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Paper 2 (Chemistry)

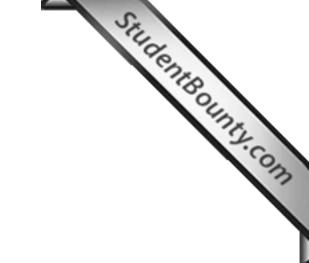
Writing Time: $1\frac{1}{2}$ Hours

Total Marks: 80

READ THE FOLLOWING DIRECTIONS CAREFULLY:

- 1. Do **not** write for the first **fifteen minutes**. This time is to be spent reading the questions. After having read the questions, you will be given **one and a half hours** to answer all questions.
- 2. Write your index number in the space provided on the top right hand corner of this cover page only.
- 3. In this paper, there are **two** sections: A and B. Section **A** is compulsory. You are expected to attempt **any four** questions from Section **B**.
- 4. The intended marks for questions or parts of questions, are given in brackets [].
- 5. Read the directions to each question carefully and write **all** your answers in the space provided in the **question booklet** itself.
- 6. Remember to write quickly but neatly.
- 7. **Do not** remove or tear off any pages from the question booklet.
- 8. **Do not** draw lines or pictures **on** or **in** the question booklet to beautify it.
- 9. **Do not** leave the examination hall before you have made sure that you have answered all the questions.

	For Chief Marker's and Markers' Use Only														
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Question 1

		SECTION A (40 Marks) Compulsory: To be attempted by all candidates. ctions: Each question in this part is followed by four possible choices of answers.												
		dente												
		SECTION A (40 Marks)												
		Compulsory: To be attempted by all candidates.												
Ques	tion 1													
(a)		ctions: Each question in this part is followed by four possible choices of answers. ose the correct answer and write it in the space provided in the question booklet. [15]												
(i)	The law which states that 'Equal volumes of all gases under similar conditions of temperature and pressure contain the same number of molecules' is													
	A	Avogadro's law.												
	В	Boyles law.												
	\mathbf{C}	Charles law.												
	D	Gay Lussac's law.												
	Ansv	ver:												
(ii)	The 1	metal extracted by the process of electrolysis is												
	A	aluminium.												
	В	copper.												
	C	iron.												
	D	lead.												
	Ansv	ver:												
(iii)		reaction between concentrated sulphuric acid and sugar produces carbon and water. is reaction sulphuric acid acts as a												
	A	dehydrating agent.												
	В	oxidising agent.												
	\mathbf{C}	reducing agent.												
	D	drying agent.												
	Ansv	ver:												
(iv)	The p	process by which covalent compounds are converted to ions in water solution is called												
	A	ionization.												
	В	hydrolysis.												
	C	calcination.												
	D	dissociation.												
	Ansv	ver:												

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		e periodic table, elements of Group II A are called earth metals. alkali metals. transition metals
(v)	In the	e periodic table, elements of Group II A are called
		The state of the s
	A	earth metals.
	B	alkali metals. transition metals.
	C D	alkaline earth metals.
	D	arkanne earth metals.
	Answ	ver:
(vi)	In the	e periodic table, fluorine, chlorine, bromine and iodine belong to the family
	A	alkaline earth metals.
	В	alkali metals.
	C	noble gases.
	D	halogen.
	Answ	/er:
(vii)	A nit	rate which produces dinitrogen oxide on heating is
	A	KNO_3 .
	В	NH_4NO_3 .
	\mathbf{C}	$Ca(NO_3)_2$.
	D	$Mg(NO_3)_2$.
	Answ	/er:
(viii)	The v	ressel in which electrolysis is carried out is called the
	A	electrolytic chemical cell.
	В	electrolytic cell.
	\mathbf{C}	electrodes.
	D	electrolyte.
	Answ	/er:
(ix)	Whic	h of the organic compounds given below contains a triple bond between two carbon atoms?
	A	methane
	A B	ethane
	C	ethyne
	D	ethene
	Answ	ver:

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(x)	An all	oy of zinc and copper is
	A B C D	brass. bronze. duralumin. magnalium.
	Answe	er:
(xi)	The re	elative molecular weight of CH ₃ COOH is
	A B C D	63. 62. 61. 60.
	Answ	er:
(xii)	The cl	hemical formula of bauxite is
	A B C D	$\begin{array}{l} AlF_6.\\ Al_2O_3.\\ AlSi_3O_8.\\ Al_2O_3.2H_2O. \end{array}$
	Answe	er:
(xiii)	In the	diagram given below, the gas ' X ' produced is
	A B C D	hydrogen chloride. nitrogen dioxide. chlorine. oxygen.
	Answ	er:

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Column A	Column B
1. sodium hydroxide	a) elements of group IIA and IIIA
2. transition metals	b) example of alkyne
3. chlorine	c) used in making plastics
$4. C_nH_{2n}$	d) manufacture of soap
5. ethane	e) greenish yellow in colour
6. C ₂ H ₂	f) reddish brown in colour
	g) elements of group VIIA
	h) general formula of alkene

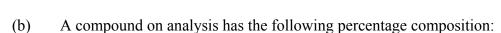
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- (e) Answer the following questions.
- (i) Name the compound which in either aqueous solution or molten state allows an electric current to pass through it. [1]
- (ii) Which is the most electronegative element in the periodic table? [1]
 -
- (iii) Which of the following would weigh the most?
 - (At. Wt.: N = 14, H = 1, O = 16, C = 12)
 - 1. one mole of carbon dioxide
 - 2. one mole of water
 - 3. one mole of ammonia

[1]

	4. one mole of carbon monoxide	Un
(iv)	From the equation: $CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$, calculate the weight of calcium chloride obtained from 10 gm of calcium carbonate. (At. Wt.: $Ca = 40$, $C = 12$, $O = 16$, $Cl = 35.35$)	[3]
(v)	Name the catalyst used in the laboratory preparation of nitric acid by Ostwald's process.	[1]
	SECTION B (40 Marks)	
	Attempt any four questions	
Ques	tion 2	
(a) (i)	An element <i>X</i> has atomic number 17 and mass number 35.5. Name the element and give its valency.	[4]
(ii)	To which group does it belong?	
(iii)	What is the general name of the elements of this group?	
(iv)	Is it a metal or a non-metal? Why?	

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$$H = 9.09\%$$
, $O = 36.26\%$, $C = 54.55\%$. Its vapour density is 44.

(At. Wt.:
$$C = 12$$
, $H = 1$, $O = 16$)

(11. W... C 12, 11 1, O 10)

Calculate its molecular formula.

(c) Arrange the following elements in increasing order of their atomic size.

$$_{13}Al^{27}$$
, $_{12}Mg^{24}$, $_{14}Si^{28}$, $_{15}P^{31}$

.....

Question 3

(ii)

- (a) In order to electroplate a car key with silver,
- (i) what ions must be present in the electrolyte?

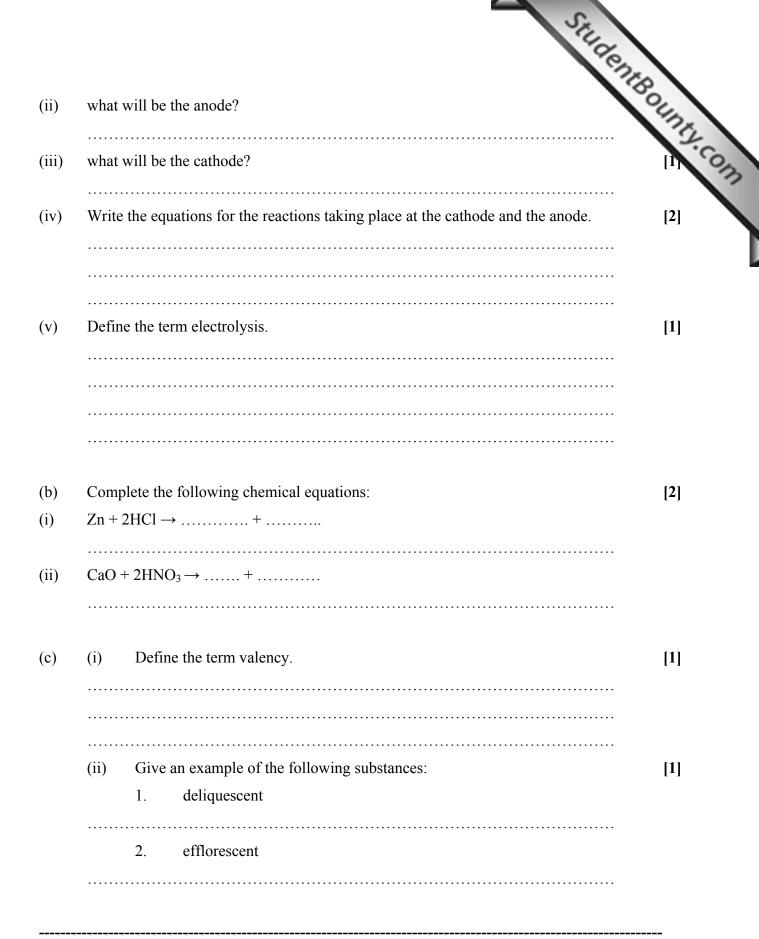
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[2]

[1]



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[2]

(a) Zinc sulphate when heated in air reacts according to the following equation:

$$2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$$
 (At. Wt.: $Zn = 65$, $S = 32$, $O = 16$)

(i) Calculate the weight of zinc oxide formed if 388 gm of zinc sulphide is heated.

(ii) Calculate the number of moles of oxygen required at the same time.

/•• >			
(ii)	Chlo	rine water is stored in dark coloured bottles.	
	•••••		
	•••••		
	•••••		
(c)	(i)	In the preparation of chlorine from concentrated hydrochloric acid, what	
		is the role of manganese dioxide?	[
	·····	Circ - simple to the ideation of the state in the state i	r·
	(ii)	Give a simple test to identify chlorine gas.	[]
	•••••		
	•••••		

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[1]

Question 5

(b)

(a) (i) Distinguish between an acid salt and a normal salt in the table given below.

ion 5		given below.
	n acid salt and a normal salt in the table	e given below.
Acid salt	Normal salt	OM
		1

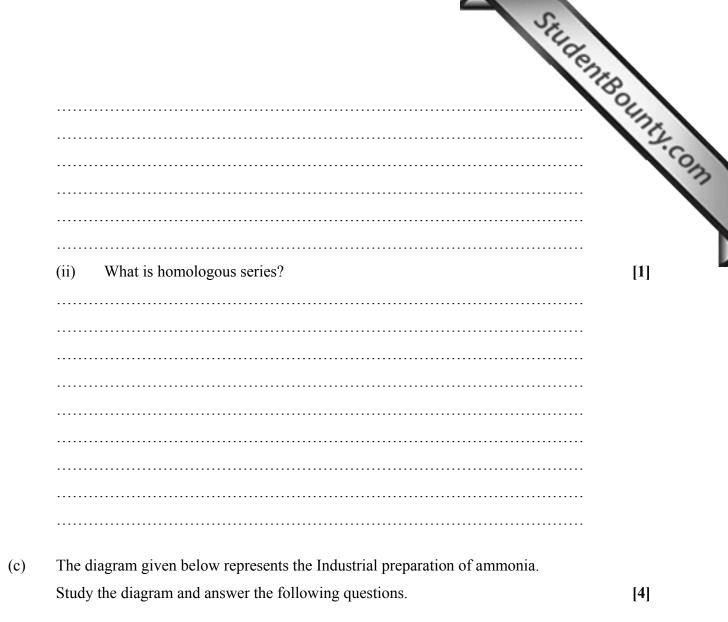
Name an acid salt formed by the reaction of sulphuric acid and sodium (ii) hydroxide.

(i) What weight of magnesium oxide would be obtained by burning 96 gm of magnesium in air? [3]

Name a metal which is stored in kerosene. [1] (ii) 1. 2. Name a metal which is liquid at room temperature. [1]

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Student Bounty.com (i) Name the process. (ii) State *three* conditions required for the process to occur. (iii) What is the ratio by volume of nitrogen and hydrogen used as the reactants? (iv) Give the balanced chemical equation for the process. **Question 7** 'All bases are not alkali and all alkali are bases'. Justify this statement (i) (a) with two examples. [2] State two uses of ethyl alcohol. [2] (ii) [1] What is empirical formula? (b) (i)

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