QUESTION 1 / *VRAAG 1*

1.1   A ✓✓
1.2   A ✓✓
1.3   D ✓✓
1.4   D ✓✓
1.5   D ✓✓
1.6   A ✓✓
1.7   A ✓✓
1.8   B ✓✓
1.9   B ✓✓
1.10 C ✓✓ **[20]**

QUESTION 2 / *VRAAG 2*

2.1   A pure substance consisting of one type of atom. (✓✓)
      'n Suiwer stof bestaande uit een tipe atoom. (2)

2.2   A mixture of non-uniform composition ✓ and of which the components
      can be easily identified.✓ / *'n Mengsel met 'n nie-uniforme samestelling* ✓
      en waarvan die komponente maklik geïdentifiseer kan word. ✓ (2)

2.3.1 B✓ & C✓ (2)

2.3.2 C✓ (1)

2.3.3 F✓ (1)

2.3.4 A✓ (1)

2.3.5 B or/*of* C or/*of* F ✓ (1)
                                           [10]

QUESTION 3 / *VRAAG 3*

3.1   Solid (Ice) ✓   Vastestof (Ys) ✓
        Liquid (Water) ✓   Vloeistof (Water) ✓
        Gas (Vapour/Steam) ✓   Gas (Waterdamp/Stoom) ✓   (3)

3.2   Boiling point is the temperature of a liquid ✓ at which its vapour pressure is equal to the atmospheric pressure. ✓
        Kookpunt is die temperatuur van 'n vloeistof ✓ *waar sy dampdruk gelyk is aan die atmosferiese druk.* ✓   (2)

3.3.1 BC or/*of* CB ✓   [Accept B; accept C / *Aanvaar B; aanvaar C*]   (1)

3.3.2 DE or/*of* ED ✓   [Accept D; accept E / *Aanvaar D; aanvaar E*]   (1)

3.3.3 BC or/*of* CB ✓   [Accept B; accept C / *Aanvaar B; aanvaar C*]   (1)

3.3.4 CD or/*of* DC ✓   (1)

3.3.5 DE or/*of* ED ✓   (1)
                                        [10]

QUESTION 4 / *VRAAG 4*

4.1.1 The number of protons in an atom of an element. (✓✓)
        Die aantal protone in 'n atoom van 'n element. (✓✓)   (2)

4.1.2 Sodium / *Natrium* ✓   (1)

4.1.3 11 protons/*protone* ✓
        11 electrons/*elektrone* ✓
        12 neutrons/*neutrone* ✓   (3)

4.1.4 $\underline{1s^2}\ \underline{2s^2\ 2p^6}\ \underline{3s^1}$
         ✓   ✓   ✓   (3)

4.2.1 ^{30}Z ✓

        Highest mass number OR Most neutrons ✓
        Grootste massagetal OF Meeste neutrone ✓   (2)

4.2.2
        Rel atoommassa
        Rel atomic mass $= \dfrac{28\times92{,}23 + 29\times4{,}67 + 30\times3{,}10}{100}$ ✓✓✓ / ✓
        $= 28{,}11$ ✓   (5)
                                          [16]

QUESTION 5 / *VRAAG 5*

5.1.1 Earth-alkaline metals / *Aardalkali-metale* ✓ (1)

5.1.2 Be (Beryllium/*Berillium*) ✓ (1)

5.1.3 Cℓ (Chlorine/*Chloor*) ✓ (1)

5.1.4 No/*Nee* ✓

They are in different groups. ✓
Hulle is in verskillende groepe. ✓ (2)

5.2 The energy needed (per mole*) to remove the first electron ✓ from an atom in the gaseous phase. ✓
Die energie benodig (per mol) om die eerste elektron* ✓ *uit 'n atoom in die gasfase*
te verwyder. ✓

(*) At this stage, the phrase "per mole" is not required.
(*) *Op hierdie stadium word die frase "per mol" nie vereis nie.* (2)

5.3 Be (Beryllium/*Berillium*) ✓ (1)

[8]

QUESTION 6 / *VRAAG 6*

6.1 The sharing of electrons ✓ between atoms to form molecules. ✓
Die deel van elektrone ✓ *tussen atome om molekule te vorm.* ✓ (2)

6.2 A group of two or more atoms that are covalently bonded ✓ and that functions as a unit. ✓
'n Groep van twee of meer atome wat kovalent gebind is ✓ *en as*
*'n eenheid funksioneer.* ✓ (2)

6.3.1 Ammonia / *Ammoniak* ✓ (1)

6.3.2
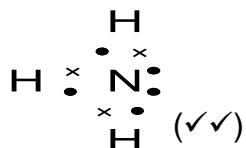
(✓✓) (2)

6.4   The transfers of electrons ✓ to form cations and anions ✓ that attract each other to form a formula unit. ✓

Die oordrag van elektrone ✓om katione en anione te vorm ✓ wat mekaar aantrek om 'n formule-eenheid te vorm. ✓   (3)

6.5

$$Mg \rightarrow Mg^{2+} + 2e^-$$ ✓

$$Br + e^- \rightarrow [Br^-]^-$$ ✓
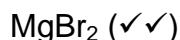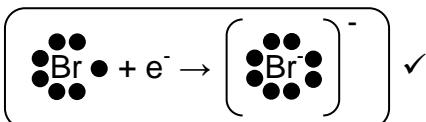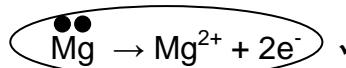
MgBr$_2$ (✓✓)   (4)
[14]

QUESTION 7 / *VRAAG 7*

7.1   1,5 m ✓   (1)

7.2   The distance between two consecutive points in phase. (✓✓)
Die afstand tussen twee opeenvolgende punte in fase.(✓✓)   (2)

7.3.1   A & E ✓   (1)

7.3.2   B & D or/*of* A & B or/*of* D & E or/*of* A & D or/*of* B & E ✓   (1)

7.4   Destructive ✓ interference ✓ OR superposition (✓✓)
Destruktiewe ✓ *interferensie* ✓ *OF superposisie* (✓✓)   (2)
[7]

QUESTION 8 / *VRAAG 8*

8.1.1 $T = \dfrac{1}{f}$ ✓ $= \dfrac{1}{128}$ ✓ $= 0,01$ s ✓   (3)

8.1.2 $v = f\lambda$ ✓ 320✓ $= \lambda(128)$ ✓ $\lambda = 2,5$ m ✓   (4)

8.2.1

$$Speed = \dfrac{Distance}{Time}$$ ✓

$$340 = \dfrac{450}{t}$$ ✓ ✓

$$t = 1,32 \text{ s}$$ ✓

$$Spoed = \dfrac{Afstand}{Tyd}$$

(4)

8.2.2   Less than ✓   Minder as ✓

Sound travels faster in water ✓   Klank trek vinniger in water ✓
than air. ✓   as in lug. ✓
Distance the same. ✓   Afstand is dieselfde. ✓   (4)
[15]
GRAND TOTAL / GROOTTOTAAL: 100