education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT
PROVINSIALE ASSESSERING

GRADE/*GRAAD* 10

PHYSICAL SCIENCES: PHYSICS (P1)
FISIESE WETENSKAPPE: FISIKA (V1)
JUNE/JUNIE 2025
MARKING GUIDELINES/*NASIENRIGLYNE*

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MARKS/*PUNTE*: 75

These marking guidelines consist of 5 pages.
Hierdie nasienriglyne bestaan uit 5 bladsye.

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QUESTION/*VRAAG 1*

1.1 C ✓✓ (2)

1.2 A ✓✓ (2)

1.3 B ✓✓ (2)

1.4 D ✓✓ (2)

1.5 D ✓✓ (2)
[10]

QUESTION/*VRAAG* 2

2.1 A pulse in which the particles of the medium move at right angles to the direction of motion of the pulse. ✓✓
'n Puls waarin die deeltjies van die medium reghoekig tot die bewegingsrigting van die puls beweeg. (2)

2.2 2.2.1 Amplitude = 5 – 2 = +2 cm ✓✓ (2)

2.2.2 (principle of) superposition ✓/(*beginsel van) superposisie* (1)

2.3 Longitudinal (wave) ✓/*Longitudinale (golf)* (1)

2.4 2.4.1 Y ✓ (1)

2.4.2 Z ✓ (1)

2.5 Ultrasound is used to create images of the internal of the body(organs). ✓/
Ultraklank word gebruik om beelde van die binnekant van die liggaam(organe) te skep (1)
[9]

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QUESTION/*VRAAG* 3

3.1 The distance between two successive points in phase. ✓✓/
Die afstand tussen twee opeenvolgende punte in-fase. (2)

3.2 3.2.1 A to/*tot* E ✓✓or/*of* B to/*tot* F ✓✓
(accept/*aanvaar*: A and/*en* E or/*of* B and/*en* F) (2)

3.2.2 D ✓ (1)

3.3 $\lambda = 2 \times 2 = 4$ m ✓✓ (2)

3.4 1,5 (m) ✓ (1)

3.5 3.5.1

$f = \frac{1}{T}$ ✓

$f = \frac{1}{1}$ ✓

f = 1 Hz ✓ (3)

3.5.2

POSITIVE MARKING FROM Q 3.3 and 3.5.1/*POSITIEWE NASIEN VAN V 3.3 en 3.5.1*

$v = f\lambda$ ✓

$= 1 \times 4$ ✓

$= 4\ m \cdot s^{-1}$ ✓ (3)

3.6 2 s ✓✓ (2)
[16]

QUESTION/*VRAAG* 4

4.1 Light has a behavior of both a wave and a particle. ✓✓/*Lig het beide 'n golf en deeltjie geaardheid.* (2)

4.2 4.2.1 Ultraviolet light ✓/*Ultraviolet lig* (1)

4.2.2 x-rays/*strale* ✓ (1)

4.3 4.3.1 packet of energy found in light. ✓✓/*'n pakkie energie wat in lig aangetref word* (2)

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4.3.2

OPTION/*OPSIE* 1	OPTION/*OPSIE* 2
$E = \frac{hc}{\lambda}$ ✓ $3,88\times10^{-20} = \frac{6,63\times10^{-34}\times3\times10^{8}}{\lambda}$ ✓ $\lambda = 5,13\times10^{-6}$ m ✓	$E = hf$ $3,88\times10^{-20} = 6,63\times10^{-34}\times f$ $f = 5,8522\times10^{-20}$ $c = f\times\lambda$ ✓ $3\times10^{8} = 5,8522\times10^{-20}\times\lambda$ ✓ $\lambda = 5,13\times10^{-6}$ m ✓
The type of radiation is visible light. ✓ *Die tipe elektromagnetiese straling is sigbare lig.*	

(4)

[10]

QUESTION/*VRAAG* 5

5.1 The net charge of an isolated system remains constant during any physical process. ✓✓
Die netto lading van 'n geïsoleerde sisteem bly konstant gedurende enige fisiese proses (2)

5.2 $+5\times10^{-6}$ C ✓ (1)

5.3 Yes/The charge exist ✓ because it is an integral multiple of the charge on one electron. ✓
Die lading bestaan omdat dit 'n integrale veelvoud van die lading op een elektron is.

OR

Yes/The charge exist ✓
Ja/Die lading bestaan

$$\frac{+5\times10^{-6}}{-1,9\times10^{-19}}$$ ✓
$= 3,125\times10^{13}$ is an integer/*dit is 'n heelgetal*. (2)

5.4 5.4.1

$Q_{net} = \frac{Q_A + Q_B}{2}$ ✓
$5\times10^{-6} = \frac{-2\times10^{-6} + Q_B}{2}$ ✓
$Q_B = +12\times10^{-6}$ C ✓ (3)

5.4.2 B ✓ (1)

5.4.2

POSITIVE MARKING FROM Q 5.4.1/*POSITIEWE NASIEN VAN V 5.4.1*	
OPTION/*OPSIE* 1	**OPTION/*OPSIE* 2**
$\Delta Q = Q_i - Q_f$ $= 5 \times 10^{-6} - 12 \times 10^{-6}$ ✓ $= -7 \times 10^{-6}$ C ✓	$Q_{net} = Q_{initial/begin} + Q_{gained/bygekry}$ $5 \times 10^{-6} = 12 \times 10^{-6} + Q_{gained/bygekry}$ ✓ $Q_{gained/bygekry} = -7 \times 10^{-6}$ C ✓
$n = \frac{\Delta Q}{q_e}$ ✓ $= \frac{-7 \times 10^{-6}\ C}{-1,9 \times 10^{-19}}$ ✓ $= 4,38 \times 10^{13}$ electrons ✓ */elektrone*	

(5)

[14]

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QUESTION/*VRAAG* 6

6.1 Energy transferred per unit electric charge flowing through it. ✓✓/
Die energie oorgedra per eenheidslading wat daardeur vloei (2)

6.2 6.2.1

OPTION/*OPSIE* 1	OPTION/*OPSIE* 2
$\frac{1}{R_P} = \frac{1}{R_1} + \frac{1}{R_2}$ ✓ $= \frac{1}{3} + \frac{1}{3}$ ✓ $R_P = 1{,}5\ \Omega$	$R_P = \frac{R_1 \times R_2}{R_1 + R_2}$ ✓ $= \frac{3 \times 3}{3 + 3}$ ✓ $R_P = 1{,}5\ \Omega$
$R_T = R_P + R_S$ $= 1{,}5 + 2{,}5$ ✓ $= 4\ \Omega$ ✓	

(4)

6.2.2

$V = IR$ ✓ $7{,}5 = I \times 2{,}5$ ✓ $I = 3\ A$ ✓

(3)

6.2.3

POSITIVE MARKING FROM Q 6.2.1 and 6.2.2/*POSITIEWE NASIEN VAN V 6.2.1 en V 6.2.2*	
OPTION/*OPSIE* 1	OPTION/*OPSIE* 2
$V_T = IR_T$ ✓ $= 3 \times 4$ ✓ $= 12\ V$ ✓	$V_P = IR_P$ ✓ $= 3 \times 1{,}5$ $= 4{,}5\ V$ $V_T = V_S + V_P$ $= 7{,}5 + 4{,}5$ ✓ $= 12\ V$ ✓

(3)

6.3 1,5 A ✓ (1)

6.4 $V = \frac{W}{Q}$ ✓

$7{,}5 = \frac{W}{180}$ ✓

$W = 1\,350\ J$ ✓ (3)

[16]

TOTAL/*TOTAAL*: 75

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