Name	Centre / Index No/
School	Signature

P525/3 CHEMISTRY (PRACTICAL) Paper 3 July/August 2023 3¹/₄ hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Advanced Certificate of Education

CHEMISTRY PRACTICAL

Paper 3

3 hours 15 minutes

Instructions to Candidates:

- Answer all questions.
- Record your answers on this question paper in the spaces provided.
- Mathematical tables and silent non-programmable calculators may be used.
- Reference books (i.e, textbooks, books on qualitative analysis etc.) should not be used.
- Candidates are **not** allowed to start working with the apparatus for the first 15 minutes.

 This time is to enable candidates to read the question paper and make sure they have all apparatus and chemicals that they may need.
- Where necessary use (Na = 32, N = 14, H = 1, O = 16)

For Examiners' Use Only				
Q.1	Q.2	Q.3	Total	
			100 51 	

Turn Over

i) the concentration of potass	e;	- ! CA .in mo	lan man litna	
i) the concentration of potassii) find the value of n in T.n.I.		e in GA ₂ in mo	les per litre.	
Theory Potassium permanganate reacts	with sodium nitrit	e according to t	he equation	
$2MnO_4^{-}_{(aq)} + 5NO_2^{-}_{(aq)} + 6H^{+}_{(aq)}$	5N	$O_3^{-}_{(aq)} + 2Mn^{2+}$	$_{(aq)} + 3H_2O_{(l)}$	
The ratio of reaction between M	nO_4^- : T.nH ₂ O is	2:5.	,	
Procedure 1				
Pipette 20 or 25 cm ³ of GA ₁ into Titrate the resultant solution with Repeat the titration until you ob Record your results in the table Volume of pipette used	h GA_2 from the betain consistent resbelow.	arette until the e	end point is reac	hed.
Titrate the resultant solution wit Repeat the titration until you ob Record your results in the table	h GA_2 from the betain consistent resbelow.	arette until the e	end point is reac	hed.
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) I	Deter	mine the concen	itration of p	ootassium peri	nanganate in GA	12 m moles pe	(01mark)
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	•••••						
Wei disti	illed	ecurately 0.6 g owater and stir to	dissolve. T	Transfer the co	Using a measuring ontent into a 250 cits solution GA ₄ .	g cylinder ado cm³ volumetr	l 100 cm³ of ic flask and
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Calcu	late the	average volume of GA ₂ used.	$(2\frac{1}{2} marks)$
······	4		
Ques (a)	Calcul (i)	late the number of moles of potassium permanganate in GA_2 that reacted with GA_4 .	(01 mark)
	(-)		
	(ii)	acidic compound of a formula T. nH_2O in GA_4 that reacted.	(01 mark)
			•••••
(b)	Dete	ermine the;	
	(i)	concentration of acidic compound of a formula $\mathbf{T.} \ \mathbf{nH_2O}$ in \mathbf{G} litre.	GA ₄ in moles per (01 mark)
			••••

(ii)	the value of n in T. nH ₂ O.	
	(T = 90, H = 1, O = 16)	(03 marks)

2. You are provided with substance **T** which contains **two** cations and **two** anions. Carry out the following tests on **T** to identify the cations and anions present. Identify any gases evolved.

(33 marks)

		(33 marks)
Tests	Observations	Deductions
(a) Heat one spatula endful of T		
strongly in a test tube.		
		4,
		,
(b) To one spatula end full of T ,		
add 3 drops of concentrated		
sulphuric acid and warm.		
		3
		n n
(c) Dissolve one spatula endfull of		
T in 6 cm ³ of distilled water.		F 11
Divide the resultant solution		
into three portions.		
mo three portions.		
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Turn Over

(i) To the first portion add few drops of Lead(II) nitrate followed by dilute nitric acid and heat. (ii) To the second portion add Barium nitrate solution, followed by dilute nitric acid.		
(iii). To the third portion add an equal volume of ethanol followed by 3-4 drops of concentrated sulphuric acid and heat, pour the hot content in a beaker of cold water.		
d) Dissolve two spatula endful of T in 6 cm ³ of distilled water. To the resultant solution add aqueous ammonia solution dropwise until in excess. Filter and keep both the residue and the filtrate.		
e) To the filtrate obtained in (d) add dilute nitric acid until it is just acidic. Divide the resultant solution into three portions.		
(i) To the first portion add sodium hydroxide solution dropwise until in excess.		
(ii) To the second portion add ammonia solution dropwise until in excess.	:	
(iii) Use the third portion to carry out a test of your choice to confirm the cation in T Test:		

f)	water and dissolve it in dilu nitric acid. Divide the result solution into three portions	te ant	· · · · · · · · · · · · · · · · · · ·
(i) To the first portion, add so hydroxide solution dropwis until in excess.		
(i	 i) To the second portion add 1 cm³ of sodium sulphate solution. 		
iii) Use the third portion to car out a test of your own choice confirm the cation in the res	e to	
3.	(ii) Anions in T	ance Q which is an organic com	pound. Carry out the following
	Tests	Observations	Deductions
	(a) Burn a small amount of Q on a spatula end or crucible.		
	(b) To about 2 g of Q, add 5 cm ³ of water and shake. Divide the resultant solution into eight portions.		
	o.B Postar	,	
	(i) Test the first portion with litmus paper.		

Turn Over

(iii) To the third portion add little solid sodium carbonate.	militaria de code en applica de l'esplacement des especial communicación de l'applicación de de l'est de des e	
(iv) To the fourth portion add 3 drops of acidified potassium permanganate and heat.		
(v) To the fifth portion add 1 cm ³ of 2, 4-dinitrophenylhydrazine solution.		
(vi) To the sixth portion of solution add 1 cm ³ of Fehling's solution and heat.		
(vii) To the seventh portion of solution add acidified solution of potassium dichromate(VI) and heat, cool and then add Brady's reagent.		
(viii) To the eighth portion add Lucas' reagent.		
(c) Comment on the natu	ure of Q	· ·

END