INTERSECONDARY SCHOOLS EXAMINATION SERIES
ISESE

FORM THREE SERIES No.01
CHEMISTRY

TIME 3 HRS **Year 2026**

INSTRUCTIONS

1. This paper consists of section **A, B** and **C** with total number of eleven **(11)** questions.
2. Answer **all** questions in section A and B and any **two (2)** questions in the section C
3. Section A carries **sixteen (16)** marks, section B carries **fifty four (54)** marks and section C carries **thirty (30)** marks
4. All writing must be in **black** or **blue** pen except for diagrams which must be in **pencil.**
5. Non programmable calculators may be used
6. Cellular phones and other unauthorized materials are not allowed in the examination room
7. The following constants may be used;

1F = 96500C

GMV = 22.4dm^3

Atomic masses:

(Zn) = 65.38, 0 = 16, Ag = 108, N =14, H = 1, N= 14, O = 16, Cl=35.5, Ca = 40

FORM ONE AND FORM THREE SERIES EXAMINATION
ISESE TIME TABLE
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ALL SUBJECTS	DATE
SERIES – 01	03rd August 2026
SERIES – 02	10th August 2026
SERIES – 03	17th August 2026
SERIES - 04	24th August 2026
SERIES – 05	31st August 2026

NB# SERIES No.06 – No.10 (SEPTEMBER – OCTOBER)
WE ALSO HAVE EXAMINATION SERIES FOR FORM TWO, FORM FOUR, FORM FIVE AND FORM SIX

SECTION A (16 Marks)

Answer all questions in this section

1. Write down the letter of the most correct answer in the answer sheet provided in each question:

   (i) Which pair of compounds is used to test for the presence of chloride ions in a solution?

   A. Nitric acid and silver nitrate solution
   B. Barium chloride and sodium hydroxide solution
   C. Aqueous ammonia and silver nitrate solution
   D. Nitric acid and sodium chloride

   (ii) Non-metals are generally better _____ than metals.

   A. conductors of electricity B. brittle materials
   C. malleable materials D. conductors of heat

   (iii) As the class monitor, which laboratory rule would you insist on before a practical session?

   A. Do not use dirty, cracked, or broken apparatus.
   B. Do not taste or smell chemicals.
   C. Report any accident, however small.
   D. Do not enter the laboratory without permission.

   (iv) In a neutral atom, which sub-atomic particles are equal in number to the protons?

   A. Electrons B. Neutrons C. Electrons of its ion D. Neutrons of its ion

   (v) A less electropositive metal can be extracted by:

   A. ore concentration and electrolytic reduction.
   B. ore concentration and chemical reduction.
   C. ore concentration and purification.
   D. ore concentration, reduction, and purification.

   (vi) Which statement is true about isotopes of an element?

   A. They contain the same number of protons but a different number of neutrons.
   B. The number of neutrons is the same, but the number of protons is different.
   C. The proton and neutron numbers are the same, but the electron numbers are different.

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D. Electrons are added to the nucleus, with the same number of protons.

(vii) Which statement is **not** true about a blast furnace during iron extraction?
A. The reactions keep the iron molten.
B. Limestone reacts with impurities to form slag.
C. Coke is added to reduce iron oxide to iron metal.
D. Coke combines with some impurities in the ore.

(viii) How can the components of a mixture of iron and sand be separated?
A. Boiling B. Filtration C. Chemical reaction D. Magnetic attraction

(ix) Why should access to safety equipment never be blocked?
A. It is just a simple law.
B. There must be spaces for people to move around.
C. The equipment is used every day.
D. It is important to reach it quickly in case of an accident.

(x) A solid compound X was strongly heated with no change. When dilute nitric acid was added, effervescence occurred, producing a gas that formed a white precipitate with limewater. Compound X is likely:
A. zinc nitrate. B. copper(II) sulphate.
C. potassium carbonate. D. magnesium chloride.

2. Match each element in **List A** with its correct description or property from **List B**. Write the letter of the correct match in the answer sheet provided.

List A	**List B**
(i) Nitrogen (ii) Graphite (iii) Sulfur (iv) Chlorine (v) Helium (vi) Hydrogen	A. A greenish-yellow, poisonous gas used to disinfect swimming pools. B. A lightweight, colorless gas used to fill weather balloons. C. The main constituent of natural gas and a potential clean fuel. D. A brittle, yellow solid found near volcanoes. E. The major component of the air, used to create an inert atmosphere for storing food. F. A form of carbon that is a good conductor of electricity and used in pencils. G. A metal which is liquid at room temperature. H. A noble gas used in advertising signs. I. A strong, hard substance used in cutting tools. J. A gas essential for aerobic respiration.

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SECTION B (54 marks)

Answer all questions in this section.

3. (a) Give the colour of copper oxide, zinc oxide, and magnesium oxide when hot and when cold.
   (b) Describe what happens when dilute hydrochloric acid is added to powdered lead carbonate in a beaker. Use a chemical equation to explain your answer.

4. A current of 1.5 A was passed through 250 cm^3 of 0.5 M $AgNO_3$ solution for 1 hour and 10 minutes. The anode was platinum, and the cathode was silver.
   (a) Identify the species that carried the current through the solution and indicate their direction of movement.
   (b) Give the equations for the reactions at the anode and cathode.
   (c) What changes would occur if the platinum anode was replaced with a silver anode?

5. Elements T and Q have atomic numbers 12 and 17, respectively.
   (a) Write the electronic configuration of element Q.
   (b) What is the valency of element T?
   (c) Write the chemical formula of the compound formed when T and Q combine.
   (d) Predict the type of bond formed between T and Q, giving a reason.
   (e) Identify the group and period in the periodic table for elements Q and T.
   (f) State two properties of the compound formed when T and Q combine.

6. (a) Give three examples of amphoteric hydroxides.
   (b) Write equations to show the reactions of each of these hydroxides with dilute nitric acid and with excess sodium hydroxide solution.
   (c) Study the reaction:
   $3KOH(aq) + FeCl_3(aq) \rightarrow 3KCl(aq) + Fe(OH)_3(s)$
      (i) What type of reaction is this?
      (ii) Write the net ionic equation for the reaction.

7. Briefly explain the following observations about a sample of hard water:
   (a) When boiled, it forms a white precipitate.
   (b) After boiling, the water forms a scum with soap.
   (c) Sodium carbonate makes the water completely soft.
   (d) What is the economic importance of hard water in daily life?

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8. (a) Give three common impurities found in metal ores.
   (b) Why should these impurities be removed before the reduction process?
   (c) A student wishes to monitor the rate of the reaction:
   $CaCO_3(s) + 2HCl(aq) \rightarrow CaCl_2(aq) + CO_2(g) + H_2O(l)$
   Identify **four** properties (other than the mass of $CaCO_3$) that could be used to monitor the reaction rate, and describe the changes that would occur for each.

SECTION C (30 marks)

Answer **ONLY two** questions

9. A farmer finds his soil is too acidic for optimal crop growth, and he also suffers from occasional heartburn after a long day in the fields. His wife uses a common household cleaner that contains a weak acid. Explain how a single chemical concept can provide a solution to all three of these separate situations. Explain **six** applications of this concept.

10. Your community is switching from using firewood to a modern fuel for cooking and heating to reduce indoor air pollution and deforestation. Explain **six** important factors you would consider when choosing the most suitable alternative fuel for widespread adoption in your community.

11. During a chemistry class, a teacher holds up a packet of common salt and states, "Beyond compounds like this are vital in numerous daily applications." Explain **six** different uses of the compounds in our everyday lives.

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