2°-e

$$\frac{1}{R_T} = {}^1/_{R_{eq}} = {}^1/_{R_1} + {}^1/_{R_2} + \cdots + {}^1/_{R_n} \quad -(B)$$

eq (B) put in (A)

$$G_T = {}^1/_{\frac{1}{R_T}}$$

$$G_T = R_T = R_{eq}$$

$$\boxed{G_T = R_1 + R_2 + \cdots R_n}$$

This eq show/Describe if the number of Resister increases in parrallel combination of Resister Then ~~Conductors~~ conductivity of a conductor will be increases

It means That in parrall combination of Resister conductance is directly propotional to Resistance is compare to series combination b/c in series combination conductance is inversly propotional to Resistance.

Q:1 Part (b)

As we know That The relation b/w conductance & resistance as inverse relation

i.e $G = 1/R$

Similarly in series combination Total conductance is in inverse with Total Resistance.

$G_T = 1/R_T$ —(1)

because in Series combination Total resistance as

$R_T = R_{eq} = R_1 + R_2 + R + \cdots \cdots R_n$

But

in parralle combination

As we know That the above equation

$G_T = 1/R_T$ —>(A)

Now we find 'R_T' for parrallel combination.

we already findout The value of R_T for parralled combination in (Question No (1) in part A)

charge of a system to crosponding change in its electric potential.

Mathematically :->

$C = V/Q$

The SI unit of 'C' is (Farad)

(5) Synchronous Motor & Asyhronous motor

Synchronous Motor :->

A.C mater in which is in steady state the ration of the shafte of synchronized with the freguncy of supply current the rotation period is exactly equll to in integral no of A.C cycle.

Asyhronous Motor :-

asyhronous mater is an AC electric mater in which the electric current in the rotor

of The opposition flow of current an electric circuit is called resistance

Resistance is represented by 'R' and The SI unit of Resistance is ohm (Ω).

Conductance:->

A measure of The ability of a Substance to Allow electric current to pass Through to The applied voltage is called conductance.

Conductance is represented by 'G' and conductance is inversly propotional to Resistence

2'-e $G = 1/R$

(3) Energy & Power

Energy:->

The ability of a body to do work is called Energy.

The SI unit of Energy is (Joule)

Powey :->

The power is defined is The rate of power of energy. OR The rate of work done

Mathemetialy

$$P = W/t = F \cdot d/t = F \cdot V$$

The SI unit of power is watt

(4) Inductance & Capacitance

inductance :->

Inductance is a The tendency of electrical conducter, to oppose o change an electric current flowing Through it.

Mathematically

$$L = N\Phi/I$$

The SI Unit of 'L' is (Henry)

Capacitance :->

Capacitance is The ratio of The change in electric

Q:2:->

Given data:->

$R_1 = 1\Omega$

$R_2 = 2\Omega$

$R_3 = 3\Omega$

$V = 24V$

Required data:->

$I_1 = ?$

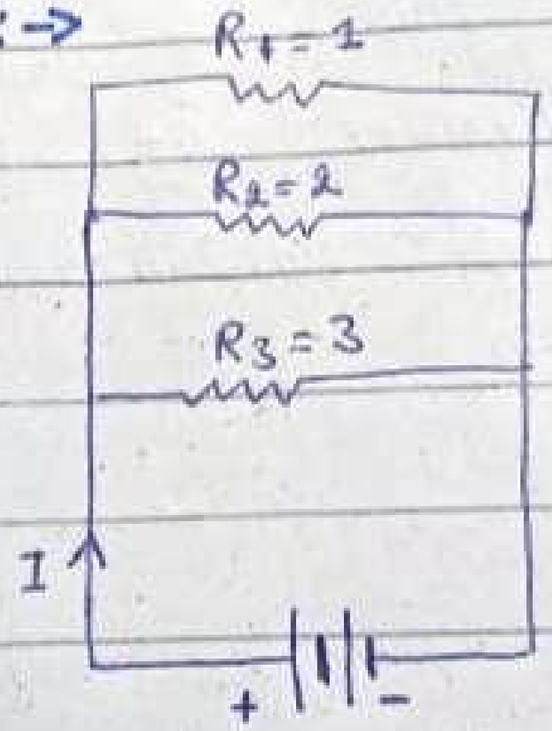
$I_2 = ?$

$I_3 = ?$

$P_1 = ?$

$P_2 = ?$

$P = ?$



Sol:-> According to ohm's Law

$V = IR \Rightarrow I = V/R$

$I_1 = V/R_1 \Rightarrow I_1 = 24V/1\Omega$

$\boxed{I_1 = 24A}$

Similarly I_2

$I_2 = V/R_2 \Rightarrow I_2 = 24V/2\Omega$

$\boxed{I_2 = 12A}$

needed to produce torque
is obtained by electro-
-megnatic induction from
megnatic field of the
stator.

Putting The value of I, I_1 & I_2 in eq (2)

$$V/R_{eq} = V/R_1 + V/R_2$$

$$V/R_{eq} = V(1/R_1 + 1/R_2)$$

$$\Rightarrow 1/R_{eq} = 1/R_1 + 1/R_2 \longrightarrow (A)$$

$$\Rightarrow 1/R_{eq} = (R_2 + R_1)/R_1R_2$$

$$\boxed{R_{eq} = R_{12} = R_1R_2/R_1+R_2}$$

This formula is only work for two Resister.

For n number of Resistance

As we know that about eq (A)

as $$1/R_{12} = 1/R_1 + 1/R_2 \longrightarrow (B)$$

for 3 resister eq (B) can be written as

$$1/R_{123} = 1/R_1 + 1/R_2 + 1/R_3$$

(5)

Similar I_3

$I_3 = V/R_3 \Rightarrow I_3 = 24/3$

$\boxed{I_3 = 8A}$

As we know That

$P = \omega/t = U/t = q/t \; U/t = q/t \; U/t$

$\Rightarrow P = IV$

$P_1 = I_1 V$

$P_1 = (24)(24)$

$\boxed{P_1 = 576\,W}$

Similarly for P_2

$P_2 = I_2 V = (12)(24)$

$\boxed{P_2 = 288W}$

Similarly for P_3

$P_3 = I_3 V = (8)(24)$

$\boxed{P_3 = 192W}$

Q:03:->

(1) Current & voltage

current:->

The rate of flow of charge Through a conductor is called current.

Mathematically

$I = Q/t$

The SI Unit of current is (Ampere)

Voltage :->

Voltage is representation of The electric potential energy per unit charge is called voltage.

Mathematicaly :->

$V = U/q$

The SI Unit of Voltage is (Volt)

(2) Resistance & conductance

Resistance :->

Resistance is measure

Similarly For n number of Resistance

$$1/R_{eq} = 1/R_1 + 1/R_2 + 1/R_3 + \cdots\cdots\cdots + 1/R_n$$

$$\Rightarrow \boxed{1/R_{eq} = \sum_{2^\circ=1}^{n} 1/R_{2^\circ}}$$

This is the genral formula for 'n' number of Resisters connected in Parrallel combination.

Q:No:1

Part (A)

Ans:->

Parrallel combination of Resister:->

In parrallel combination current is different for different resister b/c path is different but potential drop remain same.

For two resister

According to ohm's Law

$V = IR$

$\Rightarrow I = V/R \quad -(1)$

Here I is different for different resister & voltage will be same

So total current will be eq wall

$I_{eq} = I_1 + I_2 \rightarrow (2)$

current for resister (1)

$I_1 = V/R_1 \quad -(3)$

current for resister (2)

$I_2 = V/R_2 \rightarrow (4)$