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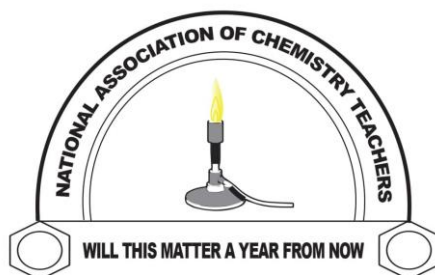
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CHEMISTRY

PAPER ONE

April 2023



NATIONAL ASSOCIATION OF CHEMISTRY TEACHERS

Uganda Certificate of Education

CHEMISTRY

Paper 1

TIME:1HR 30MIN

INSTRUCTIONS

This paper consists of 50 objective type questions

Answer all questions in this paper

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

Use pen and write correctly

Do not use pencil

1. Which of the following is not a use of sulphur?

A Hardening rubber B Manufacture of sulphuric acid
C Manufacture of drugs D In refrigerators

2. Nitrogen gas is relatively unreactive because

A It has five electrons on its outermost shell B It's a non-metal

C Of its strong triple bond B It's a noble gas

3. The catalyst used in the conversion of ammonia to nitric acid is

A Nickel B Vanadium (v) oxide

C Iron

D Platinum

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4. Which of the following ions is tested for by use of brown ring?
 A Nitrate ions
 B Nitride ions
 C Nitrite ions
 D Carbonate ion

5. The gas formed when all nitrates are heated is
 A Nitrogen dioxide
 B Oxygen
 C Nitrogen monoxide
 D Nitrogen

6. Which of the following elements is not allotropic
 A Tin
 B Magnesium
 C Carbon
 D Sulphur

7. The percentage by mass of oxygen in iron (ii) sulphite, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ is (Fe=56, S=32, O=16, H=1)
 A $\frac{11 \times 16 \times 100}{278}$
 B $\frac{23 \times 100}{100}$
 C $\frac{46 \times 100}{106}$
 D $\frac{46 \times 100}{90}$

8. The bleaching action of sulphurdioxide is due to
 A Sulphuric acid
 B Sulphurous acid
 C Sulphurtrioxide
 D Hydrogen sulphide

9. Which of the following reagents is used to test for the presence of a sulphate ion?
 A Potassium iodide
 B Barium nitrate ion
 C Silver nitrate
 D Dilute hydrochloric acid

10. Which of the following chlorides sublimes?
 A NaCl
 B FeCl_3
 C CuCl_2
 D AgCl

11. Which of the following is not a chemical change?
 A Burning of magnesium
 B Rusting of iron
 C Precipitation of a solid by the reaction of two solutions
 D Magnetizing iron

12. The component removed when air is passed over heated copper turnings is
 A Carbondioxide
 B Oxygen
 C Nitrogen
 D Water vapour

13. Oxygen is collected by upward delivery because
 A Denser than air
 B Less dense than air
 C Soluble in water
 D Less reactive

14. Which of these oxides is neutron
 A P_2O_5
 B Na_2O
 C CO_2
 D CO

15. Sodium nitrate decomposes on heating according to the equation



The volume of oxygen gas formed at s.t.p when 8g of sodium nitrate is heated is (Na=23, N=14, O=16, 1 mole of a gas occupies 22.4dm³ at s.t.p)

A $\frac{22.4 \times 8}{170}$

B $\frac{8 \times 170}{22.4}$

C $\frac{22.4 \times 8}{85}$

D $\frac{8 \times 85}{22.4}$

16. Which of the following is an anhydride of carbonic acid?

A SO₂

B CO₂

C CO

D H₂O

17. When temporary hard water is boiled

A It changes to permanent hard water

B A white precipitate of calcium oxide is formed

C A white precipitate of calcium carbonate is formed

D Oxygen is formed

18. Which of these used to test for the presence of water?

A Anhydrous copper (ii) sulphate

B Hydrated copper (ii) sulphate

C Copper (ii) sulphate

D Cobalt (ii) oxide

19. Redox reaction is where

A A substance is partially reduced and oxidized

B Both reduction and oxidation reactions take place simultaneously

C Metals are oxidized and nonmetals reduced

D Nonmetals are oxidized and metals reduced

20. Which of the following metals reacts fastest with water?

A Sodium

B Calcium

C Potassium

D Hydrogen chloride

21. The gas formed when magnesium ribbon reacts with steam is

A Oxygen

B Hydrogen

C Carbon monoxide

D Hydrogen chloride

22. Which of the following mixtures can be separated by use of a separating funnel

A Sand and water

B Water and ethanol

C Water and benzene

D Iron and paraffin

23. Sodium chloride is an example of a giant

A Ionic structure

B Covalent structure

C Molecular structure

D Atomic structure

24. The product of reaction between a metal and a dilute mineral acid is

A Hydrogen and oxide of a metals

B Hydrogen and hydrogen of a metal

C Hydrogen and salt of a metal

D Water and salt of a metal

 equation here.

25. The mass in grammes of calcium oxide formed when 30g of calcium carbonate is heated is (Ca=40, C= 12, O=16)

A $\frac{30 \times 56}{2 \times 100}$

B $\frac{30 \times 56}{100}$

$$C \frac{44 \times 56}{2 \times 100}$$

$$D \frac{44 \times 56}{100}$$

26. A Process by which a gas is changed to solid without passing through the liquid state is called

A Condensation

B Sublimation

C Distillation

D Precipitation

27. Which of the following compounds does not give off oxygen gas when heated

A Lead (ii) nitrate

B Potassium nitrate

C Ammonium nitrate

D Magnesium nitrate

28. Fractional distillation can be used to separate a mixture of methanol and water because the two liquids

A Are miscible

B Are immiscible

C Have different boiling points

D Have different densities

29. Which of the following gases is used for putting off fire

A CO

B CO₂

C SO₂

D H₂

30. 25.0cm³ of 0.2M sodium carbonate completely reacted with 18.70cm³ of hydrochloric acid. The molarity of the acid is

$$A \frac{2 \times 25.0 \times 0.2}{18.7}$$

$$B \frac{2 \times 18.7 \times 0.2}{25.0}$$

$$C \frac{18.7 \times 0.2}{25.0 \times 2}$$

$$D \frac{18.7 \times 0.2}{25.0 \times 2}$$

31. In electrovalent bonding

A Metals gain electrons while nonmetals lose electron

B Both metals and nonmetals lose electrons

C Metals lose electrons to non-metals

D The compounds formed are non-polar

30. A hydrocarbon is a compound which contains only

A Carbon and oxygen atom

B Carbon and hydrogen atoms

C Hydrogen and oxygen atoms

D Carbon and nitrogen atoms

33. When ethanol is heated at 180°C with concentrated sulphuric acid the organic product formed is?

A Ethyne

B Methane

C Ethene

D Carbondioxide

34. Unsaturated compounds

A Contain only single bond

B Are hydrocarbons

- C Contain double or triple bond D All dissolve in water
35. The mass of sodium hydroxide, NaOH in 200cm³ of 0.05m sodium hydroxide is
- A 10 B 15
- C 0.4 D 8
36. Which of the following reagents is used to distinguish between Pb²⁺ and Al³⁺
- A KI_(aq) B NaOH_(aq)
- C NH₄OH_(aq) D AgNO_{3(aq)}
- 37 An element X is 2, 8, 2. The formula of the most common ion of X is
- A X²⁺ B X²⁻
- C X⁶⁺ D X⁶⁻
- 38 Which of the following potassium salts does not produce a gas when heated
- A KNO₃ B K₂CO₃
- C KClO₃ D KHCO₃
- 39 what property of sulphuric acid gas is being shown in the reaction below?
- SO_{2(g)} + H₂O_(l) + colored material \longrightarrow colorless material + H₂SO_{4(aq)}
- A Oxidizing B Bleaching
- C Precipitation D Reducing
- 40 Which of the following is not a property of graphite
- A Non electrolyte B Conducts electricity
- C Is used as a lubricant D Can reduce magnesium oxide

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

INSTRUCTIONS

Assertion	Reason
A: True	True (reason is a correct explanation)
B : True	True(reason is not a correct explanation)
C : True	Incorrect
D : Incorrect	True

41. Carbondioxide gas is collected by downward delivery	Because	Carbondioxide is an acidic gas
42. Fluorine and chlorine belong to group (vii) in the periodic table	because	Fluorine and chlorine are halogens
43. When sulphurdioxide gas reacts with iron (iii) sulphate the solution turns from brown to green	because	Sulphurdioxide reduces iron (iii) ions
44. Ammonium chloride and iron (ii) chloride are separated by sublimation	because	Ammonium chloride and iron (ii) chloride are both soluble in water
45. Ethene does not react with bromine liquid	because	Ethene 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 the correct answer according to the following

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 of the following is used to soften permanent hard water

1 Sodium carbonate

2 Boiling

3 Sodium resin

4 Calcium hydroxide

47. Which of the following is a use (s) of hydrogen gas?

1 Manufacture of methane

2 Harding of oils

3 Making of water

4 Filling balloons

48. In which of the following reactions is concentrated sulphuric acid acts as an oxidizing agent

1 With sucrose

2 with carbon

3 With $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

4 with carbon

49. Which of the following are compounds?

1 Water

2 Air

3 Ink

4 Hydrogen

50. The following are formed when lead (ii) nitrate is strongly heated

1 PbO

2 O_2

3 NO₂

4 NO

END