**PERAMIHO GIRLS' SECONDARY SCHOOL**
**FORM TWO ANNUAL EXAMINATION NOVEMBER, 2020**

**CHEMISTRY**

**TIME: 2½ HOURS**

**INSTRUCTIONS**

1. This paper consists of Section A, B and C
2. Answer ALL questions in all sections
3. All answer must be written in the space provided
4. All Writing must be in Black or Blue ink, diagram should be drawn using pencil
5. Write your examination number on every page of your answer sheet
6. The following atomic masses may be used in calculations:
   $S = 32, Al = 27, O = 16, H = 1, N = 14, C = 12, P = 31$

**SECTION A (10 MARKS)**

1. For each of the following items (i) – (x), choose the correct answer from the given alternatives and write its letter in the box provided

   (i) An atom is ( )
   - A. then chemical combination of two or more elements
   - B. the smallest particles of an element which cannot split further into any other substances by ordinary chemical means
   - C. The smallest particle of a substances that can exist in free and separate state
   - D. The substance to be broken down into simpler substance

   (ii) The non-luminous flame is not easily seen. The flame appears ( )

   A. Yellow colour B. Blue in colour
   C. to produce smoke D. to burn quietly

   (iii) The major differences between molar mass and relative atomic mass is that:
   - A. Relative atomic mass have unit but molar mass have no unit ( )
   - B. Molar mass always obtained by compering it with the mass of carbon – 12 atom, but relative atomic mass obtained by sum of protons and Neutrons
   - C. Relative atomic mass have no unit, but molar mass have unit
   - D. Molar mass element have relative values while relative atomic mass obtained by Carbon – 12 scale

   (iv) Which of the following sets of process represents uses of oxygen? ( )
   - A. Welding, ice melting, magnetization
   - B. Glass cutting, dessication, welding
   - C. Diving, welding, mountain climbing
   - D. Mountain climbing, sublimation, freezing

   (v) The percentage composition of sulphur is $SO_2$ is ( )

   A. 33% B. 50% C. 75% D. 66.67%

   (vi) The boiling point of the liquid Z was 78$^o$C and liquid M was 100$^o$C, the mixture of these two liquids can be separated by: ( )
   - A. simple distillation method

B. Sublimation
C. Fractional distillation
D. Evaporation

(vii) An electrovalent compounds is formed when: ( )
A. Two atoms share electrons
B. Electrons are transferred from atom to another
C. Two atoms keep their electrons
D. Two atoms receives electrons

(viii) _____ is the simplest way to purify water at home.
A. cooling B. boiling C. filtering D. condensing ( )

(ix) Atmosphere comprises of 78% of gas x, 21% of gas Y and 0>03% of gas Z, the gase are likely to be: ( )
A. x – Oxygen, Y – carbon dioxide and Z – Nitrogen
B. x – Carbon dioxide, Y – Nitrogen and Z – Oxygen
C. x – Nitrogen, Y – Oxygen and Z – Carbon dioxide
D. x – Noble gases, Y – Oxygen and Z - Nitrogen

(x) The element fluorine, Chlorine, Bromine and Iodine in their order form the series called:
A. Family B. Group C. Reactivity D. Period ( )

**SECTION B (20 MARKS)**

2. Match the items in List A with a correct response in List B by writing its letter below the number of the corresponding item in the table provided:

| LIST A | | LIST B |
|---|---|---|
| (i) | Combustible | A. Should have ratings or coding on them |
| (ii) | Class C fire | B. A process of extinguishing harmful fire |
| (iii) | Rust | C. A process of coating iron or steel with zinc metal |
| (iv) | Class D fire | D. The gas with highest percentage by volume in air |
| (v) | Fire triangle | E. Fire caused by flammable gases |
| (vi) | Nitrogen | F. Fire caused by burning of metal |
| (vii) | Class E fire | G. Switch of the mains before extinguishing this types of fire |
| (viii) | Fire fighting | H. Components needed to start fire |
| (ix) | Galvanization | I. Materials that produce heat on burning |
| (x) | Portable fire Extinguish | J. A chemical process that occur iron or steel |
| | | K. Fire caused by solid combustible material |
| | | L. A reddish brown coating on metal |
| | | M. Coating of item with pigment paint |
| | | N. Use wet chemical extinguisher |
| | | O. Rekindling point |

**SECTIN C (70 MARKS)**

3. (a) (i) What is the periodic table? _____

_____

_____

(ii) State the modern periodic Law _____

_____

_____

(iii) What if the family name for group VII element? _____

_____

_____

(iv) Explain why a blue end steady flame is used for welding _____

_____

_____

(v) A tentative statements for the observed phenomenon is called: _____

_____

(b) (i) State the meaning of electronic configuration _____

_____

_____

(ii) Draw the atomic structure and its electronic diagram of

| Elements | Magnesium ${}^{24}_{12}Mg$ | Potassium ${}^{10}_{19}K$ |
|---|---|---|
| Electron diagram | | |
| Electron configuration | | |

4. (a) What do you understand by the following terms

(i) Energy value of fuel _____

_____

_____

(ii) Decantation _____

_____

_____

(b) Classify the following as solid fuel, Liquid fuel or gaseous fuel; fire wood, kerosene, alcohol, propane, Charcoal and acetylene

- Solid fuel: _____
- Liquid fuel: _____
- Gaseous fuel: _____

(c) State the law conservation of energy of matter _____

_____

_____

5. (a) Define the following terms:

i. Electrovalency

_____

_____

_____

ii. Binary compound

_____

_____

_____

(b) Mention four (04) laboratory heat sources you know

i) _____

ii) _____

iii) _____

iv) _____

(c) State four characteristics of good fuels:

i) _____

ii) _____

iii) _____

iv) _____

6. (a) A molecule of a certain gas can be represented as:

(i) What is the name of the gas?

_____

(ii) Write a molecular formula of the gas: _____

(iii) What types of bonding hold the atom toger:_____

(iv) Name another compound with this type of Bonding:

_____

(b) What is the chemical test for the following?

(i) Oxygen: _____

(ii) Hydrogen: _____

(iii) Water: _____

(c) Give the IUPAC name of the following:

(i) $Fe(SO_4)_3$ _____

(ii) $N_2O_5$ _____

(iii) $HNO_3$ _____

7. (a) Define the term **matter**:

_____

_____

(b) State the type of change that takes place in the following whether it is chemical or physical change:

(i) Burning of piece of charcoal _____

(ii) Heating piece of iron _____

(iii) Burning of candle _____

(iv) Heating some sugar in a crucible _____

(c) Write the chemical formula for the following compound:

(i) Potassium hydroxide _____

(ii) Aluminum Carbonate _____

(iii) Nitric acid _____

(d) Determine the molar and mass of the following compounds

| **(i) $Al_2(SO_4)_3$** | **(ii) $Na_3PO_4$** |
|---|---|
| | |

8. (a) Distinguish between empirical formula and molecular formula:

(i) Empirical formula

_____

_____

(ii) Molecular formula

_____

_____

(b) A compound has 1.12g of Nitrogen, 0.16g of Hydrogen, 0.48g of carbon and 0.64g of oxygen, Calculate its:

(i) Empirical formula.

(ii) Molecular formula, when it molecular mass is 60

9. (a) Mention two causes of accident in chemistry laboratory:

_____

_____

_____

(b) Give four reasons why do we provide first aid to a victim?

(i) _____

(ii) _____

(iii) _____

(iv) _____

(c) Find the oxidation state of the underlined element

| **(i) $NH_4\underline{Cl}$** | **(ii) $Na_2\underline{S}O_4$** |
|---|---|
| | |

| **(iii) $Al_2\underline{O_3}$** | **(iv)$\underline{H_2}O_2$** |
|---|---|
| | |

10. (a) Outline four (04) Natural sources of water:

(i) _____

(ii) _____

(iii) _____

(iv) _____

(b) What are the methods used in domestic water treatment and purification:

(i) _____

(ii) _____

(iii) _____

(iv) _____

(c) Show by using diagram a Bond formed in Aluminium oxide