

Mh25

td C1.3

- ①
- 2a)  $i > 0 \rightarrow C > 0$   
 $v_{moy} > 0 \rightarrow P_a > 0 \Rightarrow \Omega > 0 \rightarrow \boxed{Q I}$
  - 2b)  $i > 0 \rightarrow C > 0$   
 $v_{moy} < 0 \rightarrow P_a < 0 \Rightarrow \Omega < 0 \rightarrow \boxed{Q IV}$
  - 2c)  $i < 0 \rightarrow C < 0$   
 $v_{moy} < 0 \rightarrow P_a > 0 \Rightarrow \Omega < 0 \rightarrow \boxed{Q III}$
  - 2d)  $i < 0 \rightarrow C < 0$   
 $v_{moy} > 0 \rightarrow P_a < 0 \Rightarrow \Omega > 0 \rightarrow \boxed{Q II}$

② On rappelle l'équation dynamique du Mcc.

$$\boxed{C - C_r = J \frac{d\Omega}{dt}}$$

phase b vitesse nominale  $\rightarrow -C_r = -f \Omega_n$  avec  $\Omega_n = \frac{\pi N_n}{30}$   
 $\frac{d\Omega}{dt} = 0$   $\Omega_n = 15,7 \frac{rad}{s}$

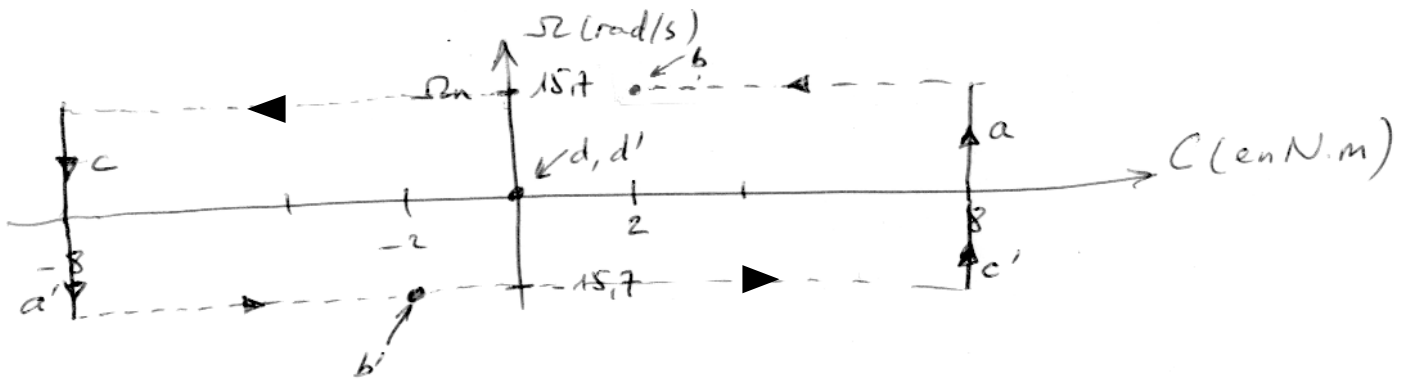
d'où  $\boxed{C = f \frac{\pi N_n}{30}}$   $C = 12,7 \cdot 10^{-3} \cdot \pi \cdot \frac{1500}{30}$   
 $\underline{C = 2 Nm}$

phase d  $\underline{C = C_c = -8 Nm}$

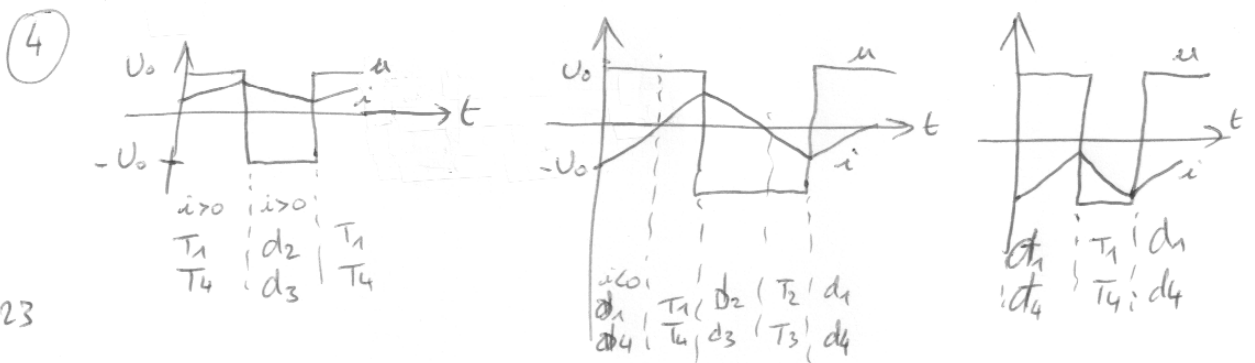
phase b' fonctionnement idem phase b mais en sens inverse:  
 $\underline{C = -2 Nm}$

phase d'  $\underline{C = C'_c = 8 Nm}$

Mh50



12h11



12h23

(5) 
$$U_{moy} = \frac{1}{T} \int_0^T u(t) dt = \frac{1}{T} (U_0 (\alpha T) - U_0 (1-\alpha) T)$$

$$U_{moy} = (2\alpha - 1) U_0$$

(6) 
$$u = e + L \frac{di}{dt}$$
 soit en moyenne 
$$E = U$$
  

$$E = (2\alpha - 1) U_0$$

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(7) 
$$U_0 = e + L \frac{di}{dt}$$
 soit 
$$i(t) = \frac{U_0 - E}{L} t + I_0$$

$$\alpha t = \alpha T \quad I_1 = \frac{U_0 - E}{L} (\alpha T) + I_0$$

(8) 
$$\Delta I = I_1 - I_0 = \frac{U_0 - E}{L} \alpha T$$

(9) 
$$\Delta I = 1A \text{ donc } L = \frac{U_0 - E}{\Delta I} \alpha T = \frac{U_0 - (2\alpha - 1) U_0}{\Delta I} \alpha T$$
  

$$L = 2 \frac{(1 - \alpha) U_0}{\Delta I} \alpha T \quad L = 2 \cdot \frac{(1 - 0,6) 100}{1} \cdot 0,6 \cdot 0,01 = 4,8 H$$

12h38