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MEMORANDUM Test T1**QUESTION 1/VRAAG 1**

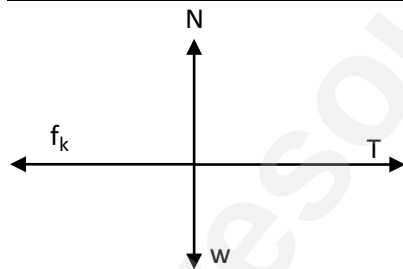
1.1. A body will remain in its state of rest or motion at constant velocity unless a non-zero resultant/net force acts on it. üü

'n Liggaam sal in sy toestand van rus of beweging teen konstante snelheid in

'n reguitlyn volhard tensy 'n nie-nul resulterende/netto krag daarop inwerk. (2)

1.2

Accepted labels/Aanvaarde benoemings	
W	F_g / F_w /weight / mg / gravitation force F_g / F_w /gewicht / mg / gravitasiekrag
T	F_T /tension F_s /spanning
fk	(Kinetic) Friction / F_f / 4 N / f / <i>wrywing</i> / F_w
N	F_{Normal} / Normal / F_N



(4)

Notes/Aantekeninge

- Mark awarded for label and arrow/Punt toegeken vir benoeming en pyltjie
- Do not penalise for length of arrows since drawing is not to scale./Moenie vir die lengte van die pyltjies penaliseer nie aangesien die tekening nie volgens skaal is nie
- Any other additional force(s)/Enige ander addisionele krag(te) Max/Maks
3/4
- If force(s) do not make contact with body/Indien krag(te) nie met die voorwerp kontak maak nie: Max/Maks: 3/4

1.3 Object Q/Voorwerp Q

$$\left. \begin{array}{l} F_{\text{net}} = ma \\ F_{\text{net}} = 0 \end{array} \right\} \ddot{u}$$

$$T + (f_k) = ma$$

$$\begin{aligned} T - 3 \ddot{u} &= 0 \ddot{u} \\ T &= 3 \text{ N} \end{aligned}$$

Object P/Voorwerp P

$$F_{\text{net}} = ma$$

$$F_{\text{hor}} - (f_k + T) = ma \ddot{u}$$

$$(F \cos 30^\circ) - 5 - 3 = 0 \ddot{u}$$

$$F = 9,24 \text{ N} \ddot{u} \quad (9,238 \text{ N}) \quad (6)$$

QUESTION 2/VRAAG 2

- 2.1 The total linear momentum of a closed (isolated) system remains constant (is conserved). ✓✓
Die totale lineêre momentum in 'n geslote sisteem bly konstant (bly behoue)

OR/OF

In an isolated system, the total linear momentum before collision is equal to the total linear momentum after collision ✓✓

In 'n geïsoleerde sisteem is die totale lineêre momentum voor botsing gelyk aan die totale lineêre momentum na botsing.

(If key words isolated and total missing -1 mark for each.) (2)

$$2.2 \quad \left. \begin{array}{l} \Sigma p_i = \Sigma p_f \\ m_1 v_{1i} + m_2 v_{2i} = m_1 v_{1f} + m_2 v_{2f} \end{array} \right\} \begin{array}{l} \text{Any one/} \\ \text{Enige een} \checkmark \end{array}$$

For the system cat-skate board

A/Vir die sisteem kat-skaatsplank

$$(3,5)(0) + (2,6)(0) \checkmark = (3,5)v_{\text{skateboard/skaatsplank}} + (2,6)(3) \checkmark$$

$$v_{\text{skateboard/skaatsplank}} = 2,23 \text{ m} \cdot \text{s}^{-1} \checkmark \text{ to the left/na links} \checkmark$$

$$\text{ACCEPT/AANVAAR } v = -2,23 \text{ m}\cdot\text{s}^{-1} \checkmark \checkmark \quad (5)$$

$$\begin{aligned} 2.3 \quad F_{\text{net}} \Delta t = \Delta p &= mv_f - mv_i \checkmark \\ &= (3,5)(1,28 - 0) \checkmark \\ &= 4,48 \text{ N}\cdot\text{s} \quad (4,48 \text{ kg}\cdot\text{ms}^{-1}) \checkmark \end{aligned}$$

OR/OF

$$\begin{aligned} F_{\text{net}} \Delta t = \Delta p &= mv_f - mv_i \checkmark \\ &= (2,6)(1,28 - 3) \checkmark \\ &= -4,48 \text{ N}\cdot\text{s} \quad (4,48 \text{ kg}\cdot\text{ms}^{-1}) \\ \Delta p &= 4,48 \text{ N}\cdot\text{s} \checkmark \end{aligned}$$

(3)
[34]