ISESE
FORM TWO EXAMINATION
CHEMISTRY MARKING GUIDE

SECTION A (15 marks)

1. @ 01 mark = 06 marks

i	Ii	Iii	Iv	v	vi	vii	viii	ix	x
C	B	C	B	A	C	B	D	B	B

2. @ 01 mark = 05 marks

I	Ii	Iii	iv	V
D	E	C	A	B

SECTION B (70 marks)

3. Professional Skills & Textile Industry

A. Six Fundamental Skills for a Chemist:

i. **Observational Skills:** The ability to notice small changes in color, temperature, or state during an experiment to ensure accurate data collection.
ii. **Analytical Skills:** Evaluating experimental results logically to draw valid conclusions.
iii. **Manual Dexterity:** Precision in handling delicate glassware and measuring exact quantities of reagents.
iv. **Mathematical Competence:** Applying formulas for molarity, density, and stoichiometry calculations.
v. **Scientific Communication:** Writing clear laboratory reports and presenting findings accurately to the scientific community.
vi. **Safety Awareness:** Strict adherence to laboratory rules and the correct handling of hazardous chemicals. **@ 01 mark = 06 marks**

B. Chemistry in the Textile Industry:

i. **Dyeing:** The process of adding color to textiles using synthetic or natural dyes. **Benefit:** Increases the aesthetic value and marketability of fabrics.
ii. **Bleaching:** The use of chemicals like hydrogen peroxide to remove natural pigments from fibers. **Benefit:** Results in pure white fabrics or prepares them for uniform dyeing. **04 marks**

4. Laboratory Safety Reasons

a. **Fire Extinguishers:** Fires can occur unexpectedly due to flammable chemicals or electrical faults; extinguishers are vital for immediate fire suppression to save lives and property. **04 marks**
b. **Large Windows:** These provide adequate **ventilation** to expel toxic fumes and ensure enough **natural light** for clear visibility during experiments. **03 marks**
c. **Sinks and Chemicals:** Concentrated chemicals can corrode lead or plastic pipes and cause environmental pollution or toxic reactions with other substances in the drainage system. **03 marks**

shulelibrary.com

5. The Fire Blanket

i. **Materials:** Fire blankets are typically made of fire-resistant materials such as **fibreglass** or sometimes wool treated with flame retardants. **03 marks**
ii. **Why use it:** It is used because it effectively cuts off the oxygen supply to the fire (**smothering**) without causing the skin irritation or chemical contamination that a dry powder extinguisher might cause on a person. **03 marks**
iii. **How to use: @ 01 mark = 04 marks**
    1. Pull the tapes to release the blanket from its container.
    2. Hold it by the corners and shield your hands behind the fabric.
    3. Gently place it over the person/flames to seal off air.
    4. Leave it in place until the heat has dissipated.

6. Kinetic Theory of Matter (Particles)

a. **Liquid Flow:** Particles in a liquid are close together but not in fixed positions; they can slide over each other, allowing the liquid to flow and take the shape of its container. **03 marks**
b. **Gas Expansion:** Gas particles have very weak forces of attraction and move randomly at high speeds, allowing them to spread out and fill any available space completely. **03 marks**
c. **Solid Expansion:** When heated, particles gain kinetic energy and **vibrate more vigorously**. This increased vibration pushes the particles slightly further apart, causing the total volume to increase. **04 marks**

7. Elements, Mixtures, and Compounds

a. **Rock Salt vs. Table Salt:** Rock salt contains impurities like sand and other minerals (mixture), while table salt is pure Sodium Chloride (NaCl) with fixed proportions (compound). **03 marks**
b. **Muddy Water vs. Pure Water:** Muddy water contains physically combined soil and water that can be separated by filtration (mixture); pure water (H_2O) is chemically bonded hydrogen and oxygen (compound). **04 marks**
c. **Charcoal vs. Sugar:** Charcoal consists only of Carbon atoms (element), whereas sugar ($C_{12}H_{22}O_{11}$) consists of Carbon, Hydrogen, and Oxygen chemically combined (compound). **03 marks**

8. Atomic Structure

a. **Protons and Neutrons:** These are located in the **nucleus** (the center of the atom). **02 marks**
b. **Orbiting Particle:** The **electron**. **02 marks**
c. **Positive Charge:** The **proton**. **02 marks**
d. **Same Mass: Protons and Neutrons** (both have a relative mass of 1). **@ 1.5 mark = 03 marks**

9. Periodic Law Comparison

Similarities: @ 01 mark = 02 marks

i. Both arrange elements in vertical columns called **Groups**.
ii. Both arrange elements in horizontal rows called **Periods**.
iii. Both place elements with similar chemical properties in the same group.

Differences: @ 01 mark = 03 marks

Studelibrary.com

i. **Basis:** Mendeleev's law is based on **Relative Atomic Mass**, while the Modern law is based on **Atomic Number**.
ii. **Isotopes:** Mendeleev had no clear place for isotopes; the Modern law accommodates them because isotopes of an element have the same atomic number.
iii. **Gaps:** Mendeleev left gaps for undiscovered elements; the Modern periodic table is complete regarding naturally occurring elements.

Chemical Formulas: @ 01 mark = 05 marks

i. Potassium and Chlorine: KCl
ii. Calcium and Sulphur: CaS
iii. Lithium and Fluorine: LiF
iv. Lithium and Nitrogen: Li_3N
v. Aluminium and Bromine: $AlBr_3$

SECTION C (15 marks)

10. Precipitation Reaction

i. **Balanced Equation:** $AgNO_{3(aq)} + NaCl_{(aq)} \rightarrow AgCl_{(s)} + NaNO_{3(aq)}$ **02 marks**
ii. **Ionic Equation:** $Ag^{+}_{(aq)} + Cl^{-}_{(aq)} \rightarrow AgCl_{(s)}$ **03 marks**
iii. **Precipitate Formula:** AgCl (Silver Chloride) **02 marks**
iv. **Separation:** The mixture can be separated using **filtration**, where the Silver Chloride stays on the filter paper as residue and the Sodium Nitrate solution passes through as filtrate. **03 marks**
v. **Before the Reaction 05 marks**
   - Silver Nitrate ($AgNO_3$) Solution: This is a clear, colorless liquid that looks exactly like pure water.
   - Common Salt (NaCl) Solution: When sodium chloride is dissolved in water, it also forms a clear, colorless solution.
   - The Mixture: At the very instant of contact, before the chemical change completes, you would be looking at two transparent liquids.

   After the Reaction
   - The Precipitate: As soon as the solutions are mixed, a dense, white, cloudy precipitate forms immediately. This solid is Silver Chloride (AgCl).
   - The Final Appearance: The mixture becomes opaque and "milky" because the tiny white solid particles are suspended throughout the liquid. Over time, these white particles will settle at the bottom of the container as a white residue, leaving a clear liquid (Sodium Nitrate solution) above

shulelibrary.com

INTERSECONDARY SCHOOLS EXAMINATION SERIES
ISESE TIME TABLE
FORM TWO PRE NECTA SERIES 01
13th July – 18th July 2026

DATE	SUBJECT(S)
13th July	HISTORY + B.STUDIES
14th July	BIOLOGY + ENGLISH
15th July	CHEMISTRY + HTM
16th July	PHYSICS + KISWAHILI
17th July	MATHEMATICS + GEOGRAPHY
18th July	COMPUTER SCIENCE

GHARAMA

*** SOMO MOJA KWA KIDATO KIMOJA = 20,000/= KWA MUHULA MZIMA

*** FULL SET KWA KIDATO KIMOJA (KWA MASOMO 11 TU) = 150,000/= KWA MUHULA MZIMA

ZINGATIA :-

*** GHARAMA ZA MITIHANI HUPANDA KADRI PRE-NECTA SERIES ZITAKAVYOKUWA ZINAENDELEA KUFANYIKA HIVYO LIPIA MAPEMA ILI KUEPUKA USUMBUFU

*** PRE-NECTA SERIES ZITAKUWA ZAIDI YA 10

MAWASILIANO: 0624 254 757 WHATSAPP TU

Shulelibrary.com