Determining value for C_3 & C_4

$$\omega(t) = \frac{d\theta(t)}{dt} = \frac{C_2}{C_4 T}\sec h^2\left(\frac{t - C_3 T}{C_4 T}\right)$$

For $\omega(0) = \omega(T) = 0$

$$\Rightarrow \frac{C_2}{C_4 T}\sec h^2\left(\frac{0 - C_3 T}{C_4 T}\right) = \frac{C_2}{C_4 T}\sec h^2\left(\frac{T - C_3 T}{C_4 T}\right)$$

$$\Rightarrow \sec h^2\left(\frac{C_3}{C_4}\right) = \sec h^2\left(\frac{1 - C_3}{C_4}\right) \Rightarrow \frac{C_3}{C_4} = \frac{1 - C_3}{C_4}$$

$$\Rightarrow 2C_3 = 1 \Rightarrow C_3 = \frac{1}{2}$$

Now, considering for $\omega(0) = 0$

$$\Rightarrow \frac{C_2}{C_4 T}\sec h^2\left(\frac{0 - C_3 T}{C_4 T}\right) = 0 \Rightarrow \sec h^2\left(\frac{C_3}{C_4}\right) = 0$$

$$\Rightarrow \frac{C_3}{C_4} \geq 2 \Rightarrow C_4 \leq \frac{C_3}{2}$$

Or

considering for $\omega(T) = 0$

$$\Rightarrow \frac{C_2}{C_4 T}\sec h^2\left(\frac{T - C_3 T}{C_4 T}\right) = 0 \Rightarrow \sec h^2\left(\frac{1 - C_3}{C_4}\right) = 0$$

$$\Rightarrow \frac{1 - C_3}{C_4} \geq 2 \Rightarrow C_4 \leq \frac{1 - C_3}{2}$$

Putting $C_3 = \frac{1}{2}$, we get

$$\Rightarrow C_4 \leq \frac{1 - 0.5}{2} \Rightarrow C_4 \leq \frac{0.5}{2} \text{ or } C_4 \leq \frac{C_3}{2}$$