Objective question 4

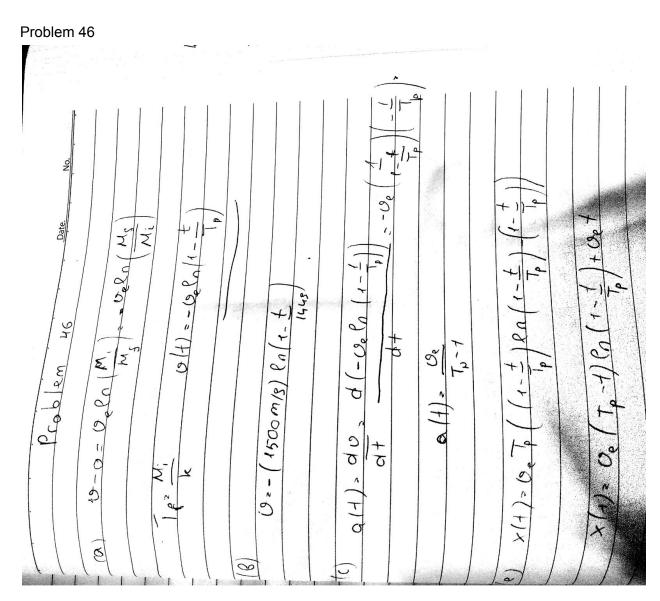Objective question 4

$$F_{AV} = \frac{m(v_f - v_i)}{(\Delta t)} = \frac{(57 \cdot 10^{-3} \, kg)(25 + 21)}{0.06} =$$

$$= 43.7 \, N$$

$$I = F_{av}(\Delta t) = m v_f - m v_i$$

Problem 15 and Problem 29

Problem 15

(a) $m v_i + 3m v_{2i} = 4 m v_f$

$$v_f = \frac{4 + 3(2)}{4} = 2.5 \, m/s$$

(B) $k_f - k_i = \frac{1}{2}(4m) v_f^2 - \left(\frac{1}{2} m v_{1i}^2 + \frac{1}{2} 3m v_{2i}^2 \right)$

$$= \frac{1}{2} 2.5 \cdot 10^4 \left(4 \cdot 2.5^2 - 4^2 - 3 \cdot 2^2 \right) = 3.75 \cdot 10^4 \, J$$

Problem 29

$$5 \, m/s + 0 = 4.33 \cdot \cos 30^\circ + v_{2fx}$$

$v_{2fx} = 1.25 \, m/s$ $0 = 4.33 \cdot \sin 30 + v_{2fy}$

$$v_{2fy} = -2.16 \, m/s$$

$$v_{if} = 2.50 \, m/s \quad \text{at} \ -60^\circ$$

Problem 37
I couldn't solve this one.

Problem 46

Thank you

Student ID : 201923250
Name : Kobilov Ilkhomjon