12} = 1.5 \text{ A}$$

Current in 7 ohm resistor = current in 5 Ω resistor = I_2, as they are in series

$\therefore$ Power absorbed by 7 Ω resistor = (1.5^2) 7

= **15.75 W (Ans).**

Power absorbed by 5 Ω resistor = $(1.5)^2 \times 5$

= 11.25 W **(Ans).**

Illustration 19

Three resistors of 2, 5 and 10 Ω are joined in parallel and a total current of 24 A is passed through them. Find the current through each resistor.

Solution

The problem is dipicted in Fig. 1.24.

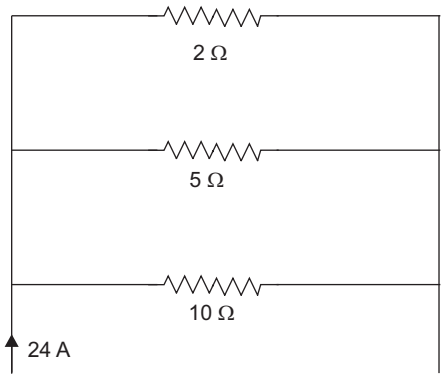

Fig. 1.24. Circuit for illustration 19