THE UNITED REPUBLIC OF TANZANIA NATIONAL EXAMINATIONS COUNCIL FORM TWO SECONDARY EDUCATION EXAMINATION

032

CHEMISTRY

Time: 2:30 Hours

Thursday, 19th November 2015 a.m.

Instructions

- 1. This paper consists of sections A, B and C.
- 2. Answer all questions in the spaces provided.
- 3. All writing must be in black or blue ink except diagrams which must be in pencil.
- 4. All communication devices and calculators are not allowed in the examination room.
- 5. Write your Examination Number at the top right corner of every page.
- 6. The following atomic masses may be used: H = 1, O = 16, C = 12, N = 14, Na = 23, Al = 27, S = 32, K = 39, Ca = 40, Fe = 56, F = 19, Cu = 64.

FOR	EXAMINERS' USE C	
QUESTION NUMBER	SCORE	EXAMINERS' INITIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		

Candidate's Examination Number.

SECTION A (10 Marks)

			SECTION A transitive	s and was
			the correct answer from the given alternative	s and write
1.	For	each o	of the items (i) – (x), choose the correct answer from the given alternative the box provided.	
	its le	etter in	the items (i) – (x), choose the statement about hypothesis? the box provided. hich of the following is the most correct statement about hypothesis?	
	(i)	WI	A fundamental concept or theory.	
		A	A fundamental construction the problem.	-
		B	An important statement of a research conclusion.	
		D	A stage in data interpretation.	
			the gases composing air?	
	(ii)	W	nich of the following is not among the gases composing air?	
		A	Noble gases	
		В	Carbon dioxide	
		C	Nitrogen	
		D	Hydrogen.	
	(iii)	WH	nen an atom loses or gains electron, it becomes	
	(III)	A	an ion	
		В	anion	
		C	cation	
		D	charged ion.	
			hange of gaseous state to solid state without passing through a liquid	state is called
	(iv)		hange of gaseous state to solid state without passage	
		A	Deposition	
		В	Sublimation	
		C	Condensation Solidification.	
		D	Somumeation.	
	(v)	Wh	at is the type of a fire associated with electrical equipment?	
	(1)	A	Class E	
		В	Class C	
		C	Class F	
		D	Class B.	
	(vi)	Whi	ich among the following are the two processes involved during disti	llation?
		A	Evaporation and sublimation	
		В	Evaporation and crystallization	
		C	Evaporation and condensation	
		D	Evaporation and decantation.	
	(vii)	Whi	ch of the following set of nuclide notation represents isotopes?	
	2.00		18 X , 16 X , 19 X	-
			18 X , 18 X , 18 X	
		C	16 X, 18 X, 18 X	
		D	16 X 17 X 18 X	
		U	8 A 1 8 A 1 8 A	

(ix) VA B C D (ix) W of A B C D (x) of A B C D (x) of A G (ii) Gr (iii) Gr (iii) Gr (iv) Gr (vi) Gr	When a add ina ina add which of a give Bea Pip Bur of the co	dequate suppled equate suppled equate suppled equate suppled the follower solution? assuring cylinker ette ette. In List A responding elements aline solution elements elements elements elements elements.	de le	sen with pagen with year with pagen with pag	on B (20 sponse in provided ckly with ectron.	on of more on of soot of more her measuring Marks) List B by	heat eat. gaccurat	List I Metallo Non-me Periodic Transit	r below s	
(ix) VA B C D (x) of A B C D (x) of A B C D (ii) Growth for Gro	When a add ina ina add which of a give Bea Pip Bur of the coor of a give roup of a give roup of the coor of a give roup of the co	balt chlorid pper II chlo purning fue quate suppl dequate suppl dequate suppl dequate suppl fithe follow a solution? asuring cyli ker ette ette. in List A cresponding filme soluti ty of an ato elements l column of	l produces ly of oxyg oply of oxyg ly of oxyg ving is the inder List A which re on. om to attra in which	sen with pagen with year with pagen with pag	on B (20 sponse in provided ckly with ectron.	of soot on of more on of soot of more he measuring Marks) List B by	heat eat. gaccurat	List I Metallo Non-me Periodic Transit	r below s	
(ix) VA B C D (x) of A B C D (atch eacumber of Grand (ii) Grand (iii) Grand (iv) Grand (vi) Grand	Vhen a add ina ina add which of a give Bea Pip Bur ch item the co	pper II chlo curning fue quate suppl dequate	l produces ly of oxygoply oxygoply oxygoply oxygoply oxygoply oxyg	sen with pagen with year with pagen with pag	on B (20 sponse in provided ckly with ectron.	of soot on of more on of soot of more he measuring Marks) List B by	heat eat. gaccurat	List I Metallo Non-me Periodic Transit	r below s	
(ix) W A B C D (x) of A B C D (x) of A B C D (xi) of A (xi) of A (xi) of A (xii) of A (xiii) of (xiii) of (xiii) of (xiii) of (xiiii) of (xiiii) of (xiiii) of (xiiii) of (xiiii) of (xiiiii) of (xiiiii) of (xiiiiii) of (xiiiiiiiii) of (xiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	when a add in a add in a add in a add which of a give Bea Pip Bur the coup of the coup of the ability out of led up. The ability out of led up. The ability of l	courning fue equate suppled equate suppled equate suppled equate suppled the following solution? assuring cylinker ette ette. In List A responding elements aline solution of an atomic elements along the	l produces ly of oxyg oply of oxy ly of oxyg ving is the inder With a co g item in to List A which re on. om to attra in which	sen with pagen with year with pagen with pag	on B (20 sponse in provided ckly with ectron.	of soot on of more on of soot of more he measuring Marks) List B by	heat eat. gaccurat	List I Metallo Non-me Periodic Transit	r below s	
(x) Wood ABCD (atch eacumber of Grown (ii) Grown (iii) Grown (iii) Grown (iii) Grown (iv) Grown (vi) Grown (v	hich of a give Me Bea Pip Bur ch item of the co	dequate suppled equate suppled equate suppled equate suppled the follower solution? assuring cylinker ette ette. In List A responding elements aline solution elements elements elements elements elements.	by of oxygoply oxygop	sen with pagen with year with pagen with pag	on B (20 sponse in provided ckly with ectron.	of soot on of more on of soot of more he measuring Marks) List B by	heat eat. gaccurat	List I Metallo Non-me Periodic Transit	r below s	
(x) Woof A B C D (x) of A B C D (ii) Grant (iii) Grant (iii) Grant (iv) Grant (vi) Grant (vi) Grant (vi) Grant (vi) Grant (vi) Grant (vi) Grant (vii) Grant (viii) Grant (viiii) Grant (viiiiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	hich of a give Me Bea Pip Bur ch item the co roup of malkane abili roup of led up. vertica	the follower solution? In List A responding elements I column of elements I column of elements	oply of oxyoply	SECTIOnrect resthe table eacts quice act an electric their she	production aratus for provided	on of more on of soot of more he measuring Marks) List B by	writing	List I Metallo Non-me Periodic Transit	r below s	
(i) Grant (ii) Grant (iii) Grant (iv) Grant	hich of a give Me Bea Pip Bur ch item the co roup orm alka ne abili roup of led up. vertica	the follown solution? asuring cylinker ette ette. in List A responding felements aline solution ty of an atomic elements alicelements.	with a congited inder List A which resons to attrain which	SECTION SECTIO	on B (20 sponse in provided ckly with ectron.	on of soot n of more he measuring Marks) List B by	writing	List I Metallo Non-me Periodic Transit	r below s	
(i) Grant (ii) Grant (iii) Grant (iii) Grant (iv) Grant	hich of a give Me Bea Pip Bur ch item the co roup of malking ability roup of led up.	the follown solution? asuring cylinker ette ette. in List A responding felements aline solution ty of an atomic elements.	with a cong item in the control on to attrain which	SECTIOn rect rest the table act an ele their she	on B (20 sponse in provided ckly with ectron.	Marks) List B by	writing A B C	List I Metallo Non-me Periodic Transit	r below s	
(i) Grand (ii) Grand (iii) Grand (iv) Grand	hich of a give Me Bea Pip Bur ch item the co roup of malking ability roup of led up.	the follown solution? asuring cylinker ette ette. in List A responding felements aline solution by of an atomic elements alicelements alicelements.	with a cong item in to attrain which	SECTIOnrect resthe table	on B (20) sponse in provided ckly with ectron.	Marks) List B by	writing A B C	List I Metallo Non-me Periodic Transit	r below s	
(i) Grand (ii) Grand (iii) Grand (iv) Grand	h item the co roup or alk ne abili roup of led up. vertica	in List A responding of an ato elements	with a cog item in to attrain which	SECTIOn orrect resthe table acts quick act an eletheir she	on B (20 sponse in provided ekly with ectron.	Marks) List B by	writing A B C	List I Metallo Non-me Periodic Transit	r below s	
(i) Grand (ii) Grand (iii) Grand (iv) Grand	h item the co roup or alk ne abili roup of led up. vertica	in List A responding of an ato elements	with a cog item in to attrain which	SECTIOn orrect resthe table acts quick act an eletheir she	on B (20 sponse in provided ekly with ectron.	Marks) List B by	writing A B C	List I Metallo Non-me Periodic Transit	r below s	
(i) Grant (ii) Grant (iii) Grant (iv) Grant	Me Bea Pip Bur ch item the co roup of roup of led up.	in List A responding ty of an ato elements	with a cog item in to attrain which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(i) Grant (ii) Grant (iii) Grant (iii) Grant (iii) Grant (iv) Gran	Bea Pip Bur ch item the co roup of malking ability	in List A responding elements elements	with a cog item in to attrain which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(i) Grant (ii) Grant (iii) Grant (iv) Grant	the co	in List A responding elements aline solution of an atomic elements.	List A which re on. om to attra in which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(i) Grant (ii) Grant (iii) Grant (iv) Grant	the co	in List A responding elements aline solution of an atomic elements.	List A which re on. om to attra in which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(ii) Grant (iii) Grant (iv) A (vi) Grant (vi) Grant (vi) Grant (vii) Grant (viii) Grant (viiii) Grant (viiiiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	roup of ability roup of led up.	responding f elements aline soluti ty of an ato elements	List A which re on. om to attra in which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(ii) Grant (iii) Grant (iv) A (v) Grant (vi) Grant (vi) Grant (vi) Grant (vi) Grant (vii) Grant (viii) Grant (viiii) Grant (viiiiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	roup of ability roup of led up.	responding f elements line soluti ty of an ato elements	List A which re on. om to attra in which	eacts quic	ckly with	List B by	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(ii) Grant (iii) Grant (iv) A (vi) Grant (vi) Grant (vi) Grant (vi) Grant (vii) Grant (vii) Grant (viii) Grant (viiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	roup of ability roup of led up.	responding f elements line soluti ty of an ato elements	List A which re on. om to attra in which	eacts quic	ekly with	n water to	A B C	List I Metallo Non-me Periodi Transit	ids etals city	the
(ii) Grant (iii) Grant (iv) Grant (vi) Grant (vi) Grant (vi) Grant (vii) Grant (viii) Grant (viiii) Grant (viiiiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	roup of ability roup of led up.	responding f elements line soluti ty of an ato elements	List A which re on. om to attra in which	eacts quic	ekly with	n water to	A B C	List I Metallo Non-me Periodi Transit	ids etals city	
(i) Gr for (iii) Gr fill (iv) A (v) Gr for (vi) Gr sal	roup of rm alka ne abili roup of led up.	elements aline soluti ty of an ato elements	List A which re on. om to attra in which	acts quic	ekly with ectron.	water to	B C	Metallo Non-me Periodic Transit	ids etals city	
(ii) The (iii) Grant (iv) Are (vi) Grant (vi) Grant (vii) Grant (vii) Grant (viii) Grant (viii) Grant (viiii) Grant (viiiiii) Grant (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	rm alka ne abili roup of led up. vertica	ty of an ato elements	which re on. om to attra in which	act an ele their she	ectron. ells are c		B C	Metallo Non-me Periodic Transit	ids etals city	
for (ii) Th (iii) Gr fill (iv) A (v) Gr for vi) Gr vi) Gr	rm alka ne abili roup of led up. vertica	ty of an ato elements	on. om to attra in which	act an ele their she	ectron. ells are c		B C	Non-me Periodic Transit	etals city	
for (iii) Gr (iii) Gr fill (iv) Gr (v) Gr (vi) Gr (vi) Gr	rm alka ne abili roup of led up. vertica	ty of an ato elements	on. om to attra in which	act an ele their she	ectron. ells are c		C	Periodic	city	
(ii) Th (iii) Gr fill (iv) A (v) Gr for (vi) Gr sal	ne abili roup of led up. vertica	ty of an ato	om to attra in which	their she	ells are c	ompletely	13	Transit		
(iii) Gr fill (iv) A (v) Gr for (vi) Gr sal	roup of led up.	elements	in which	their she	ells are c	ompletely	D		ion	
fill (iv) A (v) Gr for (vi) Gr sal	led up.	l column o				op.		-1		
(iv) A (v) Gr for (vi) Gr sal	vertica	l column o	of element	ts in the	periodic			elemen	ts	
(v) Gr for (vi) Gr sal	vertica	l column o	of elemen	is in the	Dellouic	toble	E		negativi	tv
for (vi) Gr	The second second	A COLUMN TO STATE OF THE PARTY.	101		seles miel	a ventor to	1		metals	-3
(vi) Gresal				eacts sto	wiy with	h water to	0			
sal	rm alka	line soluti	on.				G	Haloge		
sal	oup of	elements	which r	eacts wi	th meta	ls to form	H	Period		
-							1	Alkali	earth me	etals
vii) Gre	our of	elements v	which rea	ets by re	ceiving	electrons.	J	Rare r	non meta	ls
VIII) OL	a minte	matic arre	angement	t of elen	nents ac	cording to	K	Period	1	
Alla) I De	e syste	matic arr	angement	hare	ijolito Ho		L	Noble	gases	
the	ar aner	ase in ato	mic num	DCIS.		of maltin			dic table	
ix) Gro	oup of	elements	s with h	ign den	sines ai	nd melting	NI	FEETER		
poi	nts, an	d often ac	t as cataly	ysts.			N	Grou	Ь	
x) Gro	oup of	elements	which ha	ave both	metalli	c and non	-			
me	allie e	haracterist	ties.							
mei	anne c	THE PERSON NAMED IN								
WERS										
	(i)	(ii)								
TA	147		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x

Candidate's Examination Number.....

Candidate's Examination Number. SECTION C (70 Marks)

3.	(a)	Defin (i)	or the following terms: Oxidation state						
			Oxidation state						
		(ii)							
		(iii)	4						
		(iv)	The first of the f						
			Fainting						
	(b)	Write	the chemical formula for each of the following compounds:						
		(i)	Sodium sulphate						
		(ii)	Sodium chloride						
		(iii)	Calcium nitrate						
		(iv)	Calcium oxide						
4.	Gas :	X can be	prepared in the laboratory by the decomposition of hydrogen peroxide.						
	(a)	(a) Identify gas X.							
		1231311							
	(b)	State t	three physical properties of Gas 'X'.						
		(i)							
		(ii)							
		(iii)							
	(c)	Mentio	on three chemical properties of gas 'X'.						
		(i)							
		(ii)							
		(iii)							
	(d)	State th	hree uses of gas 'X'.						
		(i)							
		(ii)							
		(iii)							

		Candidate's Examin	ation Number
5.	(a) Writ	te the name of each of the following compour	nds:
	(i)	(NH ₄) ₂ CO ₃	
	(ii)	CaCl ₂	***************************************
	(iii)	Na ₂ SO ₄	***************************************
	(iv)	KClO ₃	***************************************
((b) Give	three differences between the following:	
	(i)	Electrovalent compounds and covalent co	ompounds
		Electrovalent Compounds	Covalent Compounds
	(ii)	Solutions and suspensions.	
		Solutions	Suspensions
(a)	State tv	vo chemical properties of water.	
	(i)		
	(ii)		
(A)	Calcula	te the molar mass of each of the followi	ing compounds:
(b)		Al ₂ (SO ₄) ₃ .	

			Cana	uaate s Ex	umminu	Number		
	(ii)	NaHCO ₃ .						
	ann.	F 0						
	(iii)	Fe ₂ O ₃ .						
(c)						physical char		
(c)	(i) 1	Burning of	charcoal.,			***********		
(c)	(i) 1	Burning of	charcoal.,					
	(i) 1 (ii) 1	Burning of Rusting of	charcoal., iron sheets					
(c) (a)	(i) 1 (ii) 1	Burning of Rusting of	charcoal., iron sheets			***********		 /.
	(i) 1 (ii) 1	Burning of Rusting of	charcoal., iron sheets					/. VII
	(i) I (ii) I	Burning of Rusting of the following	charcoal., iron sheets g Periodic	Table and t	hen answer t	the questions	s that follow	/. VII
	(i) I (ii) I	Burning of Rusting of the following	charcoal., iron sheets g Periodic	Table and t	hen answer t	the questions	s that follow	
	(i) (ii) Study the I	Burning of Rusting of the following II C	charcoal., iron sheets g Periodic	Table and t	hen answer t	the questions	s that follow	/. VII
	(i) (ii) Study the I	Burning of Rusting of the following II C	charcoal., iron sheets g Periodic	Table and t	hen answer t	the questions	s that follow	/. VII
	(i) (ii) Study th I	Burning of Rusting of the following II C G	charcoal., iron sheets g Periodic III	Table and t	hen answer t	the questions	s that follow	/. VII
	(i) (ii) Study the I F	Burning of Rusting of the following II C G	charcoal., iron sheets g Periodic III	Table and to	hen answer t	the questions VI E	that follow VII	VII B
	(i) (ii) Study the I F	Burning of Rusting of the following II C G	charcoal., iron sheets g Periodic III ollective no	Table and to	hen answer t	the questions	that follow VII	VII B

		amination (vamoer				
	(ii) Name the elements which are repres	sented by the following letters:				
	Α					
	C	. D				
	(iii) Write the electronic configuration of	of the following elements:				
	E	F				
	G	Н				
(b)		lowing fields made by the application of				
	chemistry. Field	Products				
	(a) Medicine					
	(b) Food and beverage					
	industry					
(a)	Calculate the oxidation number of the un					
200	(i) K ₂ C ₂ O ₄	(ii) SO ₃ ²⁻				
(b)	What is the use of each of the following	g apparatus?				
200	(i) Thistle funnel					
	(ii) Pipette					
	(ii) Pipette	***************************************				
	(iii) Wire gauze					
	(iii) Wire gauze					
Vhen	(iii) Wire gauze					
	(iii) Wire gauze (iv) Burette dilute hydrochloric acid is reacted with	zinc metal, gas Z is formed.				
When	(iii) Wire gauze	zinc metal, gas Z is formed.				

			Candidate's Examination 1
	(b)	Men	tion four physical properties of gas Z.
		(i)	
		(ii)	
		(iii)	
		(iv)	
	(c)	State	two uses of gas Z.
		(i)	***************************************
		(ii)	
10.	(a)	Defin	e the following terms:
		(i)	Empirical formula
		(ii)	Molecular formula

	(b)	A con	apound consists of 85.7% carbon and 14.3% hydrogen by mass. If its relative
			ular mass is 56. Calculate:
		(i)	Empirical formula.

(ii) Molecular formula.