

GAUTENG DEPARTMENT OF EDUCATION

SENIOR CERTIFICATE EXAMINATION

FUNCTIONAL PHYSICAL SCIENCE SG

(Second Paper: Chemistry)

Possible Answers / Moontlike Antwoorde
Feb / Mar / Maart 2006

QUESTION 1

1.1	C	1.6	A	1.11	D	
1.2	B	1.7	D	1.12	A	
1.3	D	1.8	C	1.13	A	
1.4	B	1.9	B	1.14	C	
1.5	A	1.10	C	1.15	B	15x3=[45]

QUESTION 2

- 2.1
- 2.1.1 1st energy level (2)
- 2.1.2 Moves to the next energy level or It may be removed completely from atom. (2)
- 2.1.3 Sufficient energy or at least the ionisation energy. (2)
- 2.1.4 (a) Energy decreases (1)
- (b) Light (of specific frequency) is emitted. (1)
- 2.1.5 (a) Cation (2)
- (b) Anion (2)
- 2.1.6 (a) (i) The atomic number indicates the number of protons in the nucleus of a neutral atom. (2)
- (ii) The atomic mass of an atom is the total number of protons and neutrons in the nucleus. (2)
- (b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ (3)

2.1.6

(a)

	Name	Number	Charge
1	Electrons	19	Negative
2	Protons	19	Positive
3	Neutrons	21	Neutral

(9)

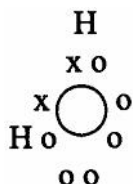
[28]

QUESTION 3

3.1.1 Polar covalent bond

(2)

3.1.2



(2)

3.1.3 Hydrogen bonds

(2)

3.1.4 Water with a few drops of sulphuric acid

(2)

3.1.5 The boiling point of hydrogen sulphide is lower than the boiling point of water.

(2)

3.1.6 The intermolecular forces, hydrogen bonds are stronger in water than V.d. Waals bonds in hydrogen sulphide.

(2)

[12]

QUESTION 4

4.1.1 Endothermic

(2)

4.1.2 (s) solid
(g) gas

(2)

4.1.3 endothermic

(2)

4.2.1 exothermic

(2)

4.2.2 D

(2)

4.2.3 It is the initial flame (heating) that ignited the magnesium ribbon.

(2)

[12]

QUESTION 5

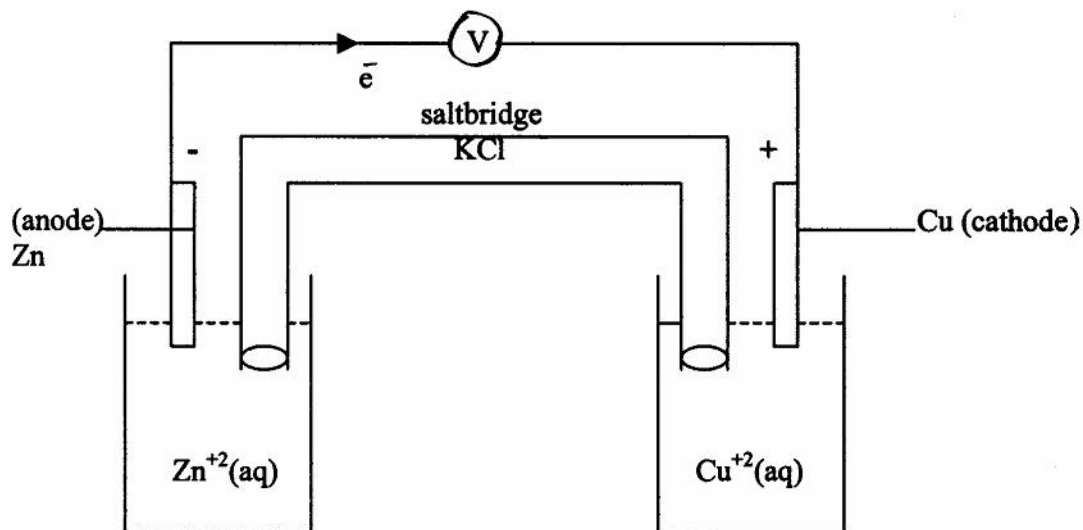
- 5.1.1 More energy is released when bonds are formed than when bonds are broken. (2)
- 5.1.2 SO₃ gas (2)
- 5.1.3 Pressure is increased. (2)
- 5.1.4 Endothermic (2)
- 5.1.5 A. Less of the product will form. (2)
- B. * forward reaction will decrease (2)
* reverse reaction will increase (2)
- 5.1.6 Less SO₃(g) will form (2)
- [14]**

QUESTION 6

- 6.1.1 Light brown (2)
- 6.1.2 Bromine (2)
- 6.1.3 A. $2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}^-$ (3)
- B. $\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^-$ (3)
- C. $\text{Cl}_2 + 2\text{Br}^- \rightarrow 2\text{Cl}^- + \text{Br}_2$ (3)
- [13]**

QUESTION 7

7.1



(8)

7.2 Anode = Zn
Cathode = Cu

(2)

7.3 $\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$

(3)

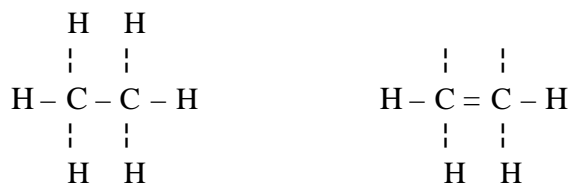
7.4 $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$

(3)

[16]

QUESTION 8

8.1.1



(2)

8.1.2 ethane

(2)

8.1.3 Bubble gas through bromine water. If the solution becomes clear, it is an unsaturated compound.

(2)

8.2 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$

(2)

8.3 Methanol

(2)

[10]**TOTAL: 150**