GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2022

GRADE 10

MARKING GUIDELINES

PHYSICAL SCIENCES (CHEMISTRY) (PAPER 2)

5 pages

EXEMPLAR

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

1.1 C ✓✓ (2)

1.2 B ✓✓ (2)

1.3 B ✓✓ (2)

1.4 D ✓✓ (2)

1.5 A ✓✓ (2)

[10]

QUESTION 2

2.1 A thermal conductor allows heat to pass through easily whereas an electrical conductor allows electric current/electric charges to pass through easily. ✓✓ (2)

2.2 2.2.1 Copper ✓ or nickel (1)

2.2.2 Nickel ✓ (1)

2.2.3 Carbonated water ✓ (1)

2.2.4 Glass ✓or air or Carbon dioxide (1)

[6]

EXEMPLAR

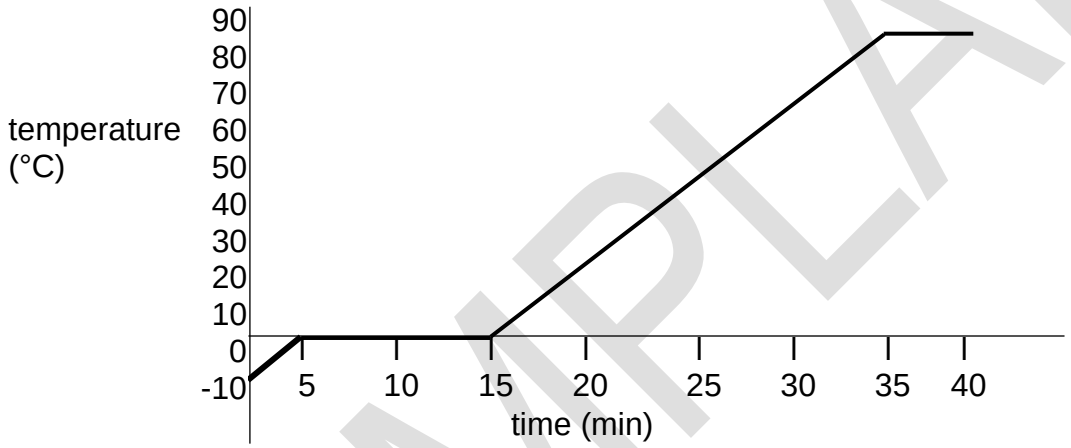
QUESTION 3

3.1 The temperature at which the vapour pressure of the substance equals the atmospheric pressure. ✓✓ (2)

3.2 Thermometer ✓ (1)

3.3 Time ✓ (1)

3.4 Graph of temperature against time



✓Heading
✓Axes quantity and unit
✓Intervals
✓Plot
✓Best fit line (5)

3.5 The water is boiling/has reached boiling point/Evaporation. ✓ (1)

3.6 The temperature is constant meaning that the liquid is changing into steam. ✓
The kinetic energy stays constant. ✓ The potential energy is increasing. ✓ (3)
[13]

EXEMPLAR

QUESTION 4

4.1 Atoms of the same element having the same number of protons, but different numbers of neutrons. ✓✓ (2)

4.2 4.2.1 1 ✓ (1)

4.2.2 0 ✓ (1)

4.2.3 2 ✓ (1)

4.2.4 1 ✓ (1)

4.3 $A_r(H) = \frac{(99{,}985\ x\ 1)+(0{,}015\ x2)✓}{100✓} = 1{,}00015✓$ (3)

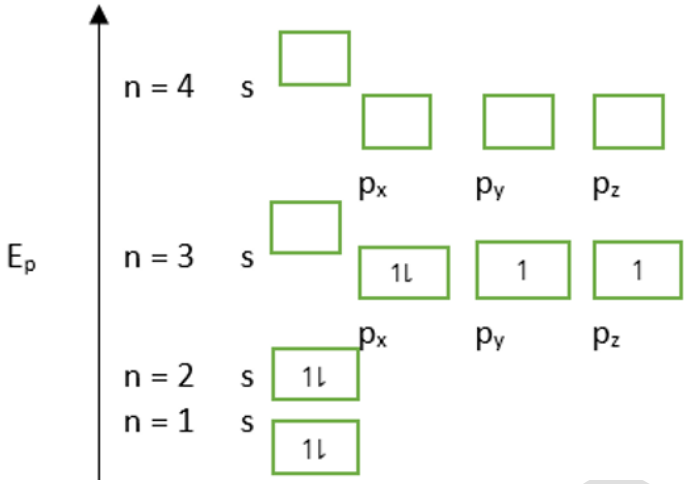
[9]

EXEMPLAR

QUESTION 5

5.1 Covalent bond ✓, the sharing of electrons between hydrogen and oxygen to form a water molecule. ✓ (2)

5.2



✓n=1
✓n = 2

(2)

5.3 $1s^2$ ✓$2s^2$ $2p^6$ ✓ (2)

5.4



✓ 6 valence electrons around each O
✓ double bond

(2)
[8]

QUESTION 6

6.1 Energy needed per mole to remove an electron(s) from an atom in the gaseous phase. ✓✓ (2)

6.2 He has a higher ionisation energy than Ne ✓ because He is a smaller atom than Ne ✓ or the energy needed to remove an electron from He is more or the protons of He have a greater attraction force on the electrons than on Ne. (2)
[4]

TOTAL: 50

EXEMPLAR