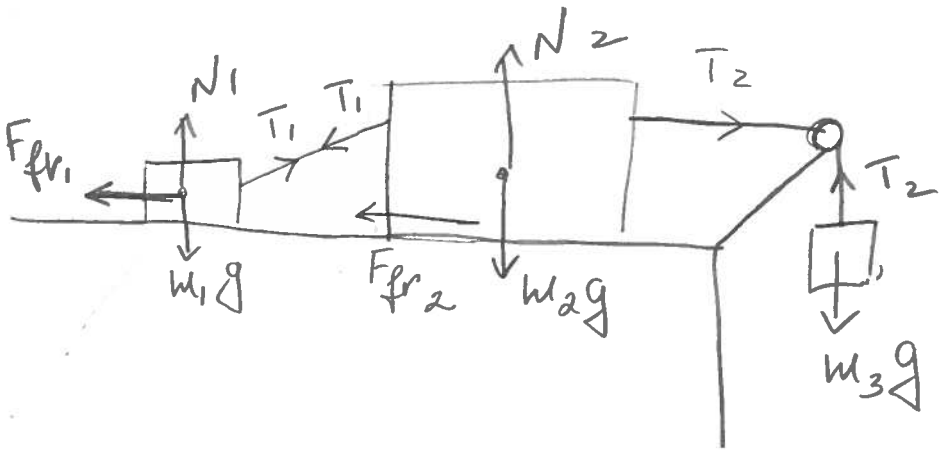
Answers Test 2

1.



$$\begin{cases} m_3 g - T_2 = m_3 a_y \\ T_1 \cos\theta - \mu N_1 = m_1 a_x \\ N_1 - m_1 g + T_1 \sin\theta = 0 \\ T_2 - T_1 \cos\theta - \mu N_2 = m_2 a_x \\ N_2 - m_2 g - T_1 \sin\theta - 0 \\ a_y = a_x \end{cases}$$

2. $v_1 = \sqrt{\frac{2}{m}\left(\frac{\beta}{2A} + \mu m g A\right)}$

3 $U^{F_1} = -\frac{\beta x^4}{4} + \text{Const}$

$U^{F_2} = Px + \text{const}$

$U^{F_3} = \frac{\beta x^4}{4} - Px - C_1 x^2 + \text{Const}$

$F_{3x} = -\beta x^3 + P + 2C_1 x$