Mécanisme de transport

(Q1) $\vec{\Gamma}(A, 2/1) = \ddot{x}\,\vec{x_1}$

(Q2) $\vec{R_c} = (\ddot{x}\vec{x_1} + l\ddot{\theta}\vec{x_3})m_3$, $\vec{R_2} = (\ddot{x}\vec{x_1} + l\ddot{\theta}\vec{x_3} + l\dot{\theta}^2\vec{y_3})m_3$

$\vec{T}(B, 3/1) = \overline{\overline{I_B}}(3).\vec{\Omega}_{3/1} + m_3 \vec{BG} \wedge \vec{v}(B, 3/1)$

$= C_3\ddot{\theta}\vec{z} + m_3.(-l\vec{y_3}) \wedge \dot{x}\vec{x_1} = C_3\ddot{\theta}\vec{z} + m_3 l\dot{x}G_3\theta\,\vec{z}$

$= (C_3\ddot{\theta} + m_3 l\dot{x}G_3\theta).\vec{z}$

$\vec{\delta}(B, 3/1) = \left(\frac{d\vec{T}(B, 3/1)}{dt}\right)_1 + m_3 \underbrace{\vec{v}(B/1)}_{\dot{x}\vec{x_1}} \wedge \underbrace{\vec{v}(G, 3/1)}_{\dot{x}\vec{x_1} + l\dot{\theta}\vec{x_3}}$

$= \left[C_3\ddot{\theta} + m_3 l(\ddot{x}G_3\theta - \dot{x}\dot{\theta}n_3\theta)\right]\vec{z} + (m_3\dot{x}l\dot{\theta}n_3\theta).\vec{z}$

$= (C_3\ddot{\theta} + m_3 l\ddot{x}G_3\theta)\vec{z}$.

(Q3) $\{\tau_{2\to 3}\} = \begin{Bmatrix} X_B & - \\ Y_B & - \\ - & 0 \end{Bmatrix}_{B, B_2}$

(Q4) $\vec{P} = -m_3 g.\vec{y_2}$

$\vec{\Pi}(B) = \vec{\Pi}(G) + \vec{BG} \wedge \vec{P}$

$= \vec{0} + (-l\vec{y_3}) \wedge \vec{P}$

$\vec{\Pi}(B) = -m_3 g.l n_3\theta\,\vec{z}$

(1) $C_3\ddot{\theta} + m_3 l\ddot{x}G_3\theta = -m_3 g l n_3\theta$

(Q5) $\grave{a}\ t=0,\ \theta=0$

$\Leftrightarrow \ddot{\theta} = -\frac{m_3 l\ddot{x}G_3\theta}{C_3} < 0$

(Q6) $\{\tau_{1\to 2}\} = \begin{Bmatrix} 0 & - \\ Y_A & - \\ - & N_A \end{Bmatrix}_{A, B_2}$

(Q7) $m_2\ddot{x} + m_3.(\ddot{x} + l\ddot{\theta}\vec{x_3}.\vec{x_1} + l\dot{\theta}^2\vec{y_3}.\vec{x_1}) = F$

(2) $m_2\ddot{x} + m_3(\ddot{x} + l\ddot{\theta}G_3\theta + l\dot{\theta}^2 n_3\theta) = F$

(Q8) $\grave{a}\ t=0,\ \theta=0 \Rightarrow \dot{\theta}=0$ ~~$\Rightarrow \ddot{\theta}$~~

(2) $\Rightarrow F = m_2\ddot{x} + m_3\ddot{x} + lG_3''\theta\left(\frac{-m_3 l\ddot{x}G_3\theta}{C_3}\right)^{''}$

$F = \ddot{x}\left(m_2 + m_3 - \frac{m_3 l^2}{C_3}\right)$.

(Q9) $\dot{\theta}=0 \Rightarrow$ et $\ddot{\theta}=0 \Rightarrow$ $\tan\theta = -\frac{\ddot{x}}{g}$

(1) $\Rightarrow$