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GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2022

GRADE 10

MARKING GUIDELINES

PHYSICAL SCIENCES (CHEMISTRY) (PAPER 2)

5 pages

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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]

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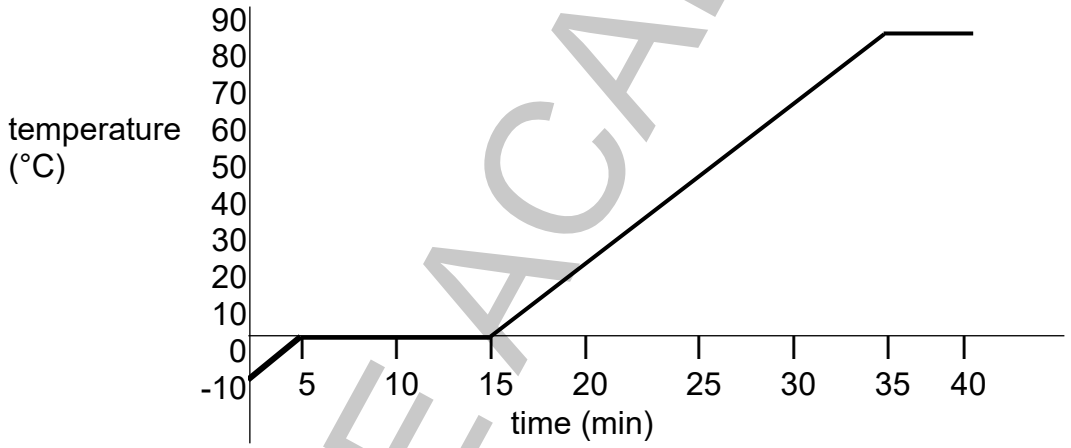
QUESTION 3

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]

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

[9]

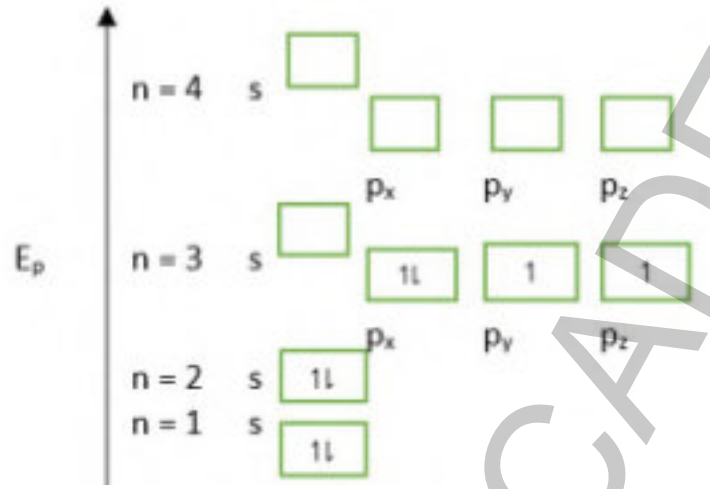
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QUESTION 5

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

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