Name:	Index No
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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.
- o 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.



1.	Which one of the following liquids is a mixture?				
	A.	ink	B.	water	
	C.	ethanol	D.	tetrachloro methane	
2.	The be	est method used to ascertain the purity	of wate	er is to	
	A.	use litmus paper	B.	observe its appearance	
	C.	determine its boiling point	D.	determine its electrical conductivity	
3.	Which	one of the following carbon compound	nd will	most likely burn to give a thick soot?	
	А.	CH4	B.	С2Н2	
	C.	C_2H_6	D.	CH ₃ OH	
		(H = 1, C = 12, O = 16)			
4.	Which	one of the following nitrates when he	eated w	ould decompose to give a metal as	
	residue	e?			
	A.	silver nitrate	B.	potassium nitrate	
	C.	lead (II) nitrate	D.	copper (II) nitrate	
5.	The ga	s which is easily detected by its smell	l is		
	A.	CO ₂	B.	HC1	
	C.	H_2S	D.	СО	
6	XX 71 · 1			1	
6.	Which bydroc	one of the following will occupy the rep $2(H = 1 N = 14 \Omega = 16 Cl = 354)$	same v $5 \cdot 1 \text{ mol}$	olume at s.t.p as 0.05 moles of $1 = 0.05 \text{ moles}$	
	Δ	$355g \text{ of } Cl_2$	R R	$3.20g \text{ of } \Omega_2$	
	C	$4.25 g \text{ of NH}_2$	D. D	$14.60 \text{ g of } \text{HC}^{1}$	
	C.	 23g 01 10113	D.	14.00g 01 1101	
7.	Which	one of the following processes deple	tes the v	volume of nitrogen in the atmosphere?	
	A.	Haber's process	B.	plant decay	
	C.	thunder storm	D.	Denitrification	
8.	The so	dium salt that will form a precipitate	with aci	idified barium chloride solution is	
	A.	Na ₂ CO ₃	B.	Na ₂ SO ₃	
	C.	Na ₂ SO ₄	D.	Na ₂ S	
9.	Which	one of the following polymers is a na	atural po	olymer?	
	A.	polyethene	B.	polyester	
	C.	Nylon	D.	silk	

- 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
- Nitrogen reacts with hydrogen according to the following equation 11.

 $N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$

If 15cm³ of nitrogen and 50cm³ of hydrogen are reacted, the volume of the residual gas is

- A. 5cm^3 B. 30cm^3 35cm^3 C. D. 65cm^3
- Magnesium nitride can react with water to form ammonia according to the following 12. equation

 $Mg3N_{2(s)} + 6H_2O_{(l)}$ $\longrightarrow 3Mg(OH)_{2(aq)} + 2NH_3(g)$

If 6.7dm³ 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 22.4 dm³ at s.t.p)14.96g A. 29.91g B. 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. NH₃
- 15. The solution of this compound in water will stop lathering of soap unless the water is boiled first

A.	MgSO ₄	B.	$Mg(HCO_3)_2$
C.	MgCl ₂	D.	Na ₂ CO ₃ .5H ₂ 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. $2M H_2O_2 + MnO_2$ heated to $35^{\circ}C$
 - C. $1M H_2O_2$ heated to $35^{\circ}C$
 - D. $1M H_2O_2 + MnO_2$ at room temperature
- 19. Which one of the following is NOT an industrial method of preventing rusting?
 - A. alloyingB. greasingC. galvanizingD. electroplating

20. The formula of the chloride of metal M is MCl₃. The formula of the sulphate of M is

A.	MSO ₄	В.	M_2SO_4

 $C. \qquad M_2(SO_4)_3 \qquad \qquad D. \qquad M_3(SO_4)_2$

21. 6.5g of zinc powder reacted completely with 18.50 cm^3 of a monobasic acid. The molarity of the acid is (Zn = 65)

A.	6.5×1000	D	18.5 x 1000
	65 <i>x</i> 18.5	в.	65 x 6.5
C	1000 x 18.5 x 65	Л	6.5 x 65
C.	6.5	D.	1000 x 18.5

22.The number of moles of sodium ions in 100cm3 of a 2M sodium carbonate solution is
A. 0.2
C. 2.0B. 0.4
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 $CO(g) + 2H_2(g) \longrightarrow CH_3OH_{(1)} \Delta H = +91KJmol^{-1}$

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

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

A.	ammonium nitrate	В.	aluminium nitrate
C.	calcium nitrate	D.	zinc nitrate

29. Hydrogen burns in air according to the following equation

 $H_2(g) + \frac{1}{2}O_2(g) \longrightarrow H_2O_{(1)}\Delta H = -286k/mol_1?$

(1 mole of a gas occupies 22.4dm^3 at s.t.p). What volume of hydrogen measured at s.t.p will burn to produce 28.6kJ?

A.
$$\frac{22.4 \times 29.6}{286}$$

B. $\frac{1}{2} \times \frac{22.4 \times 29.6}{286}$
C. $\frac{286}{224 \times 29.6}$
D. $\frac{2 \times 22.4 \times 29.6}{286}$





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

A. sodium nitrate

C.

- B. magnesium nitrate
- calcium nitrate D. barium nitrate
- 31. 1.22g of phosphorous combined with 0.95g of oxygen. The simplest formula of the oxide is (P = 31, O = 16)

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 hydroxideB. sodium hydroxideC. calcium hydroxideD. ammonium hydroxide
- 33. Which one of the following hydroxide is soluble in aqueous ammonia?

A.	Al(OH) ₃	В.	$Fe(OH)_2$
C.	Pb(OH) ₂	D.	Cu(OH) ₂

34. Tri iron tetra oxide can be reduced by hydrogen according to the following equations $Fe_3O_4(s) + 4H_2(g) \longrightarrow 3Fe(s) + 4H_2O_{(l)}$

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.	3 x 10.5 x 56	В	3 x 10.5 x 232
	232	D.	56

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

- 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

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

A.	$K_2O(g)$	В.	MgO
C.	Na ₂ O	D.	PbO











37. The gas that turns brown when exposed in air from the following list is

A.	sulphurdioxide	В.	hydrogen chloride
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C. hydrogen sulphide D. nitrogen monoxide

38. When 3.0g of X was heated, 210cm³ of a gas were evolved at s.t.p and 2.4g of solid remained. The relative molecular mass of the gas is (1 mole of gas occupies 22.4dm³ at s.t.p)

- A. $\frac{0.6 \times 22400}{210}$ B. $\frac{3 \times 22400}{210}$ C. $\frac{2.4 \times 22400}{210}$ D. $\frac{5.4 \times 22400}{210}$
- 39. Which one of the following is not a property of carbon?
 - A. it conducts electricity
 - B. it reduces iron (III) oxide
 - C. it burns in air to form a basic oxide
 - D. it shows allotropy
- 40. When a concentrated solution of sodium bromide is electrolysed, the cathode and anode products respectively are

A.	Na, Br ₂	В.	H_2, O_2
C.	H ₂ , Br ₂	D.	Na, O ₂

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

- A. if both the assertion and the reason are <u>true</u> statements and the reason is a correct explanation of the assertion.
- B. if both the assertion and the reason are <u>true</u> statements but the reason is not a correct explanation of the assertion
- C. if the assertion is <u>true</u> but the reason is not a correct statement.
- D. if the assertion is <u>not</u> correct but the reason is a correct statement

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

INSTRUCTIONS SUMMARISED

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
- 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

 $2SO_2(g) + O_2(g) \longrightarrow 2SO_3(g) \Delta H$

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



