

Name:Index No.....

Signature: School:

545/1

Chemistry

Paper 1

July/August 2019

1½ hours

BUGANDA EXAMINATION COUNCIL MOCKS

Uganda Certificate of Education

CHEMISTRY

PAPER 1

1HOUR 30 MINUTES

INSTRUCTIONS TO CANDIDATES:

- This paper consists of 50 objective questions.
- Answer all questions
- You are required to write the correct answers A, B, C and D in the box on the right hand side of each question.
- Do not use a pencil.

For Examiners Use Only

- 11

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7

- 11

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- 10

- 11

- 11

10. A solution of hydrogen chloride in dry methylbenzene will
- A. liberate hydrogen with magnesium
 - B. form a white precipitate with silver nitrate solution
 - C. liberate carbon dioxide with sodium hydrogen carbonate
 - D. not conduct an electric current

☐

11. Nitrogen reacts with hydrogen according to the following equation

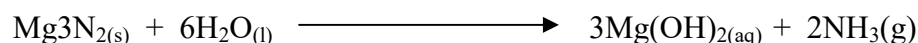


If 15cm^3 of nitrogen and 50cm^3 of hydrogen are reacted, the volume of the residual gas is

- A. 5cm^3
- B. 30cm^3
- C. 35cm^3
- D. 65cm^3

☐

12. Magnesium nitride can react with water to form ammonia according to the following equation



If 6.7dm^3 of ammonia measured at s.t.p was produced when magnesium nitride reacted with water, the mass of magnesium nitride that reacted is

(H = 1, N = 14, Mg = 24; 1 mole of a gas occupies 22.4dm^3 at s.t.p)

- A. 29.91g
- B. 14.96g
- C. 0.07g
- D. 6.69g

☐

13. Which one of the following is not an alloy of copper?

- A. brass
- B. bronze
- C. solder
- D. duralumin

☐

14. Which one of the following gases is an oxidizing agent?

- A. Cl_2
- B. H_2
- C. CO
- D. NH_3

☐

15. The solution of this compound in water will stop lathering of soap unless the water is boiled first

- A. MgSO_4
- B. $\text{Mg}(\text{HCO}_3)_2$
- C. MgCl_2
- D. $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$

☐

16. When lead (II) nitrate solution was added to an aqueous solution of a compound X, and the mixture heated, a white precipitate appeared which dissolved on heating. Compound X was
- A. hydrochloric acid B. sodium sulphate
C. potassium carbonate D. ammonium iodide
17. The reaction of dilute nitric acid with most metals does not produce hydrogen gas because nitric acid is
- A. a weak acid B. a volatile acid
C. a monobasic acid D. a strong oxidizing agent
18. Hydrogen peroxide decomposes to produce oxygen. Identify the combination(s) under which the rate of production of oxygen would be made fast
- A. 2M H_2O_2 at room temperature
B. 2M $\text{H}_2\text{O}_2 + \text{MnO}_2$ heated to 35°C
C. 1M H_2O_2 heated to 35°C
D. 1M $\text{H}_2\text{O}_2 + \text{MnO}_2$ at room temperature
19. Which one of the following is NOT an industrial method of preventing rusting?
- A. alloying B. greasing
C. galvanizing D. electroplating
20. The formula of the chloride of metal M is MCl_3 . The formula of the sulphate of M is
- A. MSO_4 B. M_2SO_4
C. $\text{M}_2(\text{SO}_4)_3$ D. $\text{M}_3(\text{SO}_4)_2$
21. 6.5g of zinc powder reacted completely with 18.50cm^3 of a monobasic acid. The molarity of the acid is ($\text{Zn} = 65$)
- A. $\frac{6.5 \times 1000}{65 \times 18.5}$ B. $\frac{18.5 \times 1000}{65 \times 6.5}$
C. $\frac{1000 \times 18.5 \times 65}{6.5}$ D. $\frac{6.5 \times 65}{1000 \times 18.5}$
22. The number of moles of sodium ions in 100cm^3 of a 2M sodium carbonate solution is
- A. 0.2 B. 0.4
C. 2.0 D. 4.0
23. Which one of the following salts can be prepared by neutralization?
- A. calcium sulphate B. ammonium sulphate
C. lead (II) sulphate D. zinc sulphate

24. Iron can be extracted from the following ores except
- | | |
|--------------|-----------------|
| A. rock salt | B. haematite |
| C. magnetite | D. spathic iron |

☐

25. Carbon monoxide reacts with hydrogen according to the equation
- $$\text{CO(g)} + 2\text{H}_2\text{(g)} \longrightarrow \text{CH}_3\text{OH}_{(l)} \quad \Delta H = +91\text{KJmol}^{-1}$$

What mass of carbon monoxide would cause a heat change of +45.5KJ?

(C = 12, O = 16)

- | | |
|----------|----------|
| A. 2.0g | B. 14.0g |
| C. 16.0g | D. 28.0g |

☐

26. An example of a non-biodegradable substance is
- | | |
|-----------------------|----------|
| A. silk | B. wool |
| C. polyvinyl chloride | D. paper |

☐

27. Sodium carbonate powder was placed in each of the four beakers containing a sodium salt solution. Bubbles of gas were observed immediately in one of the beakers. The beaker contained

- | | |
|--------------------|-----------------------------|
| A. sodium chloride | B. sodium sulphate |
| C. sodium nitrate | D. sodium hydrogen sulphate |

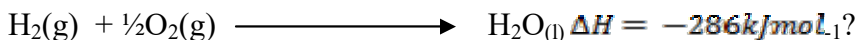
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28. On warming sodium hydroxide with compound X, a gas that turned moist red litmus blue was produced. X could be

- | | |
|---------------------|----------------------|
| A. ammonium nitrate | B. aluminium nitrate |
| C. calcium nitrate | D. zinc nitrate |

☐

29. Hydrogen burns in air according to the following equation



(1 mole of a gas occupies 22.4dm³ at s.t.p).

What volume of hydrogen measured at s.t.p will burn to produce 28.6kJ?

A. $\frac{22.4 \times 28.6}{286}$

B. $\frac{1}{2} \times \frac{22.4 \times 28.6}{286}$

C. $\frac{286}{22.4 \times 28.6}$

D. $\frac{2 \times 22.4 \times 28.6}{286}$

☐

30. Which one of the following nitrates does not give off brown fumes when heated?

A. sodium nitrate

B. magnesium nitrate

C. calcium nitrate

D. barium nitrate

11

31. 1.22g of phosphorous combined with 0.95g of oxygen. The simplest formula of the oxide is (P = 31, O = 16)

A. P_4O

B. P_3O_2

C. P_2O_3

D. P_5O_{10}

10

32. The voltage recordings of aqueous solutions of ammonia, sodium hydroxide, potassium hydroxide and calcium hydroxide were separately taken. The solution which showed the lowest voltage recording was

A. potassium hydroxide

B. sodium hydroxide

C. calcium hydroxide

D. ammonium hydroxide

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33. Which one of the following hydroxide is soluble in aqueous ammonia?

A. $\text{Al}(\text{OH})_3$

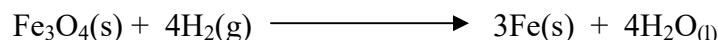
B. $\text{Fe}(\text{OH})_2$

C. $\text{Pb}(\text{OH})_2$

D. $\text{Cu}(\text{OH})_2$

7

34. Tri iron tetra oxide can be reduced by hydrogen according to the following equations



The mass of iron that would be formed when 10.5g of Tri iron tetra oxide is reduced by hydrogen is? (Fe = 56, O = 16)

A. $\frac{3 \times 10.5 \times 56}{232}$

B. $\frac{3 \times 10,5 \times 232}{56}$

C. $\frac{10.5 \times 56}{3 \times 232}$

D. $\frac{232 \times 56}{3 \times 10.5}$

10

35. The bleaching action of moist chlorine is best explained by

A. the high reactivity of the element

B. the fact that it is an oxidizing agent

C. the fact that hypochlorous acid easily gives up its oxygen

D. the fact that chlorine combines so readily with hydrogen

11

36. Which one of the following oxides will form a metal when heated with aluminium?

A. $\text{K}_2\text{O}(\text{g})$

B. MgO

C. Na_2O

D. PbO

10

- | | | | | |
|-----|--|----------------|--|--------------------------|
| 41. | Nitrogen dioxide diffuses faster than carbon monoxide | Because | nitrogen molecules are mono atomic | ☐ |
| 42. | Sodium chloride is added to a mixture of fats or oils and sodium hydroxide solution during saponification. | Because | sodium chloride is a normal salt | ☐ |
| 43. | The yield of carbondioxide prepared from calcium carbonate reacting with dilute sulphuric acid is generally low. | Because | dilute sulphuric acid does not dissociate completely | ☐ |
| 44. | Chlorine bleaches moist litmus paper | Because | Chlorine is a reducing agent | ☐ |
| 45. | Copper (II) hydroxide is insoluble in excess aqueous ammonia | Because | Aqueous ammonia is a weak base | ☐ |

In each of the questions 46 – 50 one or more of the answers given may be correct. Read each question carefully and then indicate 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. | Pure zinc chloride may be prepared by | |
| | 1. neutralizing dilute hydrochloric acid with zinc metal | |
| | 2. heating the zinc oxide in dry chlorine | |
| | 3. neutralizing dilute hydrochloric acid with zinc carbonate | |
| | 4. heat zinc metal with dry chlorine | ☐ |
| 47. | A white precipitate will result when aqueous magnesium sulphate is added to an aqueous solution of | |
| | 1. ammonium nitrate | |
| | 2. lead (II) nitrate | |
| | 3. sodium chloride | |
| | 4. sodium carbonate | ☐ |

48. Which of the following compounds when dissolved in the solvent indicated will form a solution(s), which is/are an electrolyte(s)?

1. hydrogen chloride in aqueous ammonia
2. ethanol in water
3. nitrogen dioxide in water
4. hydrogen chloride in methyl benzene

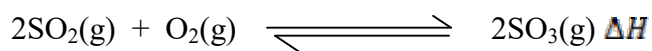
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49. During the manufacture of sodium from sodium chloride, the following substance(s) is/are also produced

1. sodium hydroxide
2. oxygen
3. hydrogen
4. chlorine

☐

50. Sulphurdioxide is converted to sulphurtrioxide according to the following equation



The condition(s) that would favour the formation of ammonia is/are

1. low pressure
2. high pressure
3. high temperature
4. low temperature

☐

END