NAME	ADM NO
SCHOOL	CANDIDATES SIGN
	DATE

233/1 **CHEMISTRY** FORM 3 TIME: 2 HOURS

END OF TERM (III) EXAMINATION -2019 Kenya Certificate of Secondary Education (K.C.S.E)

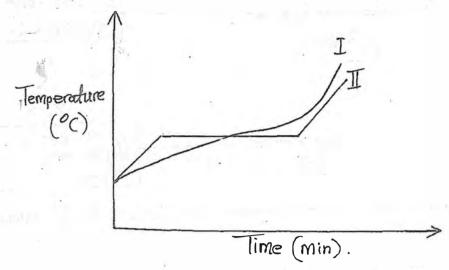
233/1 **CHEMISTRY** FORM 3 TIME: 2 HOURS

FOR EXAMINERS USE ONLY

Question	Maximum score	Candidates score
1. 7.8	80.0	

1.	a)	Name and state the specific function of the piece of apparatus drawn below	
		,	
		tentore transfer in the first and the second	
		glass beads beads boo	ZBP CHEST HOLOGA TANT
		MOTERAL AND	
	Name	e	(1 mk)
	Func	tion	(1 mk)
	b)	State one other substance that can be used in place of the plass beads	(1mk)
2.	i)	In an experiment, a deflated basketball was weighed and its mass recorded as 20 was then pumped into it, and the mass and size increased. What is the purpose of the experiment with respect to :-	0g. Air
****	a)	Increase in mass	(¹ / ₂ mk)
	b)	Increase in size	$(^{1}/_{2} \text{mk})$
			······································
••••	ii)	State and explain the observation made if the ball was placed in ice-cold water	(2 mks)

3. The illustrations below shows curves obtained by a student after heating two solids separately to determine their purity



	a) Which curve represents a pure substance? Explain	(2 mks)
	ast Val	3443
*	b) What physical property of the substance was used to determine their purities?	(1 mk)
	i, Eit W	*******
	c) Give one practical application of the above experiment	(1 mk)
4.	Kamau was sting by a bee while on his way home form the market. He applied wood a	ash solution
	to relieve the pain. Explain	(2 mks)
	Street the americans has remark to the the conditions which	4
	Exiting the observation to the contract of the	

5.	Air was passed through several reagents as shown	below. In the world making the	
	ConNewtrated	Hyen const	
	Contentrated Pir-> Sodium hydroxide Solution .	Excess copper turnings	
	Solution	tumings	
	Solution -		
		* 1	
	. J.	Y	i .
		Excess heated	
	Escaping «	Excess heated Magnesium	
	Just	powder.	
	a) Write an equation for the reaction which takes	place in the chamber containing n	nagnesium
	powder.	hane in me enquireer comminment	(1 mks)
	powder.		(1 IIIKS)
	atalogui Joseph	dusanin a meanin 🗸 🗠 🛶	
	b) Name one gas which escapes form the chambe	r containing magnesium powder.	
	Give a reason for your answer	oers	(2 n)
	2- 16 16-0 10 10 10 10 10 10 10 10 10 10 10 10 10		
6.	The diagram below illustrates an experiment where	e dry hydrogen gas is passed over	heated
	magnesium oxide.	Kon and a second a second as	
	with the second		
	Mornes	ium oxide Flame x	in the s
	triagics	/ combustion	$\hat{\lambda}$
	- cont	/ tube ,	
	Dry	VIA	
	hydrogen	3/ 1//	
	menum tracker than the large and the same trackers and the same trackers are the same trackers and the same trackers are the same tr	and an income and an extension	
	he:	at .	
		AND A STATE OF THE	
	a) State the observation that is made inside the co	mbustion tube.	(1 mk)
	b) Explain the observation in (a) above		(1 mk)
	#		
	c) Write an equation for the formation of flame X		(1 mk)
	write an equation for the formation of name 2s		(1 llik)
•••••			
			••••••
7.	Two elements A and B have electronic configurat	ion 2,8,3 and 2,6 respectively	

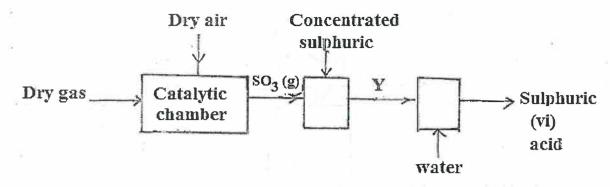
a) 1	To which group and per	od does element B	belong?		(1 mk)
b) 1	If the two react, what is	the formula of the	compound th	ney form	(1 mk)
			mananana.		
8. The	e set-up below was left of	exposed in direct su	ınlight by a s	student for several ho	urs.
Yalan I h			Su	nlight	
	Gas	$x \longrightarrow x$	//	14 _ 14	
			K		
) EE	Soli Perso		37 - 67 -
		上 作計	==1	and the state of the	
	150		(Chlorine	
		三司二寸		water	
				astoat	
a)	Name gas X		Carlotte in	-se ^{Qio}	(1mk)
		*******************		&KC2	
			The state of the s	<u>(</u>	
b)	State the observation th	at is made when gr	een leaves a	re put into the solutio	n after the
•	exposure.		K S	e par mie die beraue	(1 mk)
	exposure.	on ^{te}			(1 IIIK)
	•••••		T-Use of		
	4-1-4-4 1-1 (*)1	is			
	student put lead (ii) carb	-01	and the same of		
	shown in the table below	Q ₁	ole by giving	1.5	itions.
Salt	, tho	Adding water	July Mills	Heating	
Lead (i	ii) carbonate			depote in pr	m. (a Z
Lead (i	ii) nitrate				
-					(2 mks)
10. a)	State the Graham's	Law diffusion.			(1 mk)
4.11	2000 Marie 1900 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	an galler the ray		1 (111)/702 N. T. W	mir va
b)	48cm ³ of an oxide o	f Nitrogen diffused	l through a n	orous plug. At the sa	ume time it took
0)		-		g under similar condit	
				g under simmar condit	
	the molecular mass	of the oxide (He =	4, N = 14		(2 mks)

11.	i)	is now among the countries producing crude oil from Ngamia 8 Name the method used to separate the components of cruide oil.	(1 mk)
() () () () ()	ii)	Bitumen is one of the components. State its use.	(1 mk)
	iii)	The diesel obtained after separation should be purified to remove sulp low sulphur diesel. Explain	hur and then sold as (1 mk)
12.	Below lead (i	is a set-up of apparatus used to investigate the effect of an electric current ii) bromide Lead(ii)bromide Name the electrode A.	rent on molten (1 mk)
[_7_7]			(1
200 200 200	b) c)	Show the direction of flow of electrons on the diagram Write an equation for the reaction taking place at electrode B.	(1 mk) (1mk)
, selm			

d)	Mention	one ar	plication	of the	above	process.
~ <i>)</i>	14101111011	one up	Piloution	OI LIIO	40010	process.

(1 mk)

13. The flow chart below shows part of a process for manufacture of sulphuric (vi) acid.



a) Identify

i)	X

(1 mk)

b) Name the catalyst used in the catalytic chamber.

(1 mk)

c) Explain why sulphur (vi) oxide is first dissolved in concentrated sulphuric (vi) acid and not in water (1 mk)

K. K. C.

14. a) Name the compound whose structure is given below

$$H - C - C - C = C - H$$

$$H + H$$

.....(lmk)

Name two reagents that can be used to distinguish between alkanes and alkenes. (1 mk)

Den	ow is a diagram	of a Bunsen burne	er. The second of the me		
			λ		
	04 1005				
		~ _		2.4	
		^		. 9	
		1	-		
		2011	_		
a)	Identify the	type of flame			(1m
1.)				-0 ⁶	·······
b)		conditions is it pro	St.		(1 n
	141		-sex		********
c)		olaced across point	XY for some few seconds	and then removed be	fore its
0)	71 Spilit is p	nacea across point	211 for some iew seconds	and then removed be	1010 115
	burned.		W.		
Drav	burned. w and label the	splint to show the	The state of the s		(1 n
Drav		splint to show the		ringon efforest	(1 n
Drav		splint to show the		ringoth efrances	(1 n
	w and label the	ion con			
 A m	w and label the	sodium chloride, s	observation made		
A m	w and label the	sodium chloride, s	observation made		
A m those	w and label the	sodium chloride, s	observation made	able below shows the s	
A m thos	w and label the ixture contains e solids in differiquid a chloride	sodium chloride, serent liquids	ugar and camphor. The ta	able below shows the s	

17. The information below gives PH values of solution V, W, X and Z

Solution	PH values
w endidon of calcium ox-ac-	6.5 office of man Hill and at real by to
Yz	11 14 4.5 ** ** ** ** ** ** ** ** ** ** ** ** **

a) Which solution is likely to be:

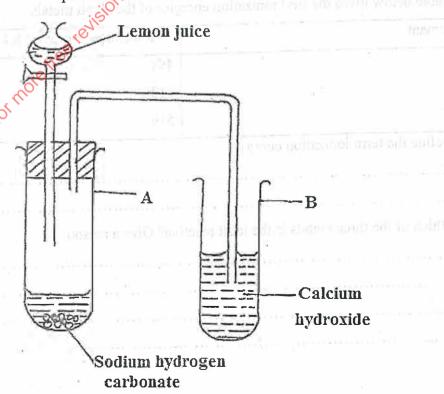
i) Calcium hydroxide? (1 mk)

ii) Rain water? (1mk)

iii) Which solution would react most vigorously with zinc carbonate? (1 mk)

18. The diagram below shows apparatus used to react lemon juice and sodium hydrogen carbonate.

Study it and answer the questions that follow.



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	a) State and explain observation r	nade in each boiling tube.	(2 mks)
• • • • •		Δ	
			rioRotel? I
			7.
	b) How is the PH of acidic soil af	fected by addition of calcium oxide.	(1 mk)
 19.	The set up below was used to study	y some properties of air.	
		Moist iron cool	
		Test tube	
	j	Beaker of	
4			
		Beaker	
	State and explain two observations	that would be made at the end of the experimen	nt. (2 mks)
ШП	n - Pan diegañ ver'r		(2 11110)
		St W.	
		"Eut_7,	
	and any provided in the first see we see the		. Amrs
20.	The table below gives the first ioni		
)	Element	1 st Ionization energy in KJ Moi-1	
	A	494	
	B mol	418	
	Element A B C	519	
	a) Define the term ionization ener	gy	(1mk)
	b) Which of the three metals is the	* 1	(2 mks)
	: ; (#II)*##.22		
	political Life		
100			

21.	Starting with lead (ii) carbonate explain how you would prepare a pure sample of		
	lead (ii) sulphate.	(3 mks	
22.	Using dots (.) and crosses (x), draw a diagram showing bonding in:	H = 1 1 1 1 1 1	
	i) Hydroxonium ion H_3O^+ (H = 1, 0 = 8)	(1 mk)	
	ii) Sodium Oxide (Na = 11, 0 = 8)	(1 mk)	
rung".	the control of the contact and the contact and the control of the	Maria (A. 19 Ariana (A. 19	
	a una serial per esta superior de seria de seda como de los portes per perior de se de la como en en entre se un e Esta como entre el como entre como esta como entre		
23.	The diagram below represents a burner (Jiko) with burning charcoal.	est in	
	35223		
	Burning N		
	Burning—N charcoal	y nome	
	L		
	a) i) State two products formed in regions M and N		
Ε	M and W	(1 mk)	
	N	(1 mk)	
	ii) What is the function of the part labeled L.	(1 mk)	
	b) Why should people be discouraged from using charcoal in Kenya?	(1 mk)	
24.	Sodium carbonate dehydrate, Na ₂ CO ₃ .10H ₂ O, were left exposed in the atmospheric	ere on a watch	
	glass for two days. a) State the observation made on the crystals after two days	(1 mk)	
		(1 mk)	

	b) Name the property of salts investigated in the above experiment.	(1 mk)
25.	State and explain what happens When solid Na ₂ CO ₃ is put into a solution of alun	ninum chloride (3 mks)
	The state of the s	
26.	Describe how one can prepare one litre of 0.5 Magnesium nitrate solution.	izib ye.
	(Mg = 24.0, N = 14.0, O = 16.0)	(3 mks)
		<i>(</i> 1110-1
27.	Colored flowers placed in a gas jar containing gas X immediately turned white. X formed a white precipitate with silver nitrate solutions. The precipitate was instituted but dissolves in excess ammonia solution. a) Identify Gas X.	
	b) Write the equation for the reaction that took place when solution of Gas > silver nitrate solution	(1 mk)
	c) Gas X is used in treatment of water. Explain	(1 mk)
28.	The set-up shows how small pieces of copper are heated in Nitrogen (I) Oxide. pieces of copper metal tube Nitrogen gas x (i) oxide heat	
	a) Write an equation for the reaction which occurs in the combustion tube.	(1 mk)
: (a)	b) Give one use of Nitrogen (I) oxide the second and the second are the	(1 mk)
