PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

GEITA ADVENTIST SECONDARY SCHOOL

FORM FOUR HOLLIDAY PACKAGE 27TH APRIL 2020

CHEMISTRY

Instructions

1. This paper consists of sections **A, B** and **C**
2. Answer **all** questions in section A and B and only one question in section C
3. Ce**ll**ular phones and any verbal communications are not allowed in the examination room
4. A**l** drawings should be in pencil**.**
5. The following constants may be used.

Atomic masses:

H=1,C=12,Na=23,Cu=64,Mg=24,O=16,N=14,Ag=108,Al=27,Cl=35.5,S=32,Ca
=40

Avogadro's number=$6.02x10^{23}$ Gram molecular volume=$22.4dm^3$

1F=96500 coulombs 1Litre=$1000cm^3$=$1dm^3$

SECTIONA :(15marks)

Answer al Questions in this section

i. For each of the following items (i)–(x) choose the most correct answer among the alternatives given and write its letter.

i) Whenammoniumsulphatesaltreactswithcalciumhydroxideitresultsintotheformation of

A. Ammonia gas and hydrogen gas
B. Calcium Sulphate and nitrogen gas
C. Ammonia and water
D. Water and calcium metal
E. Ammonia and calcium hydroxide.

ii) What volume of hydrogen sulphide gas is formed when 2.8 g of sulphur combines with Hydrogen gas in a special chamber (at S.T.P)?A.1.89dm3 B.1.956dm3 C.1.9dm3 D.22.4dm3 E.1.96dm3

iii) When a compound of zinc nitrate is heated strongly in a dry test during qualitative experiments a residue formed of zinc oxide is……

A. Ye**l**low when hot and red when cold.
B. Ye**l**low when hot and white when cold.
C. Ye**l**low when cold and white when hot.

D. Reddish brown when hot and yellow when cold.
E. Reddish brown when cold and yellow when hot.

iv) Mr. Gazaulole treated water for domestic use. Unfortunately the water remained hard on boiling and formed no lather with soap. Suggest the ions present in water.

A. $Ca^{2+}$and $HCO3^{-}$ B. $Ca^{2+}$and $CO3^{2-}$ C. $Mg^{2+}$and $HCO3^{-}$

v) 0.5m of 12cm^3 potassium hydroxide needed to react with 40cm^3 of 0.2M–HNO3.The resulting mixture wi**ll** be?

A.ofPH4 B.ofPH10 C. of PH7 D. of PH0 E. Neither of the above.

vi) Loose or flop clothing is not allowed in a chemistry laboratory simply because:-

A. Can cause poor ventilation of the body.
B. Can cause the students to move fast.
C. Can cause wet when waters plashes.
D. Can cause students to perform experiment easily.
E. Can cause fire on clothes.

vii) At a time when bromine is put together with ethane in a test tube and left over night in darkness room. What would be observed?

A. Methane and hydrogen bromide are formed.
B. Hydrogen bromide and Bromo ethane are formed.
C. There is no visible reaction.
D.Bromine water is de colourized.
E. Hydrogen bromide and bromo ethane are produced.

v**i**. One of the following represents electropositivity:-

A.$X+e \rightarrow X^{-}$ B.$X+e^{-} \rightarrow X^{+}$ C.$X+e^{-} \rightarrow X^{-}$
D.$X-e^{-} \rightarrow X^{+}$ E.$X+e \rightarrow X^{+}$

ix. Aluminum metal can be extremely extracted from it sore under the process….

A. Solvay process B.Frasch process C.Blast furnace
D.Bayer process E.Contact process

x. The reaction between sulphur dioxide gas and oxgen gas is represented by the fo**ll**owing equation:-
$SO_2(g)+O_2(g) \ V_2O_5 \ SO_3(g)+200KJ/mol.$

The reaction is:-
A. Exothermic B.Endothermic
C. Both Exothermic and Endothermic D.Positive change E. Reduction.

2. Match the items in **list A** with responses in **list B** by writing the later of the correct response beside the item number

LIST A	LIST B
(i) A pole through which electrons leave the internal circuit during electrolysis	A. $HNO_3 \rightarrow H^+ + NO_3^-$
(ii) Mass of a substance deposited by one mole of a substance during electrolysis is.	B. $HNO_3 \rightleftharpoons H^+ + NO_3^-$
(iii) Is given by mass deposited or liberated divided by a quantity of electricity passed through an electrode.	C. Electro chemical series
(iv) The quantity of electricity carried by one mole of electron during electrolysis.	D. Electro chemical reduction
(v) Catho de reaction.	E. Cu, Al, and Na.
	F. Al, Ca and K.
	G. Cathode
	H. Anode.
	I. Ions.
	J. Anions
	K. Electro chemical equivalent.
	L. Chemical equivalent.
	M. Electro planting.
	N. Electroplating
	O. $M^+ + e^- \rightarrow M$
	P. $M^- \rightarrow M + e^-$
	Q. 1Faraday
	R. Moles
	S. Chemical mass
	T. Faraday's First law.

SECTIONB: (70Marks)

Answer all questions provided in this part.

3. a) You are provided with different jars A, B and C containing Hydrogen gas, Carbon dioxide gas and oxygen gas respectively. What wi**ll** be observed if a glowing wooden splint is introduced in each of the jar above?

   b) Name the particles which make the nucleus of an atom and give their differences.

4. a) State why the method of obtaining sulphuric acid is known as "CONTACT PROCESS"?

   b) During the preparation of carbon dioxide gas in the laboratory, the following chemicals are used; Dil. HCl, $CaCO_3$, $NaHCO_3$and$CaCl_2$.

      i. State the role played by $CaCO_3$,Na HCO_3 and $CaCl_2$ in the preparation experiment above.

      ii. Explain the method of gas co**ll**ection.

      iii. Write a balanced ionic equation showing the above preparation reaction of Carbon dioxide gas.

5. a) i) State the second law of electrolysis..

      i) 0.2 Fo felectricity, is passed through a solution of dilute sulphuric acid during electrolysis. Calculate the mass and volume of hydrogen gas liberated

   b) Al**l** hygroscopic substances are deliquescent but not a**ll** deliquescent substances are hygroscopic. Explain.

6. a) With an example give the meaning of the following terms:-

      i) Additional reaction. **i**) Functional group.

   c) Below are the names of organic compounds which are in correct according to the IUPAC nomenclature system. Write the structural formula and give the correct IUPAC name.

      i) 2–ethylpent–2–ene. **i**)Tetramethylmethane.

7. a) i) Differentiate dependent variable from independent variable.
Draw the chemical warning sign which can be found on the bottles, one containing uranium and the other containing hydrogen peroxide

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b) Mr. Mpasa mathematician entered in a chemistry laboratory and saw some pieces of Coalinapyrex test tube. He covered the mouth of apyrex test tube and heated the pieces of coal for sometimes. Unfortunately he observed some changes of which were not common to him. As a young Chemist student help Mr. Mpasa to name the products he observed.

8. a) Define the following terms:-
i)Equivalent point. **i**)Titre volume.

b) 20cm3 of metal hydroxide (MOH) containing 4.8g/dm3 react completely with 23 cm3of HCl acid containing 3.8g/dm3. Identify the metal Min MOH- hydroxide.

9. a) Draw and label wel**l** the energy level diagram for:-
i) Exothermic reaction **i**) Endothermic reaction.

b) Give the IUPA C names of the following binary ionic and covalent compounds.
i) N2O **i**) PbO2 **i**) Cu2S.

10. a) With the aid of a balanced chemical equation show what wi**ll** happen if:-
i) Potassium metal reacts with cold water.
i) Magnesium foil reacts with carbon dioxide.
i) Glucose reacts with concentrated sulphuric acid.
iv) Sulphur reacts with concentrated nitric acid.

b) State the environmental effect of using charcoal and wood as the main source of fuels (3points).

11. a) i) What do you understand by FIREFIGHTING?
Mention any four (4) roles played by an individual in firefighting in our daily life.

b) State the role of combustion in our life

12. Mr. Nurdin's daughter was sick. When he took her to the hospital she was prescribed some

Medicine including the bottle of syrup. The bottle was written “shake before use”. What does this statement signify?

(b) Dilute nitric acid was added to a green solid P a blue solution Q was formed and a gas R that forms a white precipitate with lime water was formed. The blue solution was evaporated to dryness and then strongly heated in a crucible. This resulted to formation of a black solid S, reddish-brown fumes of gas. Tanda gas that relights a glowing splint were formed.

(i) Identify Solids P and S.

(i) Identify Gases R and T.

(i) Write an equation for the reaction between solid P and dilutenitric acid.

SECTION C)
(Answer all questions)

13.(a)By stating the condition whenever possible and writing the chemical equation for each, describe how Methane reacts with

(i) Air(oxygen gas)

(i) Chlorine

(b)Write the structural formula or name the following organic compounds

(i) 4-Ethyl-2,6-dimethylheptane

(i) 1,2-Dichloro-2-methylnonane

(c)An acidic compound has the following composition

C=56.6%,H=9.1%andO=36.3%.

i)What is the simplest formula for this compound?

ii) If the molecular weight of the compound is 88 what is the molecular formula?

iii) Give two possible structural formula for the compound and name them

14.By help of chemical equations, explain the extraction of Iron metal from its common ore