DEPARMENT OF CHEMISTRY

Uganda Certificate of Education CHEMISTRY S.2

Paper 2

2 hours 30 minutes

Nam	ne:	Signature:				
INS	TRUCT	TIONS:				
This	paper c	onsists of Sections A and B				
	`	ght alternative in section A				
	-	L questions in both Sections				
Use	the ansv	wer space provided for the questions.				
		SECTION A				
1.	Whi	ch one of the following is a basic oxide?				
	A.	SO_2				
	B.	ZnO				
	C.	P_2O_5				
	D.	CaO				
2.	Beginning with the least reactive, the order of reactivity of the following metals with dilute hydrochloric acid is					
	A.	iron, aluminium lead, zinc				
	B.	zinc, lead, aluminium, iron				
	C.	lead, iron, zinc, aluminium				
	D.	aluminium, zinc, iron, lead				
3.	The	atomic number of an element is				
	A.	the number of electrons and protons				
	B.	the number of protons and neutrons				
	C.	the number of neutrons				
	D.	the number of protons				
4.	The	atomic numbers of elements X and Y are 7 and 9 respectively. The formula				
		e compound formed between X and Y is				

B. XY ₂ C. X ₃ Y D. X ₂ Y 5. Isotopes are different atoms of the same element with the A.same number of protons, neutrons and electrons. B. same number of electrons and neutrons but different number of protons. C. same number of protons and neutrons but different number of protons. D. same number of protons and electrons but different number of neutrons. 6. Which one of the following substances conducts electricity? A. Zinc B. Neon C. Chlorine D. Sulphur 7. How many electrons are there in oxygen (O ²) ion? (The atomic number of oxygen is 8) A. 6 B. 8 C. 10 D. 16 8. Which one of the following gases will reduce copper (II) oxide to copper? A. Hydrogen B. Water vapour C. Chlorine D. Oxygen 9. An atom of an element X has 19 electrons. In the Periodic Table X belongs to A. group I B. group II C. group III		A.	XY_3
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A. group I B. group II			
B. group II	9.	An a	tom of an element X has 19 electrons. In the Periodic Table X belongs to
B. group II		A.	group I

- D. group IV
- 10. An atom 41 M forms a chloride of the formula MCI $_2$. Which one of the following 20

atoms forms a chloride with a similar formula?

- A. 25R
 - 12
- B. 25T
 - 13
- C. 21Y
 - 10
- D. 22Z

11

- 11. In the order of the reactivity of the elements K, Na, Mg, AI, C, Zn and Cu, potassium is the most reactive and lead is the least reactive. Which one of the following reactions is possible?
 - heat
 - $A. \qquad 2Na_2O_{(s)} + C_{(s)} \longrightarrow \qquad 4Na_{(s)} + CO_{2(s)}$
 - heat
 - B. $2MgO(s) + C(s) \longrightarrow 2Mg(s) + CO2(g)$
 - heat
 - C. $Mg_{(s)} + CuO_{(s)} \longrightarrow MgO_{(s)} + Cu_{(s)}$ heat
 - D. $2AI_{(s)} + 3K_2O_{(s)} \longrightarrow AI_2O_{3(s)} + 6K_{(s)}$
- 12. A separating funnel can be used to separate a mixture of water and petrol because the two liquids.
 - A. are miscible
 - B. are immiscible.
 - C. have different densities.
 - D. have different boiling points.
- 13. When sodium nitrate is heated it gives
 - A. nitrogen dioxide
 - B. sodium oxide and nitric oxide.
 - C. oxygen
 - D. oxygen and nitrogen dioxide
- 14. Which one of the following properties is NOT shown by group VII elements? They

	A.	are all non-metals	
	B.	are all gases at room temperatu	re
	C.	all form ionic compounds with	group I elements.
	D.	all form diatomic molecules.	
15.	The p	process by which water vapour is	changed into dew is called
	A.	distillation	
	B.	efflorescence	
	C.	condensation	
	D.	evaporation	
16.	Atom of	ns of elements in the same group i	n the periodic table have the same number
	A.	outer shell electrons	
	B.	electrons outside the nucleus	
	C.	protons in the nucleus	
	D.	neutron in the nucleus	
17. eleme		which one of the following groups h atomic number 20 belong?	and periods in the periodic table does an
		period 4	C. group IV, period 2
B. gro	oup II,	period 2	D. group IV, period 4
18.	An a	tom of an element has the structur	re 20X. The element
	A.	forms covalent bonds readily w	vith non-metals.
	B.	forms ionic bonds with non-me	etals
	C.	belongs to group II of the period	dic table.
	D.	has full shells of electrons.	
19.	The i	ion formed by the element X of at	omic number 13 is
	A.	X^{3+}	
	B.	X^{2+}	
	C.	X^{2-}	
	D.	X^{3-}	
20.	Whic	ch of the following mixtures is bes	st separated by chromatography?

	A. B.	Ink Crude petroleum
	C.	Water and oil
	D.	Water and ethanol
21.	Whice gas?	ch one of the following is an electronic configuration of an atom of an inert
	8	
	A.	2:8:8
	B.	2:8:7
	C.	2:8:6
	D.	2:8:8:1
22.	The r	number of neutrons in the nucleus of an atom, 37X is
		17
	A.	17
	B.	20
	C.	37
	D.	54
23.	with	xide of metal Z reacts with magnesium when heated but it does not react copper. The order of reactivity of Z, magnesium and copper starting with the reactive is
	A.	Cu, Z, Mg
	В.	Z, Mg, Cu
	C.	Mg, Cu, Z.
	D.	Mg, Z, Cu
	υ.	141g, 2, Cu
24.	Whic	ch one of the following substances sublimes when heated?
	A.	ZnO
	B.	$CaCI_2$
	C.	${ m I}_2$
	D.	P
25.	Whic	atomic numbers of elements Q, R, S, and T are 8,9,13 and 17 respectively. The one of the following pairs of elements belongs to the same group in the dic table?

Q and R Q and S

A. B.

	D. Zinc
	C. Silver
	B. Calcium
	A. Aluminium
30.	Which one of the following metals will not displace lead from its salt in solution
	D. tin and lead.
	C. copper and aluminium
	B. copper and lead
_,.	A. zinc and lead
29.	The alloy solder consists of
	D. 4
	C. 3
	B. 2
	A. 1
28.	A carbonate of an element Y has the formula Y ₂ (CO ₃) ₃ . To which group in the Periodic Table does Y belong?
	D. Action of steam on zinc.
	C. Action of dilute hydrochloric acid on zinc.
	B. Action of water on magnesium
	A. Electrolysis of water.
27.	Which one of the following methods is normally used to prepare hydrogen in the laboratory?
	D. anhydrous iron (III) oxide
	C. anhydrous iron (II) oxide
	B. hydrated iron (III) oxide
	A. hydrated iron (II) oxide
26.	The red brown coating formed when iron nail is left in moist air for a long time i
	D. S and T
	C. R and T

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(b) O	xidatior	1		• • • • • • • • • • • • • • • • • • • •							
	Iixture	•••••	• • • • • • •	••••••		•••••		• • • • • • •	•••••	• • • • • • • • • • • • • • • • • • • •	
(f) Re	eduction	 I	•••••	•••••	•••••			•••••	•••••	•••••	
32.	Part o		Periodi								al symbols
		2	55		8200		y H H was			VIII	1
		1	п		111	IV.	· ·	VI	VII	-	
		P	Q				s		U		
									w	v	
	(a)	Whi	ch is tl	ne least re	eactive ele	ement?	' (1 m	ark)			
(1 m	(b) nark)	Whi	ch one	of the el	ements, T	, U and	d W re	eacts m	nost vig	orously	with Q?
	(c)	Writ	e the f	ormula o	f the comp	ound	forme	ed betw	een Q	and S. ((1 mark)

	(d)	State	compound formed between P and W was dissolved in whether resultant solution was acidic, basic or neutra	l. (1 mark)
	(e)	Whic	ch two elements represented in the table can react as reas?(1 mark)	educing
	Define	the ter	m oxide (1 marks)	
(b) Stat	e whe	ther the	e following oxides are acidic, basic, neutral or amphor	teric.
` '				
34.	` '		n water was added to solid \mathbf{X} , a colourless, odourless a glowing splint.	gas was evolved
		(i)	Name solid X.	(01 mark)
		(ii)	Write an equation for the reaction that took place.	
	(b) solution		what would be observed if litmus paper was added to a) above.	the resultant (01 mark)
	(c) N mark)		ay other substance that evolves a colourless gas in (a)	above. (01
		• • • • • • • • • • • • • • • • • • • •		

SECTI	ON	C
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35. (a) Write the reactivity series in their order.

(b)	With equations als	ex	nlain how	the	following	metals	react w	ith v	water
١	U,	with equations are	$J, \cup \Lambda$	vpram now	uic	TOHOWINE	metais	react w.	ıuı v	nau.

- (i) Patassium
- (ii) Sodium
- (iii) Calcium
- (iv) Magnesium
- (c) How can water be prepared in the laboratory.
- (d) How is water important?

36. (a) Write the formula for the following compounds

- (i) Magnesium sulphate
- (ii) Iron(II) sulphate
- (iii) Hydrogen chloride
- (iv) Phosphorus penta oxide

(b) Write well balanced chemical equations for the following chemical reactions.

- (i) Sodium + Oxygen Sodium oxide
- (ii) Carbon dioxide + Sodium hydroxide → Sodium carbonate + Water
- (iii) Copper + Sulphuric Acid → Copper(II) Sulphate + Sulphur dioxide + Water
- (iv) Zinc + Sulphuric Acid → Zinc sulphate + Hydrogen
 - (c) Complete the following equations:

(b) Zn(s) + HCl(aq)

END