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233/3
CHEMISTRY
Paper 3
(Practical)
MAY – 2016
TIME: 2 ¼ Hours

KANGA – KISII – NYABURURU – NYAMBARIA JOINT EXAM

Kenya Certificate of Secondary Education (KCSE)

INSTRUCTIONS TO CANDIDATES

- Answer ALL the questions in the spaces provided in the question paper.
- You are not allowed to start working with apparatus for the first 15 minutes of the 2 hours allowed for this paper. This time is to enable you read the question paper and make sure you have ALL the chemicals and apparatus that you may need.
- All working MUST be clearly shown where necessary.
- Mathematical tables and electronic calculators may be used.

FOR EXAMINER'S USE ONLY

Section	Maximum Score	Candidate's Score
: 1	21	phike
2	13	
3	06	
Total	40	

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- onobasic acid, solution B.
- 18 M sodium carbonate, solution C.
- Ysuare required to:
- i) standardise solution B.
- ii) Determine the percentage purity of calcium carbonate in the mixture.

l'acedure 1

PAC

Pigette 25.0 cm^3 of solution C into a conical flask. Add 2-3 drops of methyl orange indicator. The procedure with the monobasic acid, solution B. Record your results in the table 1 below. Repeat the procedure to obtain three concordant results.

aole 1	I	II	III
rial burette reading.			
Initial burette reading.			
Volume of solution B used (c	m ³)	400	
The second secon		7):	(4 mks)
a) Calculate the average volum	C.	lution B, used.	(1 mk)
b) How many moles of sodium	carbonate are in 25.0 c		(1 mk)
c) Calculate the number of mol		at reacted with 25.0	
Protection &			(1 mk)
d) Determine the molarity of the	ne monobasic acid, solu	tion B.	(1 mk)
143:			
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Procedure II

ce the 1.0 g of the solid A provided into a conical flask and add 100 cm³ of the monobasic d, solution B. Swirl the contents of the flask vigorously until effervescence stops. Label this as solution D.

TY ()

Final burette reading. Initial burette reading. Volume of solution C used (cm³) (4) Calculate: i) the average volume of solution C used. (1) iii) the number of moles of solution C used. (1) iii) the number of moles of the acid in solution D used. (2) (3) (4) (4) (5) (6) (6) (7) (7) (8) (9) (9) (1) (1) (1) (1) (1) (1	Table 2	I	II	36
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via) the mass of calcium carbona	ate present in 1.0 g	g of solid A. ($Ca = 40.0$), $O = 16.0$, $C = 12.0$).
			(1 mk
WW.		•••••••	
- 1-11 (1) (1) (1) (1) (1) (1) (1) (1) (1) (• • • • • • • • • • • • • • • • • • • •	•••••	• • • • • • • • • • • • • • • • • • • •
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the percentage of calcium car	rbonate in solid A	•	(1 mk
	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•••••
	•••••		
The second secon			
From 1			,
You are provided with solid T. C incrences in the spaces provided	arry out the tests	below and record your	observations and
a) Place all the solid T into a clea		l add about 10 cm ³ of d	istilled water and
shake.		add dood! To em of d	istined water and
Observations		Infe	rences
		ŠO.	
	(11-)		
	(1 mk)		(1 ml
b Take about 2 cm ³ portion of th	e solution and add	l 2 M NaOH drop wise	until in excess.
Observations		Info	ences
	10	<u> </u>	cnces
	7.0		<u>^</u>
18 19 19 19 19 19 19 19 19 19 19 19 19 19	(1 mk)		(1 mk
c) To another 2 cm ³ portion of the	solution, add aqu	ieous ammonia drop w	ise until in excess.
Ob		***	
Observations		Infer	ences
			,
	(1 mls)		
	(1 mk)		(1 mk
To another 2 cm ³ portion of the	solution, add 5 d	rops of 2M H ₂ SO ₄ .	
	,	1	
Observations		Infer	ences
	(1 mk)		(1 mk
	4		

Observations	Inferences
), 100 mg
	et i
(1 mk)	(2 mks
f) To the remaining portion of the solution, add 5 drops	
Observations	Inferences
(1 mlr)	
(1 mk)	(1 mk
You are provided with liquid L. Carry out the tests belowing the space and the liquid L.	ow and record your observations and mass
inferences in the spaces provided.	
a) Put about 2 cm ³ of liquid L in a test tube. Add about	2 cm ³ of distilled water.
Observations	Inferences
6.50	Trycrenees
(1 mk)	(1 mk)
Place another 2 cm ³ of liquid Linto a test tube and ad	d 3 drops of acidified notassium. 14 mks)
manganate (VII) solution. Warm the mixture gently.	potassium
Observation	3.
Observations	Inferences
	The second secon
	and the second s
(1 mk)	(1 mb)
To enother 2 and 3 City to 1	
J 10 another 2 cm of liquid L add 3 drops of soldified.	potassium dichromate (VI) solution
) To another 2 cm ³ of liquid L, add 3 drops of acidified 1	to the second of
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Observations Observations	
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Observations	Inferences
Observations	·