

NAME.....ADM NO.....CLASS.....

GATITU GIRLS' SECONDARY SCHOOL

CHEMISTRY PAPER 1 FORM 3 TERM TWO YEAR 2016

INSTRUCTIONS

1. Write your name ,admission number and class in the spaces provided above .
2. Answer all the questions in the spaces provided .
3. Mathematical tables and electrical calculators may be used .
4. All workings must be shown where necessary .

1. The pH values of some solutions labelled A to E are given in the table below. Use the information to answer the questions that follow.

pH	14.0	1.0	8.0	6.5	7.0
solution	A	B	C	D	E

a) identify the solution with the highest concentration of hydroxide ions .Give reason for your answer.(2mks)

b) Which solution can be used as a remedy for the acid indigestion in the stomach(1mk)

c) Which solution would react with magnesium metal more vigorously .Explain(2mk)

2a) Define salt(2mks)

b) Complete the following table indicating whether salt is soluble/insoluble (3mks)

salt	Soluble/insoluble
Beryllium nitrate	
Lead(ii) nitrate	
Pottasium dichromate (iv)	

c) When nitrates of metals V, W and X were heated the products formed as indicated in the table

Name of the metal	PRODUCTS
V	Oxide of metal, nitrogen iv oxide and oxygen gas
W	Metal W ,nitrogen iv oxide and oxygen gas
X	Nitrite of metal, oxygen gas

i) Arrange the metals in order of reactivity starting with most reactive (1mk)

ii) Name one metal that is likely to be X(1mk)

3.a) State two differences between electrolyte and conductor

(2mk)

b) Graphite is a non-metal yet it conducts electric current. Explain

(1mk)

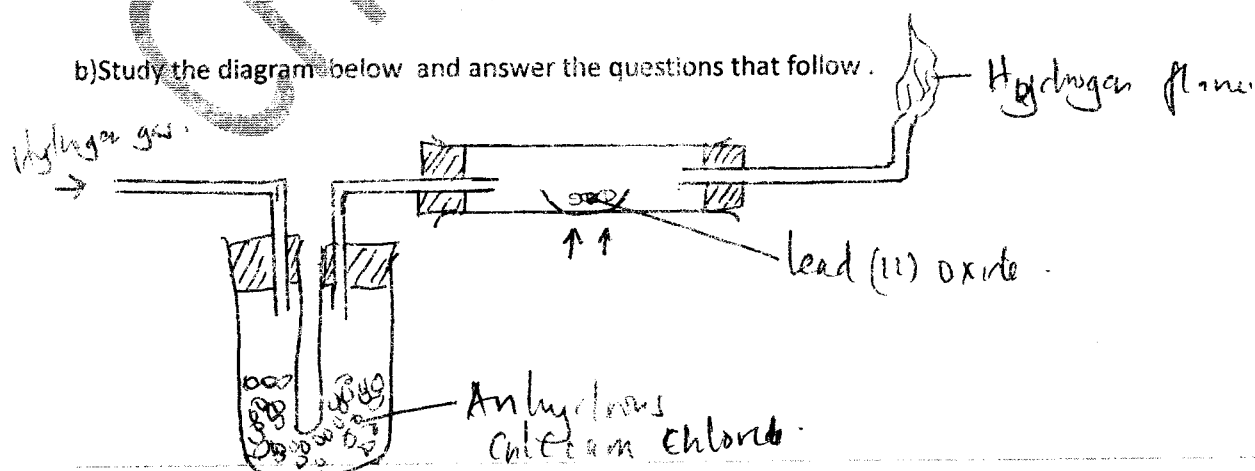
4.a) Outline four differences between luminous and non-luminous flame

(4mk)

b) State three reasons why most of laboratory apparatus are made of glass (3mks)

5.a) A certain liquid was suspected to be water. Describe two methods that can be used to show that the liquid is water (3mk)

b) Study the diagram below and answer the questions that follow.



i) Write an equation for the reaction that takes place in the combustion tube (1mk)

ii) What property of hydrogen makes this possible (1mk)

iii) What would you expect to happen, if sodium oxide, (Na_2O) was used instead of lead (ii)

oxide

(1mk)

6.a) Complete the table below

(4mks)

ELEMENT	CHEMICAL SYMBOL
Cobalt	
Sodium	
Manganese	
Iron	

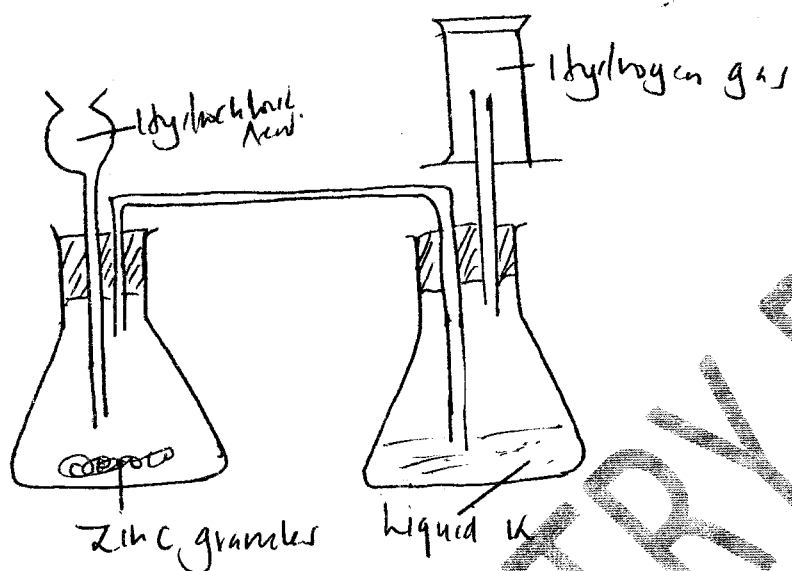
7.a) Differentiate between the terms atomic number and mass number. (2mks)

b) The table below shows the isotopic masses and corresponding % abundance of isotopes for X_1 , X_2 and X_3

ISOTOPE	X_1	X_2	X_3
ISOTOPIC MASS	24	25	26
% ABUNDANCE	82.8	8.1	9.1

Calculate the relative atomic mass of X (2mks)

8. The diagram below represents an arrangement for preparing and collecting dry hydrogen gas. Study it and answer the questions that follow



a) Write the equation for the reaction that produces hydrogen (1mk)

b) Name the suitable substance that liquid K is likely to be. (1mk)

c) Explain why it is not advisable to use concentrated nitric (v) acid as an alternative of hydrochloric in preparation experiment (1mk)

10. A piece of burning magnesium ribbon was lowered in gas jar full of chlorine gas.

a) State and explain the observation made (2mks)

b) Magnesium is considered to be malleable. What is the meaning of the word malleable (1mk)

11. Dry carbon (iv) oxide gas reacts with heated copper (ii) oxide as shown in the equation below .



a) Name the process undergone by copper II oxide (1mk)

b) Give a reason for your answer in (a) above (1mk)

12. The set up below was used to prepare nitric (v) acid in the laboratory

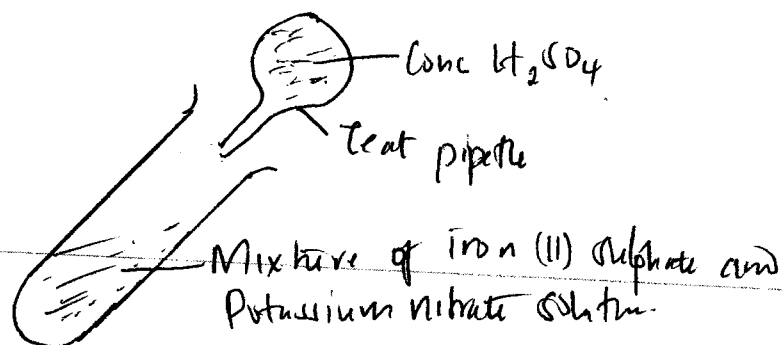


a) Name the mixture J (1mk)

b) Write an equation for the reaction that take place in apparatus Y (1mk)

c) Explain why nitric (v) acid produced appears yellow (1mk)

d) Concentrated sulphuric acid slowly added to a mixture of freshly prepared solution of iron (ii) sulphate and potassium nitrate is shown below



i) State the observation made (1mk)

ii) Identify the complex salt formed (1mk)

13. Use the table below to answer the questions that follow .

substance	Mpt °C	Solubility in water		
I	106	Insoluble	solid	molten
J	113	insoluble	conduct	conduct
K	402	Sparingly soluble	Does not	Does not
			Does not	Conduct when decomposed

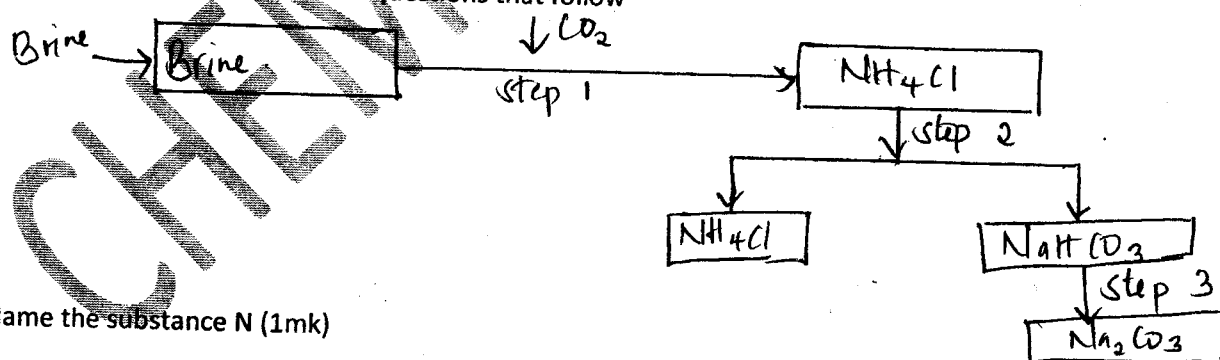
a) Suggest the type of structure in :

i) I (1mk)

ii) K (1mk)

b) Explain why molten K is decomposed to conduct electric current but I is not decomposed (1mk)

14. The flow chart below shows some of the stages in the manufacture of sodium carbonate in Solvay process. Use it to answer questions that follow



a) Name the substance N (1mk)

b) Name the process taking place in i) Step II

ii) Step III

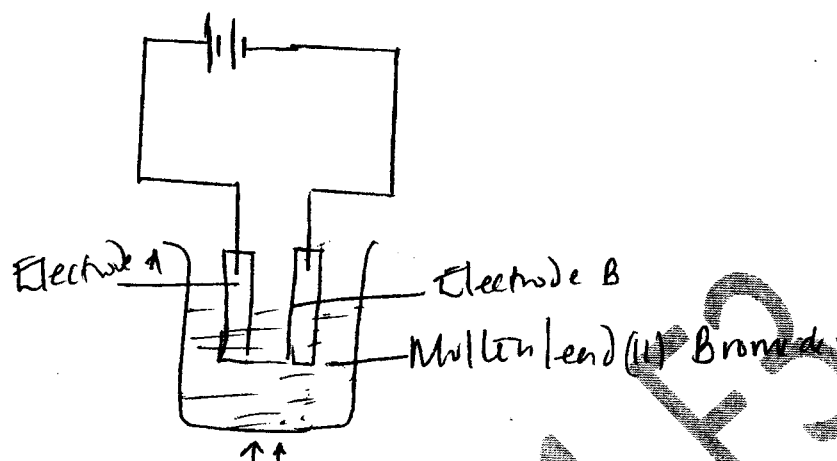
(1mk)

(1mk)

c) Write equation for the reaction producing sodium carbonate

(1mk)

15. Below is set-up of apparatus used to investigate the effect of electric current on molten lead (II) bromide.



a) Name electrode

i) A

(1mk)

ii) B

(1mk)

b) State the observation made at electrode A

(1mk)

c) Write an equation for the reaction taking place at electrode B

(1mk)

16. The table below shows some elements in the periodic table and their atomic numbers. The letters do not represent the actual symbol of elements.

ELEMENT	X	Y	Z	S	Q	T	
ATOMIC NO.	11	10	20	14	4	8	

a) From the letters of the elements select two elements with the same chemical properties.

(1mk)

b) Write the formulae of the compound formed when element S reacts with T

(1mk)

c) Identify the most stable element

(1mk)

17.a) What is the role of the following parts during fractional distillation of a mixture of water and ethanol.

i) Fractionating column

(1mk)

ii) Glass beads in the fractionating column

(1mk)

b) State one application of fractional distillation process

(1mk)

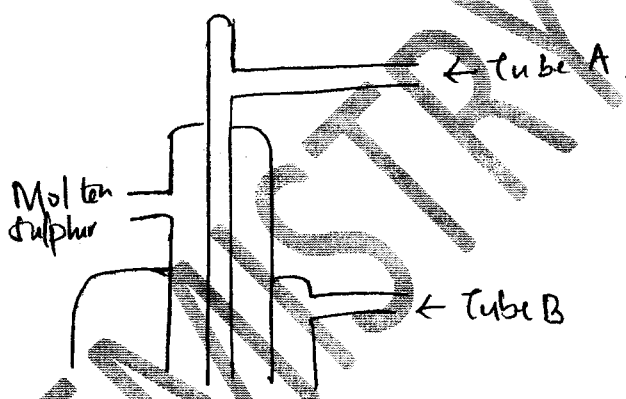
18. Give the reasons why dry ice (carbon iv oxide) is preferred in preservation of perishable foodstuffs (2mks)

19 .Identify particles responsible for the conductivity of electricity in the following substances

i) Molten calcium chloride (1mk)

ii) Graphite (1mk)

20. Sulphur is extracted by Frasch process .Study the diagram and answer the questions that follow .



a) Name substances that pass through

Tube A (1mk)

Tube B (1mk)

b) What is the purpose of the substance that passed tube A and the substance that pass through tube B in the extraction of sulphur

i) Substance A (1mk)

ii) Substance B (1mk)

c) What are allotropes (1mk)

d) Give two examples of allotropes of sulphur

(2mks)

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CHEMISTRY P1 E3