| WAKISSHA PI | ROPOSED GUIDE | Signature |
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| School 0772244944 | 0758891802 | Index No |

545/1 CHEMISTRY Paper 1 July/August 2023 1 ½ hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

CHEMISTRY

Paper 1

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

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

Answer all questions.

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

Use pen and write clearly.

Do not use pencil.

| For examiner's use only | | | | |
|-------------------------|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |

- more ethanol than water vapour. This was observed because ethanol When a mixture of ethanol and water was distilled the initial vapour given off contained
- and water are miscible liquids.
- ϖ is more volatile than water.
- is a solute and water is a solvent is more dense than water
- Which one of the following gases neither burns nor supports combustion? Nitrogen.
- \mathbf{B} Hydrogen.

1)

- Carbon monoxide Methane

در

- isotopes show similar chemical properties is because of the The two isotopes of chlorine are chlorine 35 and chlorine 37. The reason why the two they have.
- À different number of neutrons
- B different mass numbers
- same number of electrons

D.

same atomic numbers

- 4 Which one of the following hydro carbons is unsaturated?
- CH
- В C_2H_6
- C_3H_6
- D C_4H_{10}
- S conditions of $35-40^{\circ}$ C is called The process by which dilute hydrochloric acid converts starch to glucose under suitable
- A hydrolysis
- \mathbb{B} dehydration
- fermentation.
- D. neutralization

6

- FeSO₄.7H₂O (Fe What is the percentage by mass of oxygen in iron (II) sulphate, heptahydrate. 56. S = 32, O = 16, H = 1)
- $\left(\frac{278}{176} \times 100\right)$
- Ø (176×100×278)
- \mathbf{C} 176×100
- 278
- D 176×278 100
- 7 Which one of the following reactions will yield nitrogen as one of the products? Oxidation of ammonia by heated copper (II) oxide
- A.
- В Reaction of Magnesium nitride with water
- Heating of ammonium nitrate strongly Catalytic oxidation of ammonia using hot platinum gauze

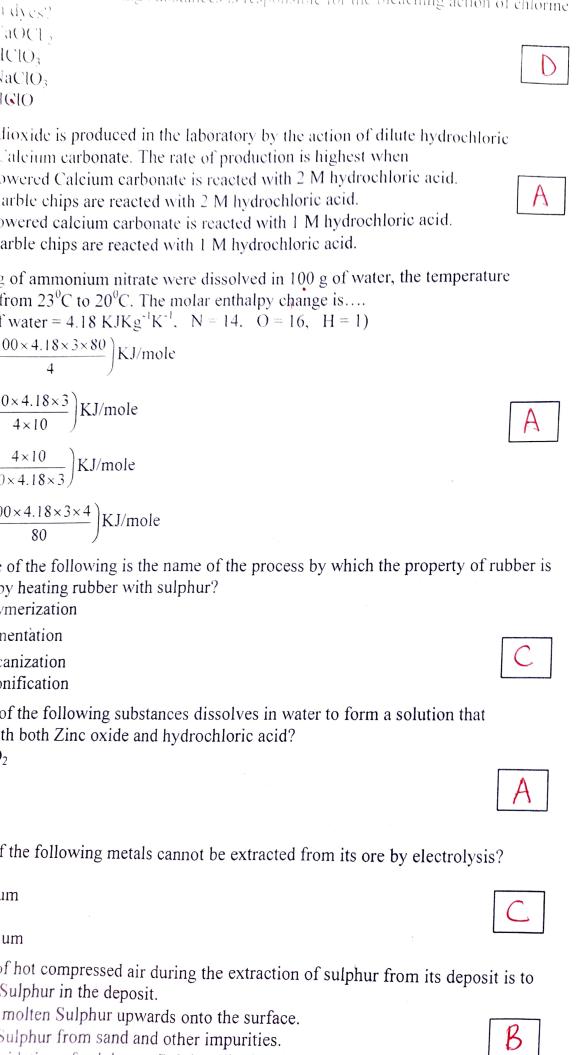


| . 8. | extent that it dissolves in it to form a solution? A. Ferric chloride | e |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| | B. Copper (II) oxideC. Anhydrous copper (II) SulphateD. Hydrated Sodium Carbonate | 7 |
| 9. | Potassium nitrate decomposes on heating according to the equation. $2KNO_{3(8)} \longrightarrow 2KNO_{2(8)} + O_{2(g)}$ The volume of oxygen at room temperature and pressure that would be produced on heating 5.0 g of Potassium nitrate is (K = 39, N = 14, O = 16; 1 Mole of a gas occ 24 dm ³ at room temperature) A. 0.594 dm ³ B. 0.954 dm ³ C. 0.459 dm ³ D. 0.696 dm ³ | cupies A |
| 10. | Which one of the following gases is collected by down ward displacement of air? A. Carbon dioxide B. Nitrogen dioxide C. Ammonia D. Chlorine gas | |
| 11. | Which one of the following elements does NOT readily react with cold water? A. Calcium B. Sodium C. Magnesium D. Potassium | |
| 12. | 9.35 g of hydrocarbon Y contains 8.01 g of carbon by mass. The empirical form of Y is ($C = 12$, $H = 1$) A. CH_4 B. CH_2 C. C_2H_6 D. C_2H_2 | B |
| 13. | The gas evolved when a solution containing hypochlorous acid is exposed to st A. Hydrogen chloride gas. B. Chlorine gas. C. Oxygen gas. D. Nitrogen gas. | |
| 14. | Which one of the following classes of organic compounds does Sodium stears A. Esters B. Salt of carboxylic acid C. Carboxylic acids D. Alcohols | ite belong to? |
| 15. | Students observed white coatings inside a school kettle that was used to boil water. The compound in the white coating is. A. Calcium oxide B. Calcium hydroxide C. Calcium hydrogencarbonate | borehole |
| | D. Calcium carbonate | Turn (|

| | than mixed with lemon fulce that | |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| | The colour of the universal indicator when mixed with lemon juice | |
| 10. | The colour of the universal indicator. This means that a solution of lemon juice This means that a solution o | B |
| | | |
| | can react Willi Southing from red to yellow | |
| 9 | - the color Williams | |
| | does not liberate carbon dioxide from the does not liberate carbon dioxi | |
| | D. does not liberate carbon dioxide from carbonaces. Which one of the following metals is the most powerful reducing agent? | |
| 17. | A Copper | |
| | A. Copper B. Zinc | |
| | D. | 110 |
| | C. Magnesium D. Iron A compound R contains 2.80 g of iron and 5.35 g of chlorine. The formula of the compound R contains 2.80 g of iron and 5.35 g of chlorine. | of the oxide |
| | A compound R contains 2.80 g of iron and 5.55 g of children | |
| 18. | A compound R contains of R is (Fe = 56. Cl = 35.5) | |
| | A. FeO | |
| | $B. FeO_2$ | |
| | C . Fe_2O_3 | |
| | | |
| 19. | D. Fe ₃ O ₄ Sulphur dioxide is oxidized to sulphur trioxide according to the equation. | |
| 19. | | excent |
| | $2SO_{2(g)} + O_{2(g)} - 2SO_{3(g)} + \text{heat.}$ The following conditions will affect the equilibrium yield of sulphur trioxide | скоср |
| | the use of; | |
| | low temperatures. | |
| | Engly divided vanadulm (V) Oxide. | |
| | C. excess air in order to react all the sulphur dioxide. | |
| | 1.1.1 | odium |
| 20. | 3. co.046 M solution of an acid HnX required 22.6 cm ³ of a 0.15 M s | SOCITUIII |
| 20. i | 24.5 cm ² of 0.046 W solution of an acta value of the acid HnX is hydroxide solution for complete reaction. The basicity of the acid HnX is | |
| | A. 1 | |
| | 3. 2 | C |
| C | | |
| D |). 4 | |
| 21. W | When a solution of sodium carbonate is treated with carbon dioxide, a white | |
| pr | recipitate is formed. The formula of the compound formed is. | |
| A | | |
| B. | | A |
| C. | $Ca(HCO_3)_2$. | 14 |
| D. | Na_2O_2 . | |
| 22. 0.1 | moles of compound X(HCO ₃) ₂ weighs 14.6 g. The formula mass of the sul | phate |
| | SO_4 is | 1 |
| Α. | | |
| В. | 106 g. | |
| C. | 115 g. | |
| D. | 120 g. | |
| | - | |
| | e electronic structure of element W is 2,8,2. Which one of the following is to the chloride of W? It is | rue |
| | | |
| | | |
| Α. | a gas at room temperature. | |
| А. В. | a gas at room temperature. a covalent compound. | C |
| Α. | a gas at room temperature. | C |

22.

23.



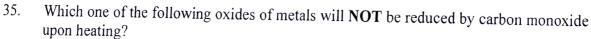
- Which one of the following does NOT decompose on heating? Sodium nitrate
- Sodium carbonate В.
- Calcium carbonate C.
- Calcium nitrate D.
- Element W of mass number 31 belongs to group V and period 3 of the periodic table. 32. The number of neutrons in the atom of W is
 - 15. Α.

31.

- 10. B.
- C. 24.
- D. 16.
- Which one of the following rons will react with Lead (II) nitrate to form a yellow 33. precipitate?
 - A. CO_3^{2-}
 - B. Cl
 - C. SO_4^{2}
 - D. I
- Sodium carbonate reacts with dilute nitric acid according to the equation. 34. \rightarrow 2NaNO_{3(aq)} + H₂O_(l) + CO_{2(g)} $Na_2CO_{3(aq)} + 2HNO_{3(aq)}$

The mass of sodium nitrate that would be formed when 2.75 g of sodium carbonate is reacted completely with the acid is (Na = 23, O = 16, C = 12, N = 14, H = 1)

- A. $\left(\frac{2.75\times85}{106}\right)g$
- B. $\left(\frac{2.75\times2\times85}{106}\right)g$
- C. $\left(\frac{2.75 \times 85}{106 \times 2}\right)g$
- D. $\left(\frac{85\times2}{2.75\times106}\right)g$



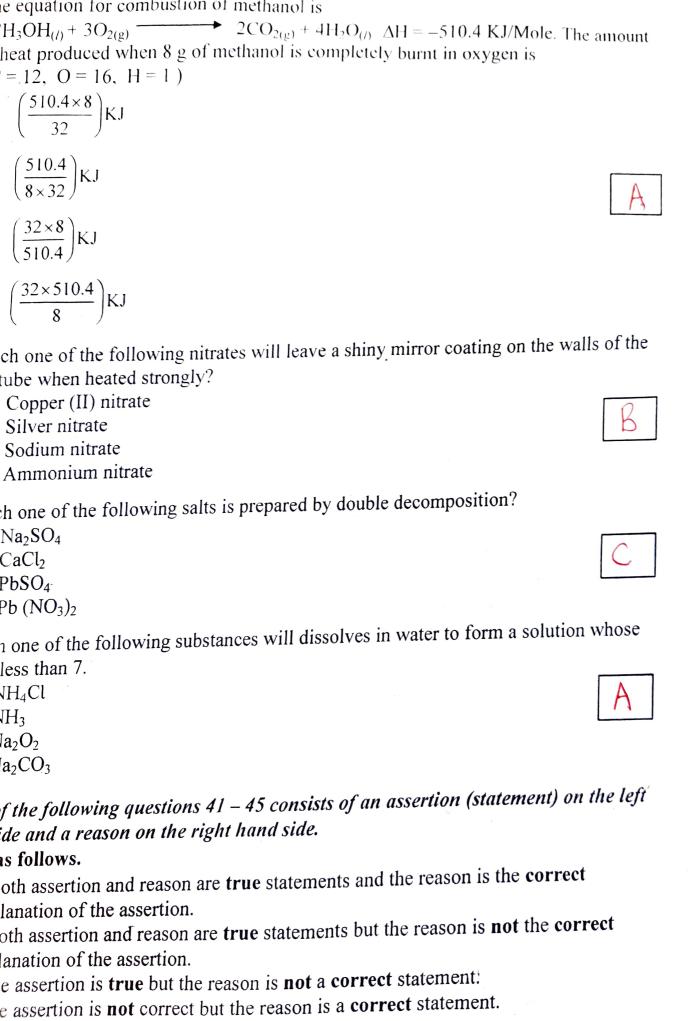
- A. Copper (II) oxide.
- В. Iron (III) oxide.
- C. Lead (II) oxide.
- Calcium oxide.



B

- Which of the following pairs of substances will cause a displacement reaction to occur 36. when mixed?
 - Copper metal and zinc chloride Solution. Α.
 - Iron filings and copper (II) sulphate solution.
 - Zinc granules and magnesium nitrate solution. C.
 - Bromine liquid and potassium chloride solution. D.





ions Summarised

| 41. | Ammonium chloride who forms a white sublimate cooling | | because | the aminonia and hy chloride formed recooling. | | A |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------|---------------------------------------------------------------------------------------|---------------|------------|
| 42. | 42. Sodium bicarbonate is an acidic salt | | because | sodium bicarbonate replacing all the rep hydrogens of the aci | laceable | C |
| 43. | Sodium amalgam reacts with water to form sodium hydroxide, hydrogen and mercury | | because | sodium is an alkali n | 14 | В |
| 44. | Manganese (IV) oxide and Lead (IV) oxide are not considered as bases | | pecause | they both oxidise concentrated hydrochloric acid to chlorine gas, the salt and water. | | B |
| | Zinc is used to form galva iron In each of the question quastion carefully and the | ŀ | ecause | Zinc is below Iron in series. | | |
| H | question carefully and the following. A. If 1, 2 and 3 only as If 1 and 3 only are If 2 and 4 only are If 4 only is correct. | re correct. correct. correct. | | | C or D accord | ing to the |
| | | Instructi | ons Sum | marised | | |
| | 1, 2, 3 only | 1 and 3 o | | C 2 and 4 only | D | |
| 1. 2. 3. 4. 7. The 1. 2. 3. 4. | Sulphur dioxide gas Hydrogen chloride g Ammonia gas Carbon monoxide ga ion(s) that form hydrox Pb ²⁺ Cu ²⁺ Al ³⁺ Zn ²⁺ | S | ı is/are sc | luble in excess amm | onia is /are | A |
| 1. 2. 3. 4. | h of the following elem- Phosphorus Chlorine Sulphur Sodium | | allotropi | c? | | B |
| 1. 2. 3. | ne is used as a fuel becan it burns with a non-soot it is a saturated hydrocan it produces a lot of hear it is an alkane. | ity flame. arbon. | t in oxyg | gen. | | B |
| Which (1. 2. 7. 3. 7. | of the following is/are of They have high melting They conduct heat and of They have high densitie They have low melting | and boiling electricity. | | tal(s)? | | A |

46.

47.

48.

3. 4.