

**GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN**

**FUNCTIONAL PHYSICAL SCIENCE SG
FUNKSIONELE NATUUR- EN SKEIKUNDE SG
(Second Paper: Chemistry /
(Tweede Vraestel: Chemie)**

POSSIBLE ANSWERS OCT / NOV 2006

QUESTION 1 / VRAAG 1

1.1 B	1.6 B	1.11 C
1.2 C	1.7 D	1.12 A
1.3 C	1.8 B	1.13 A
1.4 B	1.9 D	1.14 C
1.5 D	1.10 C	1.15 D

15x3=[45]

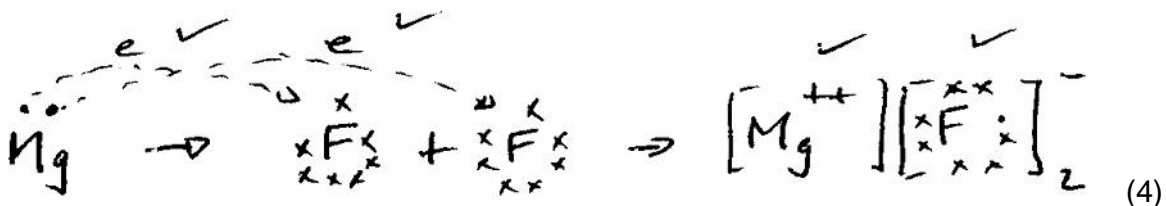
QUESTION 2 / VRAAG 2

- 2.1
- 2.1.1 Fluorine / *fluor* (2)
- 2.1.2 9 (2)
- 2.1.3 19 (2)
- 2.1.4 9e (2)
- 2.1.5
- | | | | | |
|----|---|---|---|-----------------|
| 2p | ~ | ~ | 1 | |
| 2s | ~ | | | ^{19}F |
| 1s | ~ | | | 9 |
- (3)
- 2.1.6 7 (2)
- 2.1.7 The valence electrons are the same. / *Hulle valenselektrone is dieselfde.* (2)
- 2.2
- 2.2.1 Their relative atomic mass differs. / *Hulle relatiewe atoommassas verskil.* (2)
- 2.2.2 $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$ (2)

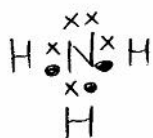
- 2.2.3 Ca^{2+} (2)
 2.2.4 2 (2)
[23]

QUESTION 3 / VRAAG 3

- 3.1
 3.1.1 Ionic / Ioniese (2)
 3.1.2



- 3.1.3 Electrostatic forces / Elektrostatiese kragte (2)
 3.2



- (3)
 3.3 The ability of the atom to attract electrons. / Die vermoë van ? atoom om gedeelde elektrone aan te trek. (2)
 3.4
 3.4.1 Na – 0,9
 Cl – 3,0
2,1 difference / verskil
 67% ionic / ionies (2)
[15]

QUESTION 4 / VRAAG 4

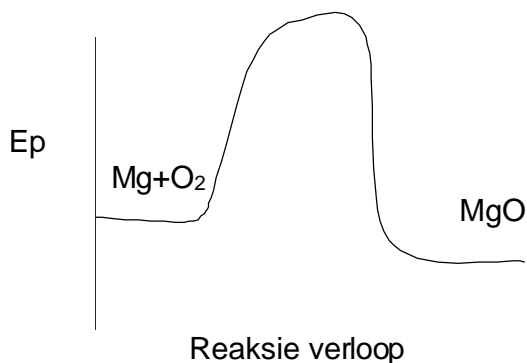
- 4.1 A, D and / en E. (6)
 4.2 B and / en C. (4)
 4.3 D (2)
 4.4 B (2)
[14]

QUESTION 5 / VRAAG 5

5.1 It is the minimum energy needed to start a reaction. / *Dit is die minimum energie nodig om ? reaksie te begin.* (2)

5.2 A reaction that absorbs net energy during chemical change. / *? Reaksie wat energie opneem tydens chemiese verandering.* (2)

5.3



(4)

5.4 The spark constitutes the activation energy for the reaction. / *Die vlammetjie stel die aktiveringsenergie vir die reaksie voor.* (2)
[10]

QUESTION 6 / VRAAG 6

6.1 (a) A high pressure. / *? Hoë druk.*
(b) Lower the temperature. / *Temperatuur verlaag.*
(c) Increase pressure. / *Drukverhoging.* any 2 of 3 (4)

6.2 At the optimum temperature the maximum NH_3 is formed. If the temperature is too low, the rate at which NH_3 is formed is too slow. / *By ? optimum temperatuur word maksimum NH_3 gevorm. As temperatuur te laag is, is die tempo waarteen NH_3 vorm te stadig.* (2)

6.3 To reach equilibrium sooner. / *Om ewewig gouer te bereik.* (2)
[8]

QUESTION 7 / VRAAG 7

7.1 A colour change from colourless to yellow. / *? Kleurverandering van kleurloos na geel vind plaas.* (2)

7.2 $2 \text{Br}^- \rightarrow \text{Br}_2 + 2 \text{e}^-$ (2)

7.3 $\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^-$ (2)

7.4 No, no reaction. / *Nee, geen reaksie nie.* (2)
[8]

QUESTION 8 / VRAAG 8

- 8.1 (1) Salt bridge / *soutbrug*
 (2) Copper electrode / *koperelektrode*
 (3) Copper (II) sulphate / *koper (II) sulfaat*
 (4) Zink (II) sulphate / *sink (II) sulfaat*
 (5) Zink electrode / *sinkelektrode* (5)
- 8.2 $\text{Cu}^{2+} + 2 \text{e}^{-} \rightarrow \text{Cu}$ (3)
- 8.3 $\text{Zn} \rightarrow \text{Zn}^{2+} + 2 \text{e}^{-}$ (3)
- 8.4 Copper / *Koper* (1)
[12]

QUESTION 9 / VRAAG 9

- 9.1 The metal melts and forms a round ball that travels on the surface of the water.
Die metaal smelt, vorm ? balletjie, wat met ? siggeluid oor oppervlak beweeg. (2)
- 9.2 Blue / *blou* (2)
- 9.3 $2 \text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$ (3)
- 9.4 Hydrogen / *waterstof* (2)
[9]

QUESTION 10 / VRAAG 10

- 10.1 Carbon dioxide and water / *Koolsuurgas en water.* (2)
- 10.2 Carbon tetrachloride / *Koolstoftetrachloried.* (2)
- 10.2.1 Ethanoic acid / *Asynsuur (etanoësuur)* (2)
[6]

TOTAL / TOTAAL: 150