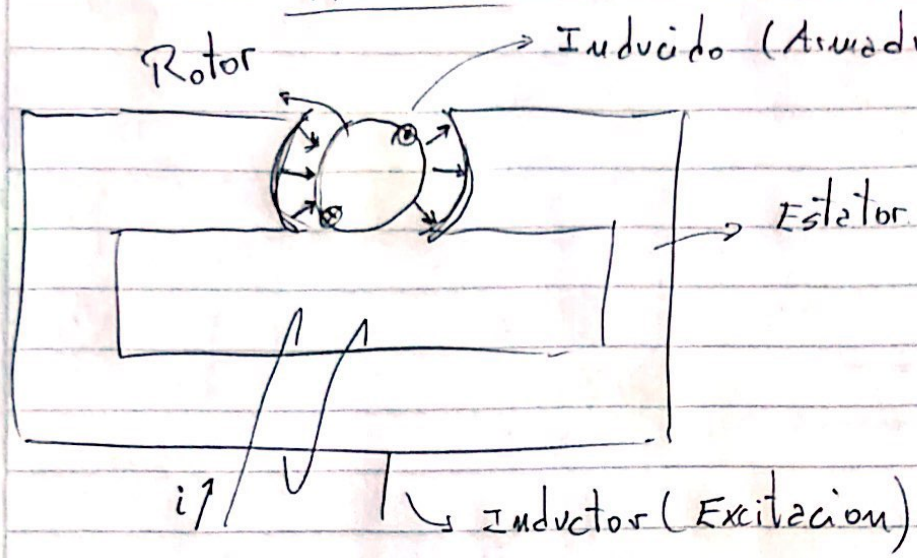
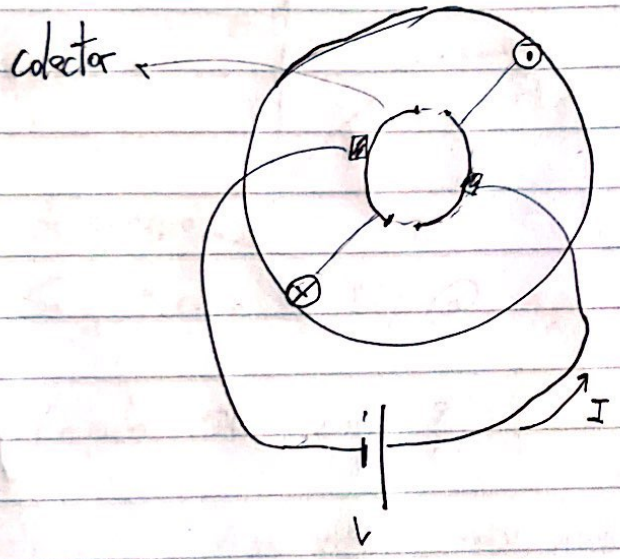
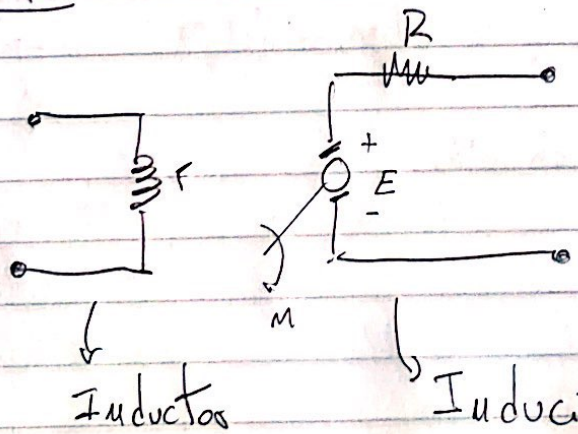
M.C.C.





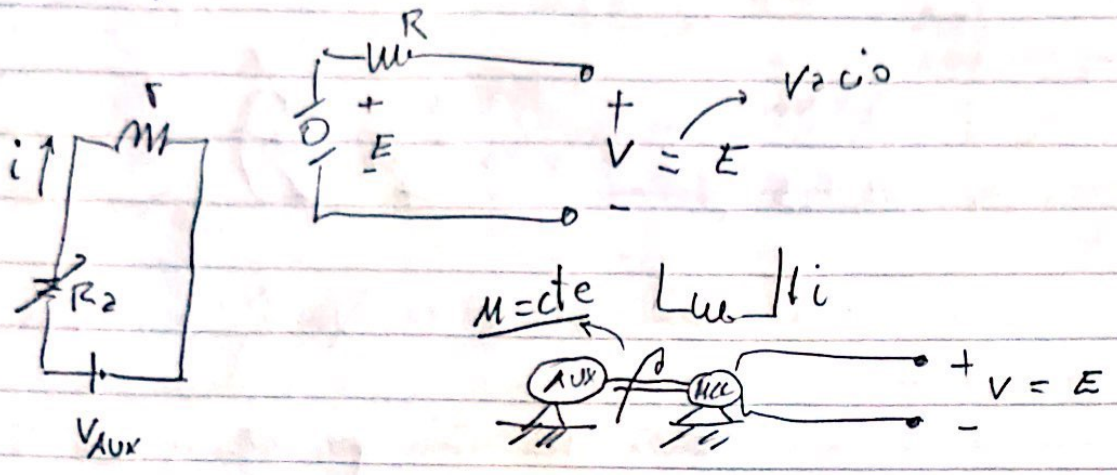
Modelo:



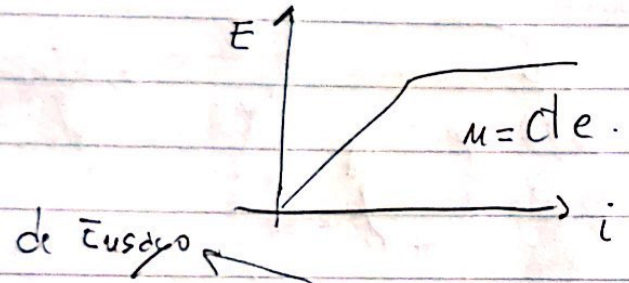
cte de la maquina

$E = A \cdot n \cdot \phi(i)$

Ensayo de Vacio



A $M = cte$ se mide $V = E(i)$ y se obtiene:



Se tiene $E_1(i)$ @ M_1 y se quiere $E_2(i)$ @ M_2

¿Como se hace?

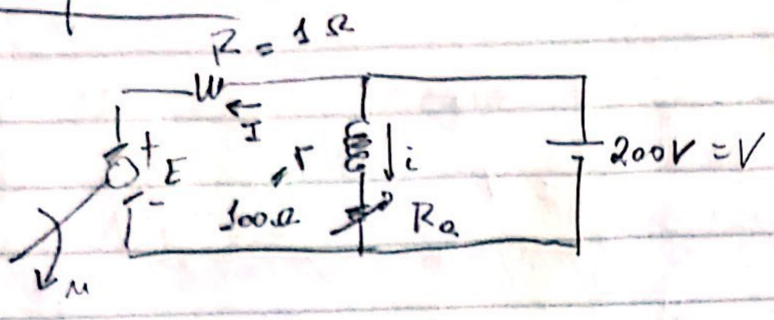
6

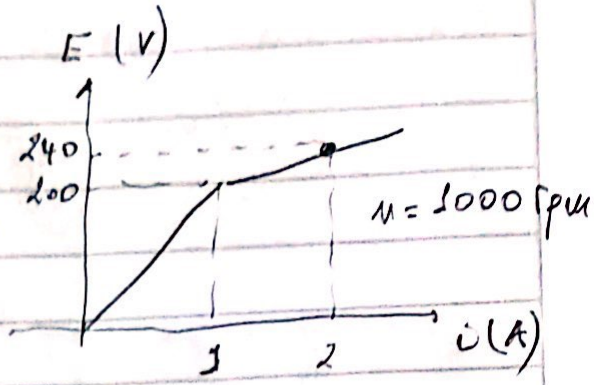
$$E_1 = A\,M_1\,\phi(i) \Rightarrow \underbrace{A\,\phi(i)}_{\text{función característica de la maquina}} = \frac{E_1(i)}{M_1}$$

Luego $E_2(i) = M_2\,A\,\phi(i) = \frac{E_1(i)}{M_1} \times M_2$

$\Rightarrow E_2(i) = \frac{M_2}{M_1} E_1(i)$ ← obtenida mediante ensayo.

Ejemplo 1





1) Valor de Re / vacio $n = 1000$ rpm.

⇒ Que es un Motor en vacio?

Malla $V = RI + E$ ⇒ $\underbrace{VI}_{P_{fuente}} = \underbrace{RI^2}_{\text{perdidas Joule}} + \underbrace{EI}_{\text{Potencia que se convierte de electrica en mecanica.}}$

$$\boxed{P_m = EI}$$

$$P_m = P_{f+v} + P_{util}$$ (perdidas mecanicas.)

En rigor un motor en vacio $P_{util} = 0$ ⇒ $P_m = P_{f+v}$

Si se desprecian las perdidas mecanicas ⇒ $P_m = 0$ en vacio

$$P_m = 0 = E \times I \Rightarrow \begin{cases} E = k n \phi(i) \neq 0 \\ I = 0 \end{cases} \Rightarrow E = V = 200V$$

⇒ de curva @ 1000 rpm obtengo $i = 1A$ ⇒ $R_e = 100\Omega$

2) Idem pero en vacio gire @ 1500 rpm.

⇒ Se necesita curva @ 1500 rpm $E_{1500} = \frac{1500}{1000} E_{1000} = 1,5\,E$ @

$\Rightarrow \quad 200 = 1,5\, E_{1000}(i) \Rightarrow E_{1000}(i) = 133,3V \Rightarrow \underline{i = 0,67A}.$

curva

con esto se calcula Ra.

3) $R_{Arr} \;/\; I_{Arr} = 50A.$

$I = \frac{V - E}{R} \qquad E = A\,n\,\phi(i)$

$n = 0$ en arranque $\Rightarrow E = 0$ en arranque

$\Rightarrow I_{Arr} = \frac{V}{R + R_{Arr}} = \frac{200}{1 + R_{arr}} \Rightarrow \underline{R_{arr} = 3\,R}$