

Name: Centre/Index No.

School: Signature.....

545/1
CHEMISTRY
Paper 1

1½ hrs.

STANDARD HIGH SCHOOL ZZANA

Uganda Certificate of Education

CHEMISTRY

Paper 1

1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **50** objective – type questions.*

*Attempt **all** questions.*

*You are required to write the correct answer; **A, B, C** or **D** in the **boxes** provided on the **right – hand** side of each question.*

*Do **not** use pencil.*

Mathematical tables, slide rules and silent non-programmable calculators may be used.

1 mole of a gas occupies 22.4dm^3 at stp.

For Examiner's use only	
Score	Remarks

Turn Over

1. Which one of the following will not conduct electricity in aqueous solution?
- A. Sulphuric acid.
 - B. Sugar.
 - C. Copper(II) sulphate.
 - D. Lead(II) nitrate.
2. A beaker of lime water was uncovered for a long time and a white solid formed at the bottom of a colourless liquid. The white solid was;
- A. calcium hydroxide.
 - B. calcium carbonate.
 - C. calcium oxide.
 - D. calcium sulphate.
3. In which of the following do the particles vibrate in a fixed position?
- A. Liquid.
 - B. Solution.
 - C. Solid.
 - D. Gas.
4. Which of the following pairs of substances are compounds?
- A. Iron filings, sugar.
 - B. Sea – water, barium.
 - C. Sugar, milk.
 - D. Sea-water, table salt.
5. Crude oil is separated into its various components in a process known as
- A. fractional distillation.
 - B. decantation.
 - C. filtration.
 - D. fractional crystallisation.

6. Which of the following is an oxide which does not react with an acid or a base?
- A. Potassium oxide.
 - B. Carbon dioxide.
 - C. Sulphur dioxide.
 - D. Carbon monoxide.
7. During Down's process, calcium chloride is added in order to
- A. catalyse the reaction.
 - B. remove impurities.
 - C. prevent oxidation of the ore.
 - D. lower the melting point of the ore.
8. The following substances do not conduct electricity except;
- A. graphite.
 - B. wax.
 - C. charcoal.
 - D. diamond.
9. On adding concentrated hydrochloric acid to a solid, R, a gas was evolved which had a choking smell and bleached litmus paper. From this we conclude that substance R was
- A. a metal.
 - B. a reducing agent.
 - C. a halogen.
 - D. an oxidizing agent.
10. What is the simplest formula of a compound containing 45.6% X and 54.6% chlorine by weight ($X = 39, Cl = 35.5$)
- A. XCl_4 .
 - B. XCl_3 .
 - C. XCl_2 .
 - D. XCl .

11. Which one of the following substances is an element?
- A. Ash.
 - B. Helium.
 - C. Paper.
 - D. Ice.
12. Which one of the following cations forms a white precipitate which dissolves in excess ammonia solution to form a colourless solution?
- A. Cu^{2+} .
 - B. Pb^{2+} .
 - C. Mg^{2+} .
 - D. Zn^{2+} .
13. When chlorine water is exposed to sunlight, a gas that is colourless is produced, the gas is;
- A. oxygen.
 - B. hydrogen.
 - C. nitrogen.
 - D. hydrogen chloride.
14. Which one of the following substances exhibits more than one valency?
- A. Aluminium.
 - B. Copper.
 - C. Zinc.
 - D. Sodium.
15. Which one of the following is a use of oxygen?
- A. Burning of fuels to get energy.
 - B. Making other gases.
 - C. Hardening of oils.
 - D. Extraction of iron.

16. A gas Y was bubbled through an orange solution of potassium – dichromate and the solution turned green. Y could have been:
- A. carbon dioxide.
- B. hydrogen chloride.
- C. sulphur dioxide.
- D. hydrogen sulphide.
17. Molten lead(II) bromide was electrolysed using carbon electrodes, the product at the anode is;
- A. bromine.
- B. oxygen.
- C. hydrogen.
- D. lead.
18. 10g of methanol burns in air to liberate 226kJ of heat. The amount of heat in kJ liberated when 1 mole of methanol (CH_3OH) is burnt in air is ($H = 1$, $C = 12$)
- A. $\frac{32 \times 226}{10}$.
- B. $\frac{10 \times 226}{32}$.
- C. $\frac{10}{32 \times 226}$.
- D. $\frac{10 \times 32}{226}$.
19. Which of the following nitrates decomposes on heating to form a yellow solid when hot and white when cold?
- A. Zinc nitrate.
- B. Copper(II) nitrate.
- C. Lead(II) nitrate.
- D. Magnesium nitrate.



Turn over

20. Which of the following is an alkene?

A. C_4H_{10} .

B. C_2H_6 .

C. C_3H_6 .

D. C_2H_2 .

☐

21. Lead(II) ions in solution can be precipitated by the following anions except;

A. NO_3^- .

B. Br^- .

C. SO_4^{2-} .

D. Cl^- .

☐

22. The process of covering iron with zinc is known as

A. zinc plating.

B. galvanising.

C. alloying.

D. rusting.

☐

23. Which of the elements reacts with copper(II) sulphate solution causing its colour to change from blue to colourless ?

A. Copper.

B. Zinc.

C. Silver.

D. Carbon.

☐

24. A metal is found to react with 20% of the air, the remaining 80% consists mainly of;

A. water vapour.

B. nitrogen.

C. noble gases.

D. pollutants.

☐

25. Graphite is used to make electrodes because it is
- A. a form of carbon and is grey.
 - B. a non - metal.
 - C. a good conductor of electricity.
 - D. a conductor of heat.
26. Formation of cations is a result of
- A. gain of electrons.
 - B. loss of protons.
 - C. loss of electrons.
 - D. gain of protons.
27. The percentage of water of crystallization in $CuSO_4 \cdot 5H_2O$ is
($Cu = 64$, $S = 32$, $O = 16$, $H = 1$)
- A. $\frac{18 \times 100}{250}$.
 - B. $\frac{90 \times 100}{250}$.
 - C. $\frac{20 \times 100}{160}$.
 - D. $\frac{20 \times 100}{160}$.
28. The following gases are acidic anhydrides except;
- A. sulphur dioxide.
 - B. carbon dioxide.
 - C. nitrogen dioxide.
 - D. carbon monoxide.
29. Which one of the following substances is used to bleach sugar?
- A. Chlorine.
 - B. Sulphur dioxide.
 - C. Sodium sulphate.
 - D. Calcium chloride.

☐☐☐☐☐

30. You are given a pure liquid which you think is ethanol. The best way of finding out that the liquid is ethanol is to:
- A. smell it.
 - B. observe it's colour.
 - C. find it's boiling point.
 - D. find it's density.
31. The following gases can easily burn except;
- A. ethane.
 - B. carbon monoxide.
 - C. nitrogen.
 - D. hydrogen.
32. The process that leads to the formation of soap is known as
- A. saponification.
 - B. dehydration.
 - C. hydrogenation.
 - D. hydrolysis.
33. The substance that can be used to distinguish ethane from ethene is
- A. limewater.
 - B. bromine liquid.
 - C. litmus solution.
 - D. burning splint.
34. Which of the following is a monomer of polyvinyl chloride?
- A. ethene.
 - B. propyne.
 - C. chloro ethene
 - D. propene.

35. Which of the following salts can be prepared directly from sodium chloride solution?
- A. Copper(II) chloride.
 - B. Iron(III) chloride.
 - C. Potassium chloride.
 - D. Lead(II) chloride.
36. What is the mass contained in 500cm^3 of $2M$ sodium hydroxide solution ($Na = 23, O = 16, H = 1$)
- A. $40g$.
 - B. $10g$.
 - C. $80g$.
 - D. $20g$.
37. The apparatus required to measure 24.50cm^3 of a solution accurately is
- A. pipette.
 - B. burette.
 - C. measuring cylinder.
 - D. beaker.
38. Which of the following is an alloy of aluminium?
- A. Duralumin.
 - B. Brass.
 - C. Solder.
 - D. Bronze.
39. Calcium ions and magnesium ions can be distinguished using
- A. sodium hydroxide solution.
 - B. hydrochloric acid.
 - C. nitric acid.
 - D. sulphuric acid.

40. The volume of $0.01M$ potassium hydroxide solution required to react exactly with $25.0cm^3$ of $0.03M$ nitric acid is;
- A. $75cm^3$.
 B. $12.5cm^3$.
 C. $25.0cm^3$.
 D. $50.0cm^3$.

Each of the questions 41 to 45 consists of an assertion (statement) on the left - hand side and a reason on the right - hand side.

Select;

- A. If both the assertion and the reason are true statements and the reason is a correct explanation of the assertion.
 B. If both the assertion and the reason are true statements but the reason is not a correct explanation of the assertion.
 C. If the assertion is true but the reason is not a correct explanation.
 D. If the assertion is not correct but the reason is a correct statement.

Instructions Summary

Assertion	Reason
A. True	True (Reason is a correct explanation)
B. True	True (Reason is not a correct explanation)
C. True	Incorrect
D. Incorrect	Correct

41. Pollen grains in water are in a continuous random motion. **because** pollen grains collide with moving water molecules.
42. Potassium chloride conducts electricity in solid state. **because** solid potassium chloride contains ions.
43. Potassium is at the top of the reactivity series **because** it is a very soft metal.

44. Ocean water is hard **because** it contains dissolved calcium and magnesium ions. ☐
45. Ethene decolourises bromine water **because** it is an alkene. ☐

In each of the questions 46 to 50, one or more of the answers given may be correct. Read each question carefully and then indicate the correct answer A, B, C and D according to the following instructions:

- A. If 1, 2 and 3 only are correct.
B. If 1 and 3 only are correct.
C. If 2 and 4 only are correct.
D. If 4 only is correct.

46. Which one of the following substances reacts with heated lead(II) oxide?

1. Hydrogen.
2. Copper metal.
3. Carbon.
4. Oxygen.

☐

47. Chlorine

1. is a poisonous gas.
2. is dissolved in water supplies to kill germs.
3. bleaches certain coloured flowers.
4. is less dense than air.

☐

48. Which of the following properties make carbon dioxide useful in fire extinguishers?

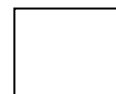
1. It is denser than air.
2. It is lighter than air.
3. It is non - flammable.
4. It is an inert gas.

☐

Turn over

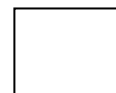
49. When concentrated sulphuric acid is added to sucrose

1. sugar charcoal is formed.
2. heat is released.
3. the spongy carbon swells.
4. sulphur dioxide is evolved.



50. Which of the following elements belong to the same group in the periodic table?

1. $^{16}_8P$.
2. $^{24}_{12}Q$.
3. $^{14}_7R$.
4. $^{40}_{20}S$.



END