HEIGHTS SECONDARY SCHOOL –THIKA
END OF YEAR EXAMINATION 2016
FORM THREE CHEMISTRY
21/2hrs

NAME…….

ADMISSION NO……DATE……/……/…….SIGNATURE……..

Answer All Questions (100 marks)

1. **State the boyles law of gases. (2mks)**

2. **A certain masses of gas occupies 250cm^{3}at 25^{0}C and 750 mmHg .Calculate its volume at 25^{0}C if pressure changes to 760mmHg. (3mks)**

3. **A compound of carbon hydrogen and oxygen contain 54.55% carbon and 9.0% hydrogen and 36% oxygen. If its relative molecular mass is 88(C=12 O=16 H=1)**
   a) Calculate its empirical formula (3mks)

   b)What is its molecular formula ? (2mks)

4. **Determine the number of moles in the 25cm^3 of 2M Hcl. (2mks)**

5. **A) State gay lussacs law.** **(2mks)**

b)In an experiment $10cm^3$ of oxygen reacts with sulphur (vi)oxide, according to the equation ,

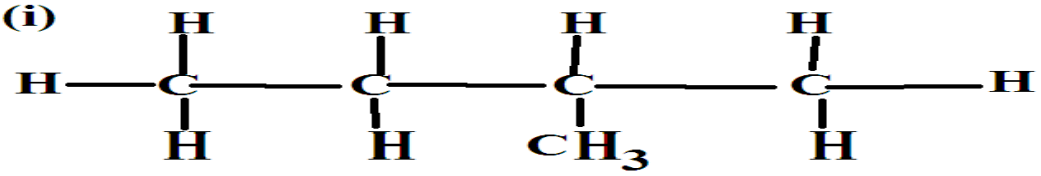
$So_{2\,(g)} + O_{2\,(g)} \rightarrow So_{3\,(g)}$

What is the volume of so_2 used and so_3 produced. **(2mks)**

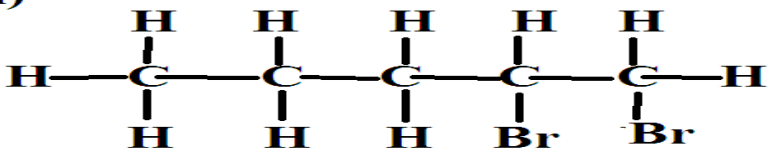
6. **A) Define the term hydro carbon.** **(2mks)**

b) Name the following compounds .

(i)



(ii)



7. **Draw the structural formula of each of the following. Compounds.**
   a) 2-Methyl Heptane **(2mks)**

   b)2,2,4-Trimethyl pentane **(2mks)**
8. **Draw and name the structures of isomers of pentane.** **(2mks)**

9. **Butane and Bromine reacts as shown below.**

$CH_3\ CH_2\ CH_2\ CH_3 + Br_2 \longrightarrow CH_3\ CH_2\ CH_2\ Br + HBr$

A) Name the type of reaction taking place . in the equation above. **(1mk)**

b)State the condition under which the above reaction take place. **(1mk)**

c) State three uses of alkanes . **(3mks)**

10. **Explain why alkenes burn in the air with a yellow sooty flame unlike alkanes** **(2mks)**

11. **Complete the reaction below and give the name of the product formed.**

(i) $CH_2=CH_2 + Br_2 \longrightarrow$

(2mks)

(ii) $CH_2=CH_2 + Hbr \longrightarrow$

(2mks)

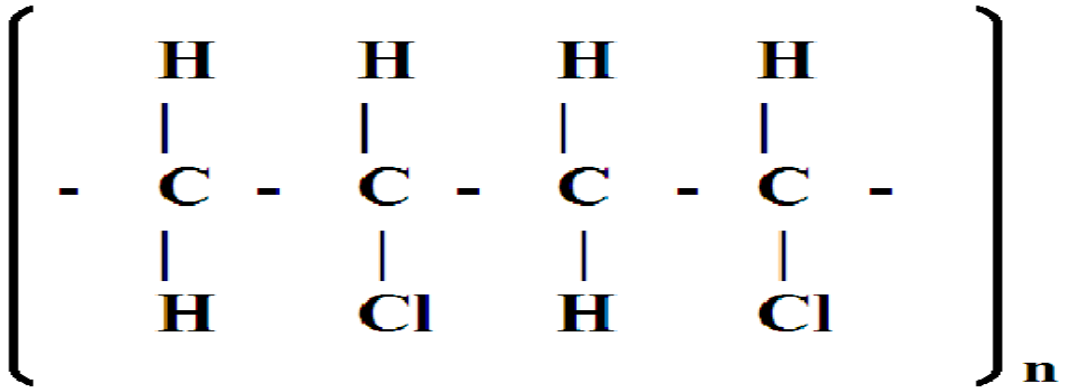
12. $CH_2=CH_2 + H_2 \xrightarrow[y]{x}$ **Product A**

a) Name product A **(1mk)**

b) Name condition x and catalyst y.

(3mks)

13. **The following structure represents part of a polymer.**

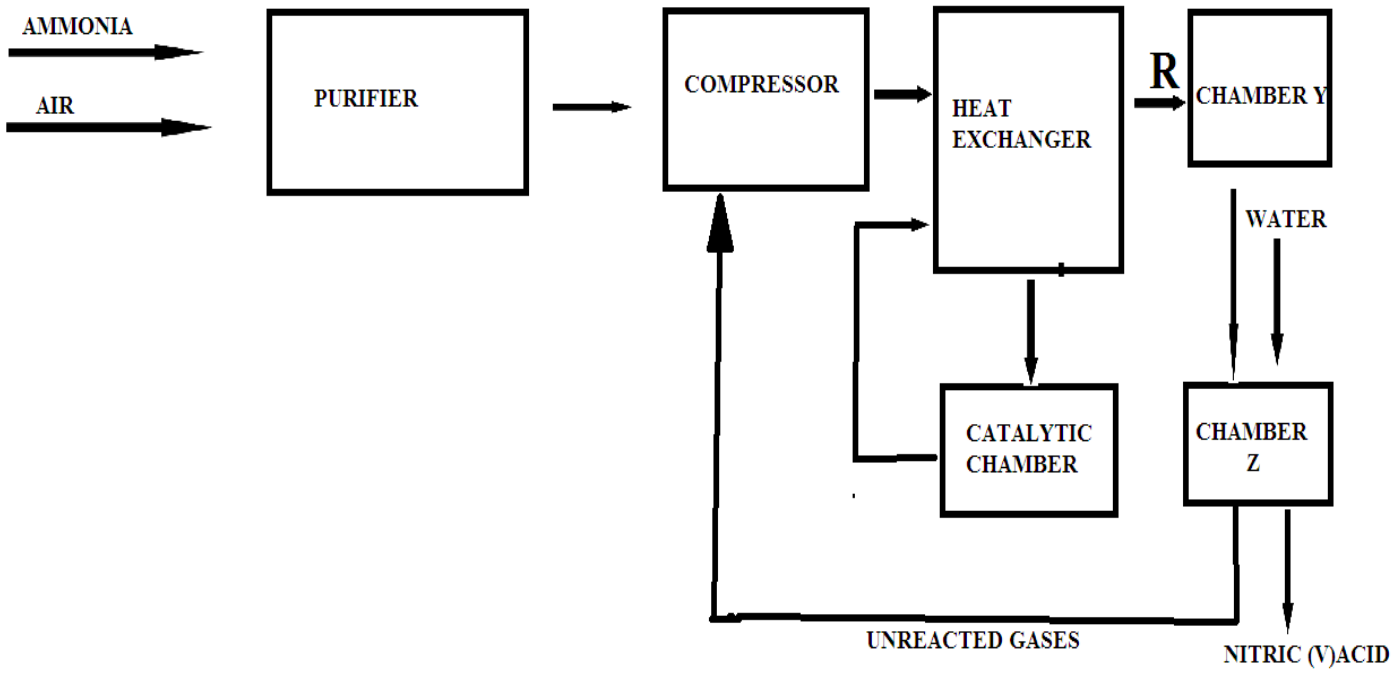


a)Identify and draw the structure of the repeat unit. **(3mks)**

b)Name the monomer. **(1mk)**

c)What is the name of the polymer. **(1mk)**

14. **The following is the flow chart that shows the industrial preparation of nitric(v)acid**



a) What happens in the heat exchanger? **(2mks)**

b)Write the equation of the reaction that take place in the catalytic chamber and name the catalyst (2mks)

c) What happens in chamber Y? (2mks)

d) How is the required temperature in the process maintained ? (2mks)

e)Write an equation of the overall reaction that takes place at chamber Z. (2mks)

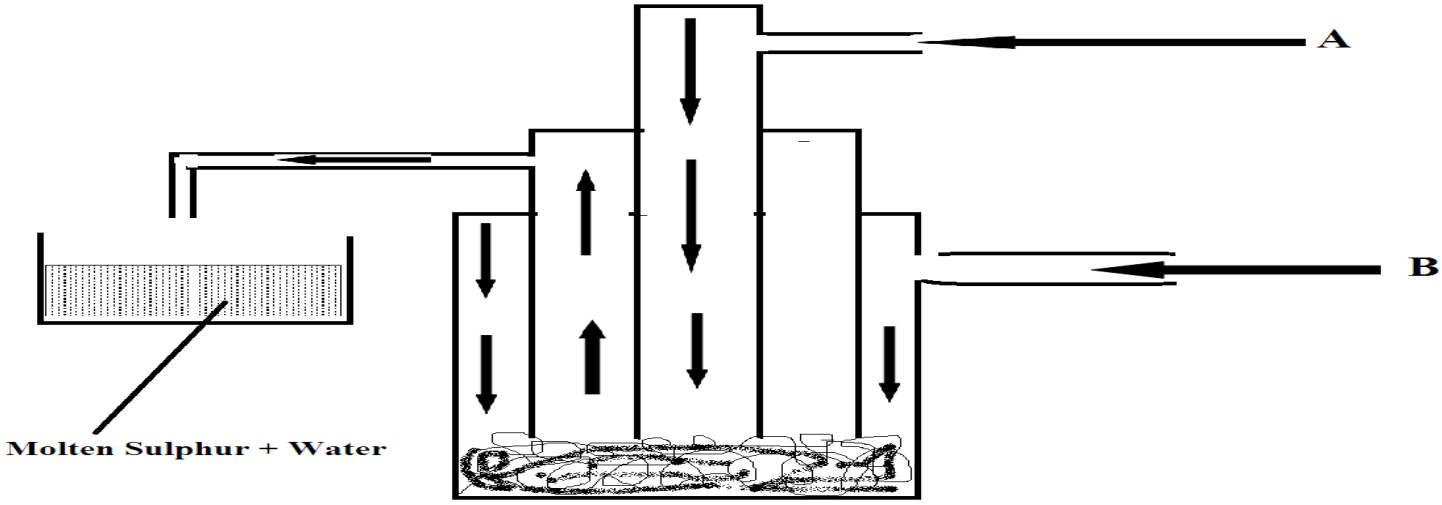
f) The final product in the process contains 65% of NITRIC (V)acid how is the concentration of nitric(v)acid increased? (2mks)

g) It is important to purify gases before reacting them .give a reason. (1mk)

h)Identify the possible impurities which are eliminated in the purifier. (2mks)

15. **Name two sources of sulphur. (2mks)**

b)The diagram below shows extraction of sulphur set-up.



a) What is the name of the process? **(1mk)**

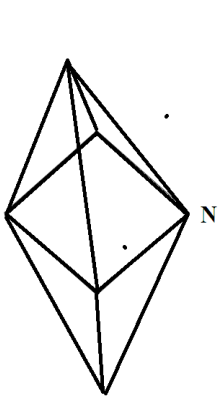
b)Name the materials that passes through part marked **(2mks)**
A

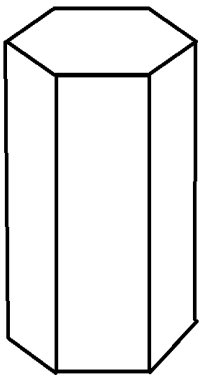
B

c)State the role of the substances that passes through parts . **(2mks)**
A&B

d) (i) Define the terms allotropes . **(2mks)**

ii) Name two allotropes of sulphur shown below.





N_____**M**_____ **(2mks)**

iii) State four uses of sulphur. **(4mks)**

iv)Explain how sulphur (iv)oxide bleaches **(3mks)**

16. **Give two uses of each allotropes of carbon.**

i) Diamond

ii) Graphite.

(4mks)

17. **List four uses of carbon (iv)oxide gas.**

(4mks)

18. **The tables below gives the products of electrolysis of different electrolytes complete it.**

Electrolytes	Observation at the	
	Carthode(-)	Anode(+)
Molten calcium bromide	A	B
C	Potassium	Chlorine
Molten sodium chloride	D	E
F	Lead	Bromine
Molten potassium iodide	G	H

(6mks)