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GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2023

GRADE 10

MARKING GUIDELINES

PHYSICAL SCIENCES (CHEMISTRY) (PAPER 2)

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4 pages

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QUESTION 1: MULTIPLE-CHOICE QUESTIONS

1.1 D ✓✓ (2)

1.2 C ✓✓ (2)

1.3 C ✓✓ (2)

1.4 A ✓✓ (2)
[8]

QUESTION 2

2.1 A compound is a pure substance consisting of two or more different elements. ✓✓ (2)

2.2 2.2.1 Homogeneous mixture ✓ (1)

2.2.2 The mixture of uniform composition in which all the components are in the same phase. ✓✓ (2)

2.2.3 Crystallisation ✓ (1)
[6]

QUESTION 3

3.1 The temperature at which a solid, given sufficient heat, becomes a liquid. ✓✓ (2)

3.2 Solid ✓ (1)

3.3 Boiling/Evaporation ✓ (1)

3.4 The temperature is constant, meaning that the solid is changing into liquid. ✓
The kinetic energy stays constant. ✓
The potential energy is increasing. (2)

3.5 H_2O ✓ (1)
[7]

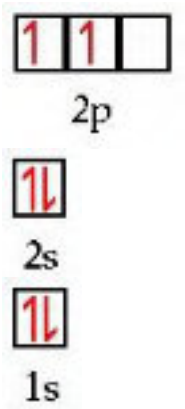
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QUESTION 4

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

4.2 8 ✓ (1)

4.3 

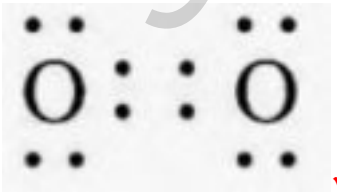
(2)

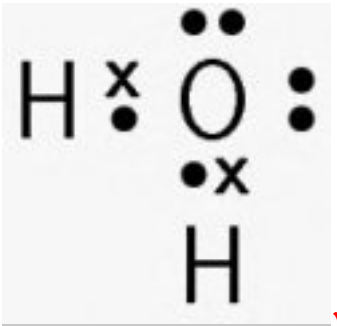
4.4 $1s^2\ 2s^2\ 2p^2$ ✓✓ (2)
[7]

QUESTION 5

5.1 $2H_2 + O_2 \rightarrow 2H_2O$ ✓✓ (2)

5.2 gas ✓ (1)

5.3 5.3.1  ✓✓ (2)

5.3.2  ✓✓ (2)

5.4 exothermic ✓ (1)

5.5 $M(H_2O) = 2(1) + (16) = 18\ g{\cdot}mol^{-1}$ ✓✓

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QUESTION 6

6.1 Aqueous solution or a solution where water is the solvent. ✓ (1)

6.2 One mole is the amount of substance having the same number of particles as there are atoms in 12 g carbon-12. ✓✓ (2)

6.3 6.3.1 $n = \frac{m}{M}$ ✓ $= \frac{30}{461}$ ✓ = 0,065 mol PbI_2 ✓

$n(PbI_2) : n(I^-)$

1 : 2✓

0,065 : 0,13 mol I^-

$n = \frac{N}{N_A} = 0,31 = \frac{N}{6,02 \times 10^{23}}$ ✓ N = 1,866 x 10^{23} I^- ✓ (6)

6.3.2 $n(PbI_2) : n(KI)$

1 : 2✓

0,065 : 0,13 mol KI

$n = \frac{m}{M} = 0,13 = \frac{m}{166}$ ✓ m = 21,58 g KI ✓ (3)

[12]

TOTAL: 50

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