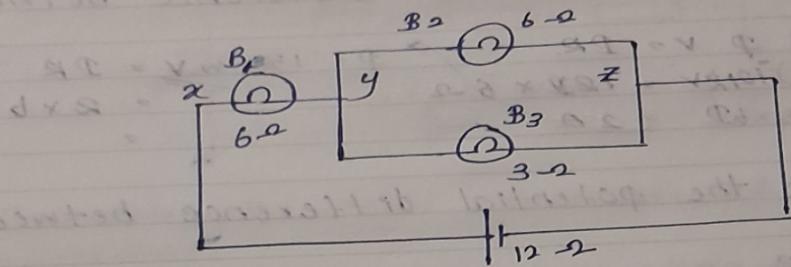


Q-2) Three bulbs  $B_1$ ,  $B_2$ ,  $B_3$  are connected to 12 V supply as shown in the following diagram.



Q) Calculate the total resistance of the two bulb's  $B_2$  and  $B_3$  (between Y and Z).

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} \Rightarrow \frac{1}{6} + \frac{1}{3}$$

$$= \frac{1+2}{6}$$

$$= \frac{3}{6}$$

$$= \frac{1}{2}$$

$$R = 2\Omega$$

Q) What is the total resistance between the two points X and Z.

$$R = (6+2)\Omega$$

$$R = \underline{\underline{8\Omega}}$$

viii) What is the current gained from the electric supply.

$$V = IR$$

$$12V = I \times 8\Omega$$

$$I = \frac{3}{2}$$

$$I = \underline{\underline{1.5A}}$$

ix) Calculate the potential difference between X and Y.

$$P = I^2 R$$

$$= (1.5)^2 \times 6$$

$$P = 2.25 \times 6$$

$$P = 13.5W$$

$$= DR$$

$$= 8 \times 6$$

x) Calculate the potential difference between Y and Z.

$$P = I^2 R$$

$$= (1.5)^2 \times 2$$

$$= 2.25 \times 2$$

$$P = 4.5W$$

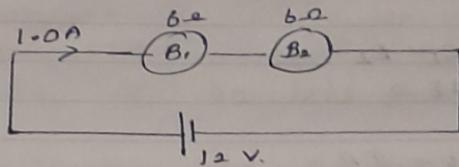
xi) Calculate the current flowing through bulb B<sub>2</sub>.

$$I_{B_2} = 0.5A$$

xii) Calculate the current through the bulb B<sub>3</sub>.

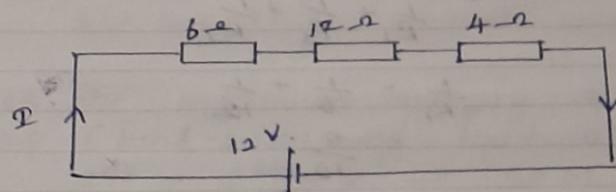
$$I_{B_3} = 1A$$

viii) If the bulb  $B_3$  is removed, then what would be the current gain from the electric supply.



$$V = IR \\ 12V = 12\Omega \times I \\ I = 1A$$

Q-02) Three resistors 6Ω, 12Ω, 4Ω are connected in series to an electric supply of 12V.



p) Calculate the total resistance of these three resistors.

$$6\Omega + 12\Omega + 4\Omega = 22\Omega$$

m) What is the current gained from the electric supply.

$$V = IR$$

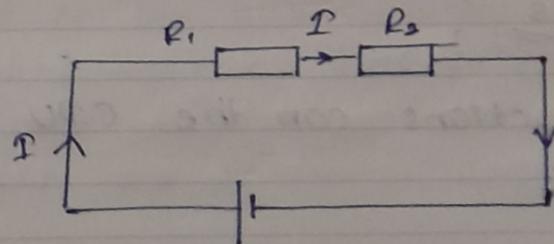
$$12V = I \times 22$$

$$I = \frac{12}{22}$$

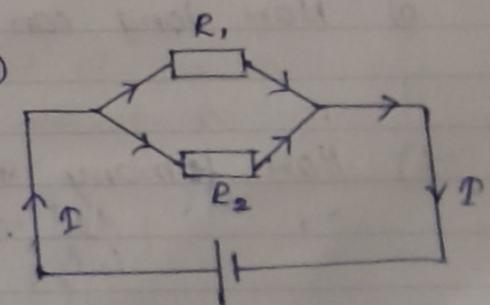
$$I = 0.55A$$

Q-03)

(a)



(b)



If  $R_1 = 6\Omega$ ,  $R_2 = 12\Omega$  and  $I_s = 1A$  find equivalent resistance and V.

If  $R_1 = 6\Omega$ ,  $R_2 = 12\Omega$  and  $I = 1A$  find equivalent resistance and  $V$ ?

a) total resistance =  $R_1 + R_2$

$$= 18\Omega$$

$$V = IR$$

$$= 1A \times 18\Omega$$

b) total resistance  $\Rightarrow \frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$

$$\frac{1}{R_T} = \frac{1}{6} + \frac{1}{12}$$

$$= \frac{3}{12}$$

$$= \frac{1}{4}$$

$$= 1 \times 4$$

$$V = 4V$$