Name	Center/Index Number/
# 4 # 10	TNIOLAI

545/3 **CHEMISTRY** PRACTICAL Paper 3 AUGUST, 2023 2 hours



JINJA JOINT EXAMINATIONS BOARD

Uganda Certificate of Education

MOCK EXAMINATIONS - AUGUST, 2023

CHEMISTRY

PRACTICAL

Paper 3

2 hours

INSTRUCTIONS TO CANDIDATES:

- Answer All questions.
- Answers are to be written in the spaces provided.
- You are not allowed to use any reference books.
- All working must be clearly shown.
- Mathematical tables, slide rules and non-programmable silent electronic calculators may be used.
- \boxtimes [H=1, 0=16]

For Examiner's use only

Q1	Q2	TOTAL
Q1		

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1.	You	are	provided	with	the	following;
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BA1, which is a solution made by dissolving 6.0g of a mixture of sodium chloride and sodium hydroxide in 1dm³ of water.

BA2, which is a 0.05M solution of sulphuric acid.

You are required to determine the concentration of sodium hydroxide in gdm⁻³ and hence its percentage composition in BA1.

Procedure:

Pipette 20.0 or 25.0 cm³ of BA1 into a clean conical flask, add 2-3 drops of phenolphthalein indicator and titrate the contents in the flask with BA2 from the burette until the end point. Repeat the titration 2-3 times until you obtain consistent results. Record your results in the table below.

Table of results:

Volume of pipette used

	Final burette reading (cm ³)	The state of the s
	Initial burette reading (cm ³)	
	Volume of BA2 used (cm ³)	TRU CHONS TO CANDULATES:
Titre va	lues used for calculating the av	erage volume of BA2 used
∴Avera	ge volume of BA2 used	***************************************
Question	ns:	
(a) Calc	ulate the	

(i) Number of moles of sulphuric acid in BA2 that reacted.

(ii) Number of moles of sodium hydroxide in BA1 that reacted

(iii) Molarity of sodium hydroxide in BA1

- (b) Determine the:
 - (i) Concentration of sodium hydroxide in BA1 in gdm-3 (Na = 23, 0 = 16, H=1)

(ii) Percentage composition of sodium hydroxide in the mixture.

2. You are provided with substance R which contains two cations and one anion. You are required to identify the cations and anion in R. Carry out the following tests on R and record your observations and deductions in the table below. Where a gas(es) is evolved, it must be identified.

TEST	OBSERVATIONS	DEDUCTIONS
(a) Heat two spatula		
endfuls of R in a hard		
glass test tube, first		
gently and then		
strongly until there is		
no further change		
(b) To two spatula		
endfuls of R in a		(b) Determine the
boiling tube, add		
about 3cm ³ of water	tration of sodium hydroxide.	conce
and shake vigorously	(H=1)	= aM)
to dissolve.		
(c) To the resultant	15-16-18-18-18-18-18-18-18-18-18-18-18-18-18-	
solution in (b), add	100000000000000000000000000000000000000	
dilute ammonia	100 HOLD BEAUTY	17 - 20 - 20 - 20 - 20 - 20 - 20 - 20 - 2
solution dropwise until is excess. Shake		
and Filter. Keep both		
the filtrate and the		
residue.	d mail and a second	
(d) To the filtrate from		Tayrag (fil) Percent
(c), add dilute nitric		
acid dropwise until the		
solution is just acidic.		
Divide the acidic		

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	THE SELECTION OF THE PARTY OF T
filtrate into four	in excess.
portions.	(ii) To the second part
(i) To the first portion of	of the acidle solution,
the acidified filtrate,	ndd 3-4 dropt of
add sodium hydroxide	potansium io lide
solution dropwise until	solution.
in excess.	To may but dissist (m)
(ii) To the second	the acidic so ation, add
portion of the	diute ammonia solution
acidified filtrate, add	dropwise until in excess
dilute ammonia	(f) Identity the:
solution dropwise	Sid Gillians (1)
until in excess.	(i) cations in R
(iii) To the third portion of	(ii) anion (ii)
the acidified filtrate	
add 4-5 drops of	
lead(II) nitrate	
solution and heat	
gently.	
(iv) Use the fourth portion	
to carry out a test of	
your own choice to	
confirm the anion in	
R. Record Test and	
observations.	
(v) Test:	
(e) Wash the residue and	
dissolve it in dilute	
sulphuric acid. Divide	
the acidic solution into	
three parts.	
(i) To the first part of the	
acidic solution, add	
sodium hydroxide	

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Turn Over



solution dropwise until	Lilurate into four
in excess.	enomog
(ii) To the second part	(i) To the first parties of
of the acidic solution,	the spidified filtrate
add 3-4 drops of	abisemby mulbox blus
potassium iodide	inpresive porb notitules
solution.	ARROTTO RI
(iii) To the third part of	bno exent of (ii)
the acidic solution, add	portion of the
dilute ammonia solution	bbs of sull bellibles
dropwise until in excess	dilute annicolis
Identity the:	solution dropwing
(i) cations in R	and
(ii) anion in R	the sold filed filtrate
	and an angual state of (i)
	Company of the second of the s
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