

GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

JUNE 2025

ORDINARY LEVEL

Centre Number	
Centre Name	
Candidate Identification Number	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

Duration: One and a Half Hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "**ORDINARY LEVEL – 0515 CHEMISTRY 1**".
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
Candidate Name, Exam Session, Subject Code and Candidate Identification Number.
Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer **ALL** the **50** questions in this Examination. All questions carry equal marks.
7. Non-programmable Calculators are allowed.
8. Each question has **FOUR** suggested answers: **A, B, C** and **D**. Decide which answer is appropriate. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.

For example, if **C** is your correct answer, mark **C** as shown below:

[A] [B] ☒ [C] [D]

9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all your rough work in this booklet using the blank spaces in the question booklet.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

Useful data: Molar volume of a gas at RTP = 24000 cm^3

Turn Over

- Identify the change from solid to liquid.
A Evaporation
B Condensation
C Sublimation
D Melting
- Why are sodium hydroxide pellets stored in tightly closed containers?
A To prevent it from turning to solution
B To prevent it from reacting with oxygen
C To prevent it from reacting with an acid
D To prevent it from losing water of crystallization
- Calculate the concentration of dilute hydrochloric acid (HCl), if 20cm^3 of it was used to neutralize 25cm^3 of 0.1M sodium carbonate (Na_2CO_3) solution.
 $\text{Na}_2\text{CO}_{3(\text{aq})} + 2\text{HCl}_{(\text{aq})} \longrightarrow 2\text{NaCl}_{(\text{aq})} + \text{H}_2\text{O} + \text{CO}_{2(\text{g})}$
A 0.01 mol dm^{-3}
B 0.13 mol dm^{-3}
C 0.25 mol dm^{-3}
D 0.40 mol dm^{-3}
- Select an element which belongs to group I of the Periodic Table.
A Calcium
B Sodium
C Magnesium
D Beryllium
- Which of the following is a non-crystalline form of sulphur?
A Plastic sulphur
B Rhombic sulphur
C Monoclinic sulphur
D Alpha(α) sulphur
- Why is there no observable change when potassium carbonate is heated?
A The reaction is too fast to observe any change.
B Potassium carbonate decomposes on heating
C Potassium carbonate is stable to heat
D The reaction is slow to observe any change
- Identify the gas evolved when ethanol ($\text{C}_2\text{H}_5\text{OH}$) reacts with sodium (Na).
A Carbondioxide
B Hydrogen
C Oxygen
D Steam

Questions 8 – 10(3 Questions)

INSTRUCTIONS: ONE or MORE of the response(s) numbered 1- 4 is (are) correct. Decide which response(s); is (are) correct: Then choose.

Then choose.

A: if only 1, 2 and 3 are correct

B: if 1 and 3 are correct

C: if only 2 and 4 are correct

D: if only 4 is correct.

Instructions summarised			
A	B	C	D
1, 2, 3 only	1, 3 only	2, 4 only	4 only

- Which of the following is(are) redox reaction(s)?
1 $\text{NaOH}_{(\text{aq})} + \text{HCl} \longrightarrow \text{NaCl}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{g})}$
2 $\text{CuSO}_{4(\text{aq})} + \text{BaCl}_{2(\text{aq})} \longrightarrow \text{BaSO}_{4(\text{s})} + \text{CuCl}_{2(\text{aq})}$
3 $\text{AgNO}_{3(\text{aq})} + \text{NaCl}_{(\text{aq})} \longrightarrow \text{AgCl}_{(\text{s})} + \text{NaNO}_{3(\text{aq})}$
4 $\text{CuO}_{(\text{s})} + \text{H}_{2\text{g}} \longrightarrow \text{Cu}_{(\text{s})} + \text{H}_2\text{O}_{(\text{g})}$
- For an exothermic reaction;
1 The energy content of the products is greater than that of the reactants.
2 The energy content of the reactants is greater than that of the products
3 The energy of bond breaking is more than that of bond formation.
4 The energy of bond breaking is less than that of bond formation.
- Select the element(s) which react(s) with water at room temperature to form an alkaline solution.
1 Sodium
2 Copper
3 Potassium
4 Magnesium
- Identify the function of carbon monoxide in the of iron from haematite?
A It acts as an oxidizing agent
B It acts as a drying agent
C It acts as a reducing agent
D It acts as a dehydrating agent
- What is isotopy?
A The existence of atoms of the same element with same mass number but different atomic number
B The existence of atoms of the same element with different masses
C The existence of atoms of an element same neutron number but different proton number
D The existence of an element in more than one crystalline form in the physical state.

13. Why are the elements chlorine, bromine and Iodine placed in group VII of the Periodic Table?

- A They have the same number of electrons in their outermost shell
- B They are either gases or liquids at room temperature
- C They have seven electrons in their outermost shell
- D They undergo displacement reactions

14. Which of the following conducts electricity?

- A Diamond
- B Graphite
- C Solid sodium chloride
- D Dry wood

15. Select the pH of an acid.

- A 2
- B 7
- C 8
- D 12

16. Which of the following compounds will be decolourised by bromine water?

- A CH_3CH_3
- B $\text{CH}_3\text{CH}_2\text{CH}_3$
- C CH_2CH_2
- D $\text{CH}_3\text{CH}_2\text{OH}$

17. Aluminium has an atomic number of 13 and a mass number of 27. How many protons and neutrons has an atom of aluminium?

- A 14 protons and 13 neutrons
- B 13 protons and 14 neutrons
- C 13 protons and 27 neutrons
- D 27 protons and 13 neutrons

18. By what method is a pure dry sample of chlorine gas collected in the laboratory?

- A Downward displacement of air
- B Downward delivery
- C Upward delivery
- D Over water

19. State one property of a base

- A It has a pungent smell
- B It has a sour taste
- C It has a bitter taste
- D It has a fruity smell

20. A flame test on a salt, M, gives a brick red flame colour. With barium chloride, a solution of M forms a white precipitate, which dissolves in excess HCl(aq) . Identify M

- A Calcium sulphite
- B Calcium sulphate
- C Strontium sulphite
- D Barium sulphite

Questions 21-22 (2 Questions)

INSTRUCTIONS: Each question consists of a statement in the left-hand column followed by another in the right hand column.

Decide whether each of the statements is **TRUE** or **FALSE**. Then on your answer sheet choose;

A: if both statements are **true** and the second statement is a correct explanation of the first statement

B: if both statements are **true** but the second statement is **NOT** a correct explanation of the first statement

C: if the first statement is **true** but the second statement is **false**

D: if the first statement is **false** but the second statement is **true**

Instructions Summarized

	First statement	Second statement
A	TRUE	TRUE and the second statement is the correct explanation of the first
B	TRUE	TRUE but the second statement is not a correct explanation of the first
C	TRUE	FALSE
D	FALSE	TRUE

	First statement	Second statement
21	Alkenes decolourise bromine water	Ethene is saturated
22	Sulphur dioxide turns orange potassium dichromate green	Sulphur dioxide is a reducing agent.

23. Identify the metal that is stored under paraffin oils.

- A Na
- B Cu
- C Mg
- D Be

Turn Over

24. Which of the following is a difference between soaps and detergents?
- Soaps are non-biodegradable, while detergents are biodegradable.
 - Soaps are biodegradable while detergents are non-biodegradable
 - Soaps do not form scum in hard water while detergents form scum in hard water
 - Soaps can be used in strongly acidic solutions while detergents cannot be used in strongly acidic solutions
-
25. Determine the number of Faradays of electricity used when 32g of copper are deposited during the electrolysis of copper (ii) sulphate solution. (RAM of Cu = 64)
- $$\text{Cu}^{2+}_{(\text{aq})} + 2\text{e}^{-} \rightarrow \text{Cu}_{(\text{s})}$$
- 1
 - 2
 - 4
 - 3
-
26. Why is it advisable to always put the base in a conical flask and not in the burette during acid/base titrations?
- It is easier pipette to the base
 - The conical flask is easy to handle
 - It is safer to pipette the base
 - The base has a bitter taste.
-
27. Which is the cleanest form of natural water?
- Sea water
 - Spring water
 - River water
 - Lake water
-
28. Calculate the volume of carbon dioxide evolved when 5g of calcium carbonate (CaCO_3) is strongly heated in a test tube. (RMM of $\text{CaCO}_3 = 100$)
- $$\text{CaCO}_{3(\text{s})} \xrightarrow{\Delta} \text{CaO}_{(\text{s})} + \text{CO}_{2(\text{g})}$$
- 1200cm^3
 - 24000cm^3
 - 36000cm^3
 - 48000cm^3
-
29. When solid blue copper (II) sulphate is heated, it turns white. What change does the blue copper (II) sulphate undergo?
- Physical change
 - Permanent change
 - Physical and chemical change
 - Chemical change
-
30. Which of the following chemical reactions can be made to go faster by increasing the surface area of a reactant?
- $2\text{H}_{2(\text{g})} + \text{O}_{2(\text{g})} \longrightarrow 2\text{H}_2\text{O}_{(\text{g})}$
 - $\text{CaCO}_{3(\text{s})} + 2\text{HCl}_{(\text{aq})} \longrightarrow \text{CaCl}_{2(\text{aq})} + \text{CO}_{2(\text{g})}$
 - $\text{C}_2\text{H}_5\text{OH}_{(\text{l})} + 3\text{O}_{2(\text{g})} \longrightarrow 2\text{CO}_{2(\text{g})} + 3\text{H}_2\text{O}_{(\text{l})}$
 - $\text{H}_{2(\text{g})} + \text{Cl}_{2(\text{g})} \longrightarrow 2\text{HCl}_{(\text{g})}$
-
31. What is the percentage by mass of nitrogen in sodium nitrate (NaNO_3)? (RMM of $\text{NaNO}_3 = 85$, RAM of N = 14)
- 16.5 %
 - 27%
 - 33%
 - 56.5%
-
32. What type of fertilizer is urea?
- Potassium fertilizer
 - Complex fertilizer
 - Phosphate fertilizer
 - Nitrogenous fertilizer
-
33. Identify the substance that is reduced in the reaction represented by the equation:
- $$\text{CuO}_{(\text{s})} + \text{Zn}_{(\text{s})} \longrightarrow \text{ZnO}_{(\text{s})} + \text{Cu}_{(\text{s})}$$
- ZnO
 - Cu
 - CuO
 - Zn
-
34. What happens to the equilibrium position of the following reaction when pressure is increased?
- $$2\text{HI}_{(\text{g})} \rightleftharpoons \text{H}_{2(\text{g})} + \text{I}_{2(\text{g})}$$
- Remains the same
 - Shifts to the left
 - Shifts to the right
 - Shifts to the left and then to the right
-
35. Which of the following burns with a more smoky flame?
- Ethane
 - Ethene
 - Ethyne
 - Ethanol
-
36. Which of the following substances is a natural polymer?
- Nylon 6,6
 - Starch
 - Glucose
 - Polyethene
-

37. Why is sodium discharged at the mercury cathode instead of hydrogen during the electrolysis of brine?
- Sodium is higher than hydrogen in the electrochemical series
 - Sodium has a high affinity for mercury
 - Sodium is more concentrated in brine
 - Sodium is lower than hydrogen in the electrochemical series
-
38. Select a suitable method for preparing sodium chloride from sodium hydroxide and dilute hydrochloric acid.
- By neutralisation
 - By double decomposition
 - By direct combination
 - By precipitation
-
39. Identify the process by which sulphur is extracted.
- Contact process
 - Haber process
 - Frasch process
 - Ostward process
-
40. Which of the following is an industrial use of carbon monoxide?
- As a fire extinguisher
 - As a reducing agent
 - As an oxidising agent
 - As a raising agent
-
41. On adding 2cm^3 of NaOH solution to a salt solution, a reddish-brown precipitate was formed. Identify the cation in the salt solution.
- Ca^{2+}
 - Fe^{2+}
 - Cu^{2+}
 - Fe^{3+}
-
42. Why is phosphorus stored under water?
- It is poisonous
 - It is denser than air
 - It is soluble
 - It is oxidised in air
-
43. To identify the components of a compound, a flame test was carried out. What is the use of the flame test?
- To test for anion and cation
 - To test for the anion
 - To test for metal ions
 - To test for the radical
-
44. What is the function of water in the laboratory preparation of chlorine?
- To remove hydrogen chloride fumes
 - It acts as a catalyst
 - To oxidise the chlorine gas
 - To dry the chlorine gas
-
45. Determine the empirical formula of a compound that contains 0.86g of carbon and 0.14g of hydrogen. (RAM of C = 12, H = 1)
- CH
 - CH_2
 - C_2H_2
 - C_2H_4
-
46. Which of the following is an alcohol?
- $\text{CH}_3\text{CH}_2\text{OH}$
 - CH_3CHCH_3
 - $\text{CH}_3\text{CH}_2\text{CH}_3$
 - $\text{CH}_3\text{CH}_2\text{CHCH}_2$
-
47. What are organic compounds having the same general molecular formula with similar method of preparation called?
- Allotropes
 - Isotopes
 - Homologues
 - polymorphs
-
48. State why sodium chloride solution is an electrolyte.
- It has mobile ions
 - It has mobile electrons
 - It is a neutral solution
 - It is a soluble salt
-
49. Select an addition polymer
- Nylon 6,6
 - Polyethene
 - Protein
 - Terylene
-
50. What is the function of the enzyme zymase in the fermentation of maize?
- Catalyses the hydrolysis of maltose to glucose
 - Catalyses the hydrolysis of starch to maltose
 - Catalyses the decomposition of glucose to ethanol
 - Catalyses the germination of maize

STOP

GO BACK AND CHECK YOUR WORK