**KYANIKA SECONDARY SCHOOL**

**END OF TERM 1 EXAMS-2017**

**FORM THREE CHEMISTRY**

**NAME………………………………………..ADM……….CLASS…………..**

**Instructions: Answer all the questions.**

1. (a)What is Isomerism? (1mk)

(b)Draw and name two isomers of butane. (2mks)

1. A student wants to find out whether a ballon would burst. The ballon can hold a maximum of 1000cm3 of air. The ballon contains 980cm3 of air at 100c.Will the ballon burst if the student enters into a room with a temperature of 250c ,assume the pressure of the air remains constant. (3mks)
2. When 0.288g of an oxide o f metal M was reduced using a suitable reducing agent,0.256g of the pure metal was formed. Determine the empirical formula of the metal oxide.(Relative Molecular Mass of 64) (3mks)
3. 30cm3 of 0.06M sodium hydroxide reacted with 25cm3 of a dibasic acid HOOC(CH2)XCOOH containing 4g/litre.Calculate the value of x. (4mks)
4. An organic compound contain carbon and hydrogen only. When the compound was completely burnt in excess air it gives 9.6g of carbon (vi) oxide 4.9g of water vapour. The molecular mass of the hydrocarbon is 58. Determine the molecular formular.(C=12,O=16,H=1)(3mks)
5. Using dots (.)and crosses to represent outermost electrons draw diagrams to show the bonding in CO2 and H3O+ (Atomic numbers ;H=1,C=6 and O=8) (3mks)
6. Distinguish between a deliquescent and a hygroscopic substance.(2mks)
7. The grid below shows parts of the periodic table. Use it to answer the questions that follow. The letters do not represent actual symbols.

(a)Which of the elements has the highest atomic radius? Explain (2mks)

(b)Identify the most reactive non-metal. Explain (2mks)

(c)Compare the atomic radius of P and R. (1mk)

(d) Give the formula of one stable ion with an electron arrangement of 2.8 which is;(2mks)

1. Negatively charged divalent ion
2. Positively charged monovalent

(e) Given that the mass number of w is 40. Write down the composition of its nucleus.(1mk)

(f)Write the formula of compounds formed between R and X and one property of the structure formed between R and X.(2mks)

1. Name the method that can be used to separate each of the following substances.(3mks)
   1. kerosene and water
   2. iodine from aqueous solution
   3. A mixture of diesel and petrol
2. The diagram below shows a paper chromatogram of two sugars X and Y. study it and answer the questions that follow.
3. State one property of x that makes it faster than y towards the solvent front.(2mks)
4. State **two**  factors that are necessary for the chromatogram above to form .(2mks)
5. Define the following terms.(3mks)
6. Element
7. Atomic number
8. Compound
9. Graphite is one of the allotropes of carbon (1mk)

(a)Name one other allotrope of carbon.(1mk)

(b)Explain why graphite is used in making of pencil leads.(2mks)

1. Give the IUPAC name for the following compounds.(2mks)
2. CH3CHCH2CH2CH3

CH3

CH3

1. CH3CCH2CH2CH3

CH3

1. Distinguish between thermal and catalytic cracking of alkenes.(2mks)
2. State  **two** types of isomerism in alkenes.(2mks)
3. Use the follow chart to answer the following questions.

STEP I

H2SO4(l)

Colourless gas A

O2

Gas D+ Liquid E

1600-1800 heat

Ethanol

STEP III

HCL

STEP II

Product B

Ethane

1. Name
2. Colorless gas A\_\_\_\_\_\_\_\_\_\_
3. product B\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Gas D\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Liquid E\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Write balanced equations for each of the reaction forming the products in (a)(2mks)

1. Name the type of reactions taking in;(2mks)

(i)Step I

(ii)Step II

1. State the importance of the reaction taking place in step II.(2mks)