MUHANGA DISTRICT **TERM II** **SUBJECT: CHEMISTRY** **NAMES: ……...**	**CLASS: S1** **DATE:…./03/2026** **TIME ALLOWED: 3HOURS** **TOTAL MARKS: 100 MARKS**

INSTRUCTIONS:

1. This paper consists of Three sections A, B &C
   - **Section A**: Attempt All questions
   - **Section B:** Attempt Three Questions
   - **Section C:** This Section is compulsory
2. You do not need the periodic table
3. Use Blue or Black pens only
4. Calculator may be used

SECTION A: Attempt All questions (**55 MARKS)**

Q1. MULTIPLE CHOICE (10 marks)

Select the best answer (A, B, C, or D)

I. Which of the following is NOT a state of matter?

A) Solid B) Liquid

C) Gas D) Energy

II. According to the kinetic theory, particles in a gas are:

A) Closely packed together B) Widely spaced and moving rapidly

C) Vibrating in fixed positions D) Not moving at all

III. Which of the following is a chemical change?

A) Melting ice B) Burning wood

C) Dissolving sugar in water D) Boiling water

IV. The main components of air are:

A) Oxygen and carbon dioxide B) Nitrogen and oxygen

C) Oxygen and argon D) Nitrogen and helium

V. Which laboratory apparatus is used to measure the volume of liquids?

A) Thermometer B) Bunsen burner

C) Measuring cylinder D) Balance

VI. Pure water has a pH of:

A) 0 B) 7

C) 14 D) 10

VII. An atom consists of:

A) Protons and electrons only B) Neutrons and electrons only

C) Protons, neutrons, and electrons D) Protons only

VIII. Which of the following is a mixture?

A) Sodium chloride B) Water

C) Salty water D) Oxygen

IX. The process by which a liquid turn into a gas is called:

A) Condensation B) Evaporation

C) Sublimation D) Freezing

X. Which safety precaution should be taken when handling acids?

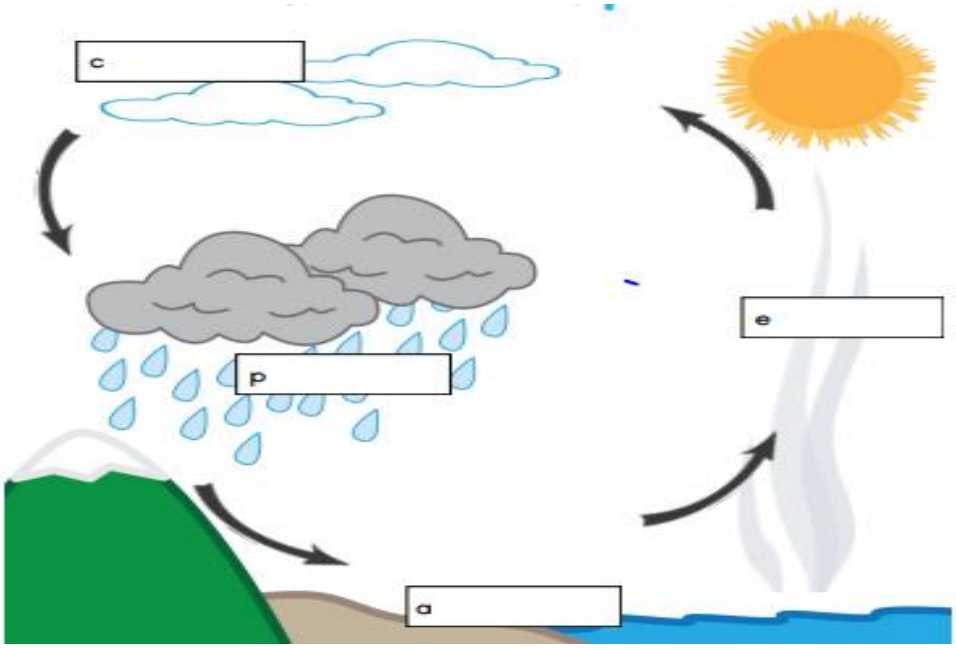
A) Use bare hands B) Wear safety goggles and gloves

C) Taste the acid D) Heat the acid directly

Q2. ANSWER BY **TRUE** OR **FALSE (8 marks)**

A. Diffusion occurs faster in gases than in solids.
B. Isotopes have the atomic masses
C. The periodic table arranges elements by atomic number.
D. Rusting of iron is a physical change.
E. Water boils at 100°C.
F. All salts are soluble in water.
G. Oxygen makes up about 21% of air.
H. A compound contains only one type of element.

Q3. Study the diagram below **(7marks)**



a. What does the above diagram represent? (**1Mark**)
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b. Name the processes represented by the letters **a , c, e** and **p** (**4Marks**)
a: ……..
c: ……
e: ……
p:……

c. List any four uses of water in our daily life (**2Marks**)

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Q4: Match items in Column A with those in Column B/10 Marks

Column A		***Column B***
2. Thermometer		a. Separating immiscible liquids
3. Bunsen burner		b. Measuring temperature
4. Separating funnel		c. Source of heat
5. Filtration		d. Separating insoluble solids from liquids
6. Evaporation		e. Removing water from a solution
7. Element		f. Substance made of one type of atom
8. Compound		g. Substance made of two or more elements
9. Group		h. Elements found in group 18
10. Period		i. Horizontal raw in the periodic table
11. Noble gases		j. Vertical column in the periodic table

Q5. (a) Define the term "pure substance." **(2 marks)**

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(b) Differentiate between a pure substance and a mixture, giving one example of each. **(3 marks)**

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Q6. The atomic number of element X is 19.

a. Write the electronic configuration of X **(1 mark)**

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b. To which group and period of the periodic table does X belong? Give a reason for each. (**4Marks**)

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Q7. (a) State three safety rules that must be observed in a chemistry laboratory. **(3 marks)**

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(b) What should you do if you accidentally spill an acid on your skin? **(2 marks)**

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Q8. Using a table classify the following changes as physical or chemical change. **(7 Marks)**

Burning a candle, melting an ice, boiling an egg, cooking meat, rusting a knife, fermenting banana juice and dissolving salt in water.

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SECTION B: Answer any **THREE** questions from this section. Each question is worth 10 marks.

Q9. (a) Name four methods used to separate mixtures. **(4 marks)**

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(b) For each method named above, describe a situation where it would be used. **(4 marks)**

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(c) Explain why filtration cannot be used to separate salt from salt solution. **(2 marks)**

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Q10. (a) Define the following terms:

i. Atom **(1 mark)**

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ii. Isotopes **(1 mark)**

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iii. Flame **(1 mark)**

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(b) Which Bunsen flame type is preferred for heating? Is it luminous or non-luminous flame? explain your choice**.** **(2Marks)**

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(c) An atom has 8 protons, 8 neutrons, and 8 electrons. Identify this element and state its atomic number and mass number. **(2marks)**

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(d) Write the chemical formulae for the following compounds **(3Marks)**

(i) Sodium chloride = ……

(ii) Ammonium sulphate =……

(iii) Aluminium oxide = ……

Q11. (a) State two physical properties of pure water. **(2 marks)**

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(b) Describe how you would test for the presence of water in a substance using anhydrous copper(II) sulphate. **(1marks)**

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(c) Explain the importance of water cycle. **(2 marks)**

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(d) Describe the stages involved in the treatment of contaminated water for river Nyabarongo. **(5 marks)**

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Q12. (a) Describe the arrangement and movement of particles in:

(i) A solid **(1 mark)**

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(ii) A liquid **(1 mark)**

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(iii) A gas **(1 mark)**

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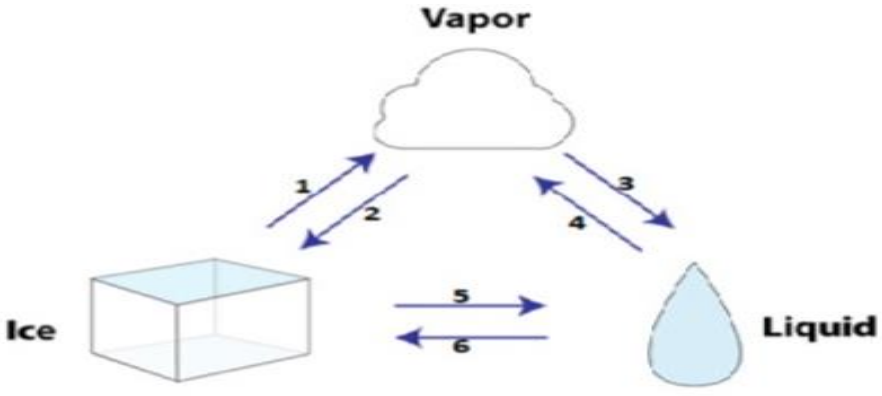
b) Study the following diagram that shows the triangle of changes of state of matter.



i) Name the changes of states labelled by numbers: **(3marks)**

1= ……... **2=……..** **3=……..**

4=…… **5=……** **6=……**

ii) State the conditions necessary to bring the change of state **3** and **4**. **(2marks)**

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iii) Name any two substances that can undergo change of state labelled **1**. **(2marks)**

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Q13. (a) State the main components of air and their approximate percentages. **(3 marks)**

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(b) Describe an experiment to determine the percentage of oxygen in air. **(4 marks)**

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(c) Name three air pollutants and state their sources. **(3 marks)**

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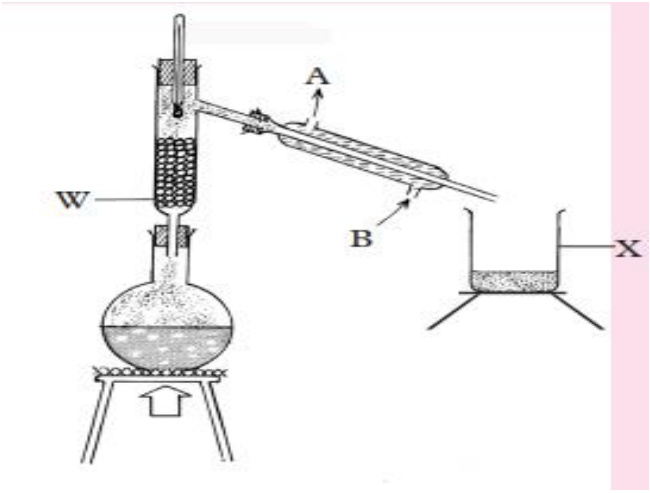
SECTION C: This section is compulsory (15 marks)

Q14. The following diagram shows an arrangement of apparatus that can be used to separate water from ethanol.



a) Name the method. **(1Mark)**

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b) b) (i) Name the apparatus labelled W. **(1Mark)**

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(ii)What is the function of the glass beads in W? **(1Mark)**

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c) Name the substances represented by arrows A and B. **(2Marks)**

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d) What substance do you expect to collect first in X? **(1Mark)**

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e) Give a reason for your answer in (d) above**(1Mark)**

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f) Calculate the percentage of water in hydrated magnesium sulphate (**$MgSO_4.7H_2O$**)
(Relative atomic masses Mg=24, S=32, O=16 and H=1) **(4Marks)**

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g) State how metallic character varies:
i. Across the periodic table**(1Mark)**

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ii. Down the group of the periodic table**(1Mark)**

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iii. Who is considered as the father of the periodic table? Explain why. **(2Marks)**

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