



education

Department of
Education
FREE STATE PROVINCE

GRADE 10 / *GRAAD 10*

PROVINCIAL FORMAL
ASSESSMENT TASK

*PROVINSIALE FORMELE
ASSESSERINGSTAAK*

TERM 1 - 2016 / *KWARTAAL 1 - 2016*

MEMORANDUM

PHYSICAL SCIENCES / *FISIESE WETENSKAPPE*
CONTROL TEST / *KONTROLETOETS*

TIME: 2 HOURS

TYD: 2 UUR

MARKS: 100

PUNTE: 100

**This memorandum consists of 5 pages.
*Hierdie memorandum bestaan uit 5 bladsye.***

QUESTION 1 / VRAAG 1

- 1.1 B ✓✓
1.2 A ✓✓
1.3 B ✓✓
1.4 C ✓✓
1.5 D ✓✓
1.6 A ✓✓
1.7 A ✓✓
1.8 C ✓✓
1.9 D ✓✓
1.10 D ✓✓

(10 x 2) = [20]

QUESTION 2 / VRAAG 2

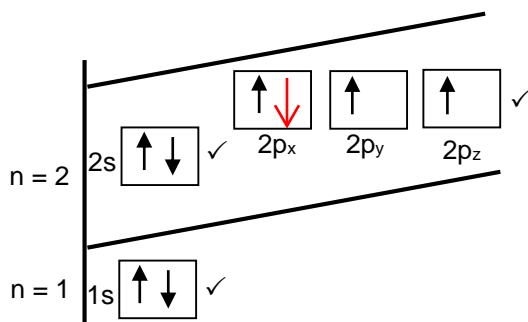
- 2.1 A mixture which has uniform composition and in which all components are in the same phase. ✓✓
'n Mengsel wat eenvormige samestelling het en waarin al die komponente in dieselfde fase is. (2)
- 2.2.1 Ice cubes in a fizzy drink ✓ marbles and sand ✓ / *Ysblokkies in 'n gaskoeldrank drink albasters en sand* (2)
- 2.2.2 Copper wire ✓ and oxygen gas ✓ / *Koperdraad en suurstofgas* (2)
- 2.2.3 Copper (wire) ✓ / *Koper(draad)* (1)
- 2.3 Compound ✓, it consists of two different elements ✓ / *'n Verbinding, dit bestaan uit twee verskillende elemente* (2)
- 2.4 Covalent bond: sharing of electrons ✓ between two atoms ✓ to form molecules / *Kovalente binding: deel van elektrone tussen twee atome om molekules te vorm* (2)

[11]

QUESTION 3 / VRAAG 3

- 3.1.1 2 ✓ (1)
- 3.1.2 2- ✓ (1)
- 3.1.3 2 ✓ (1)
- 3.1.4 $X + 2e^- \rightarrow X^{2-}$ ✓ (2)

3.1.5



(3)

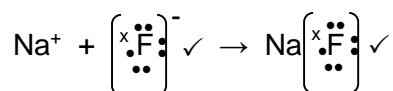
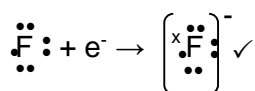
3.1.6 Oxygen ✓ If symbol (O) used – no mark / Suurstof (Indien die simbool (O) gebruik word - geen punt)

(1)

3.2 Group III ✓ and Period III ✓ / Groep III ✓ and Periode III ✓

(2)

3.3 $\text{Na}^x \rightarrow \text{Na}^+ + e^-$ ✓



(4)

[15]

QUESTION 4 / VRAAG 4

4.1.1

(a) Both X and Y have 10 electrons ✓ and 10 neutrons ✓ / Beide X en Y het 10 elektrone en 10 neutrone

(2)

(b) Any TWO of:

- Number of protons ✓ / atomic number
- Mass numbers ✓
- One is an ion and the other a neutral element

Enige TWEE van:

- Aantal protone / atoomgetal
- Massagetalle
- Een daarvan is 'n ioon en die ander 'n neutrale element

(2)

(c) X^- ✓

(1)

4.1.2 ALL ✓ OR draw ALL FOUR symbol notations / ALLE of teken AL VIER simbool notasies

(1)

4.1.3 Y - neon atom / neon atoom ✓ OR / OF Ne

S - aluminium ion / aluminiumioon ✓ OR / OF Al^{3+}

(2)

4.1.4 No ✓. They are different elements ✓ OR they appear in two different groups on the periodic table

Nee Hulle is verskillende elemente OF hulle verskyn in twee verskillende groepe op die periodieke tabel

(2)

- 4.2.1 Ionic bonding ✓ / *Ioniese binding* (1)
- 4.2.2 Covalent bonding ✓ / *Kovalente binding* (1)
- 4.2.3 Ionic bonding ✓ / *Ioniese binding* (1)
- 4.3.1 Cl_2 ✓ (1)
- 4.3.2 NaNO_3 ✓ (1)
Accept: sodium bicarbonate
- 4.4.1 Sodium hydrogen carbonate ✓ / *Natrium waterstofkarbonaat* (1)
- 4.4.2 Zinc sulphate ✓ / *Sinksulfaat* (1)
- [17]**

QUESTION 5 / VRAAG 5

- 5.1.1 Atoms of the same element having the same number of protons ✓ but different number of neutrons ✓ / *different mass numbers*
Atome van dieselfde element wat dieselfde aantal protone maar verskillende aantal neutrone / verskillende massagetalle (2)
- 5.1.2
$$\text{Mr} = \frac{(37)(24,5) \checkmark + (35)(75,5) \checkmark}{100 \checkmark}$$

$$= 35,49 \checkmark$$
 (4)
- 5.1.3 They have the same number of electrons ✓ / *Hulle het dieselfde aantal elektrone* (1)
- 5.2 Forms a negative chloride ion (Cl^-) ✓ by taking up an electron ✓ / *Vorm 'n negatiewe chloriedioon (Cl^-), deur 'n elektron te ontvang* (2)
- 5.3 $\text{Mg}^{2+} : \text{F}^- = 1:2 \checkmark$ (1)
- [10]**

QUESTION 6 / VRAAG 6

- 6.1 Longitudinal wave ✓ / *longitudinale golf* (1)
- 6.2 Sound waves reflect ✓ from the cliff / *Klankgolwe reflekteer vanaf die krans* (1)
- 6.3
$$\text{Speed / Spoed} = \frac{\text{distance / afstand}}{\text{time / tyd}} \checkmark$$

$$= \frac{425 \checkmark}{1,25 \checkmark}$$

$$= 340 \text{ m} \cdot \text{s}^{-1} \checkmark$$

OR / OF

$$\text{Speed / spoed} = \frac{\text{distance / afstand}}{\text{time / tyd}} \checkmark$$

$$= \frac{850 \checkmark}{2,5 \checkmark}$$

$$= 340 \text{ m} \cdot \text{s}^{-1} \checkmark$$

(4)

6.4 Higher ✓ / hoër (1)
[7]

QUESTION 7/ VRAAG 7

7.1.1 Number of wave pulses per second ✓ / Aantal golf pulse per sekonde (1)

7.1.2 Transverse waves ✓ / Transversale golwe (1)

7.1.3 Longitudinal waves ✓ waves in which particles of the medium vibrate parallel to the direction of motion of the wave ✓ but in 7.1.2 particles of the medium vibrate perpendicular to the direction of motion of the wave
Longitudinale golwe golwe waarin die deeltjies van die medium parallel met die rigting van die golf beweging vibreer maar in 7.1.2 beweeg die deeltjies van die medium loodreg met die rigting van die golf beweging. (2)

7.1.4 $\lambda = \frac{0,084}{20} \checkmark = 0,0042 \text{ m} \checkmark$ (2)

7.1.5 $v = f\lambda \checkmark$
 $= 10 \times 0,0042 \checkmark$
 $= 0,042 \checkmark (\text{m} \cdot \text{s}^{-1})$ (3)

An alternative solution is:

$$T = \frac{1}{f} = \frac{1}{10} = 0,1 \text{ s} \checkmark$$

$$\text{speed} = \frac{\text{distance}}{\text{time}} = \frac{0,0042}{0,1} = 0,042 \text{ m} \cdot \text{s}^{-1} \checkmark$$

7.2.1 $T = \frac{1}{f} \checkmark = \frac{1}{30} \checkmark = 0,03 \text{ s} \checkmark$ (3)

7.2.2 Time lapsed for 3 waves / Tyd verstryk vir 3 golwe
(from / van A to/na G) = $3 \times 0,03 \checkmark = 0,09 \text{ s} \checkmark$ (2)

Accept answer/ Aanvaar antwoord van : 0,1 s

7.2.3 (a) DE ✓ (1)

(b) B ✓ (1)

(c) D and / en E ✓ (1)

7.4 Amplitude = $\frac{4,5}{2} \checkmark = 2,25 \text{ m} \checkmark$ (2)

7.5 Downwards ✓ / Afwaarts (1)
[20]

GRAND TOTAL / GROOTTOTAAL: 100