GREENLAWNS HIGH SCHOOL
PRELIMINARY EXAMINATION YEAR 2016-2017

SUBJECT : CHEMISTRY **CLASS : X**
TIME : 2 HOURS **MARKS :80**

Answers to this paper must be written in the paper provided separately.
You will not be allowed to write during the first 10 minutes.
This time is to spent in reading the question paper.
Section I is compulsory section.
Section II has 6 questions. Solve any 4 questions.

Section I
(Compulsory Section)

Question 1

a) Name them:- (10)
   i) a gas that turns lead acetate paper black.
   ii) an acidic hygroscopic substance.
   iii) electrolyte used in silver plating.
   iv) a burning metal which combines directly with nitrogen.
   v) a substance used to remove earth impurities.
   vi) an explosive formed when ammonia reacts with chlorine.
   vii) a compound used to make denatured spirit.
   viii) a tetra atomic gas having a triple bond.
   ix) a polar covalent compound.
   x) drying agent for ammonia.

b) The list of some organic compounds is given below (3)
   Ethanol, ethane, methanol, methane, ethyne, ethene
   Name a compound
   i) formed by the dehydration of ethanol by concentrated sulphuric acid.
   ii) which gives a red precipitate with ammonical cuprous chloride solution.
   iii) which forms methanoic acid on oxidation in the presence of copper at 200 C.
   iv) which has vapour density 14 and turns alkaline potassium permanganate green.
   v) which forms chloroform on halogenations in presence of sunlight.
   vi) which decolorizes bromine solution in carbon tetrachloride.

c) Which property of sulphuric acid is used in the following? (5)
   i) As a source of hydrogen when treated with Zn.
   ii) Production of hydrogen chloride on treating concentrated acid with sodium chloride.
   iii) Production of sulphur dioxide on heating in concentrated form with copper turnings.
   iv) Liberation of sulphur from H_2S with concentrated form.
   v) Liberation of carbon monoxide with hot concentrated acid.
   vi) Charring of sugar with concentrated sulphuric acid.

d) Give the composition and 1 use of the following alloys. (5)
   i) Brass ii) Bronze iii) German silver iv) Magnalium
   v) Type metal

e) The ore zinc blende is an important of metal zinc. (3)
   i) Give the formula of zinc blende.
   ii) Which compound is formed on roasting zinc blende.
   iii) Give the equation for reduction of the ore
   iv) How is zinc refined? Why?

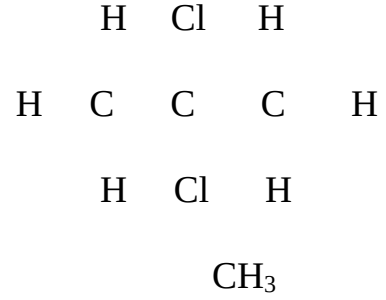
f) Draw the electron dot structure of formation of hydronium ion. (2)

g) What do you observe when (5)

   i) a strip of copper is placed in KNO_3, $Zn(NO_3)_2$, $Ca(NO_3)_2$, $AgNO_3$ in each.
   ii) dry ammonia is passed over red hot copper.
   iii) few drops of concentrated nitric acid are added on sawdust.
   iv) Bleaching powder is added to dilute sulphuric acid.
   v) slaked lime is heated with sal ammoniac.

h) Write down the IUPAC name for the following compounds. (3)

i.



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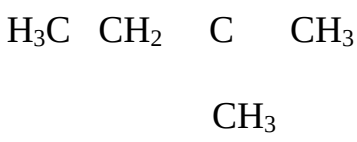

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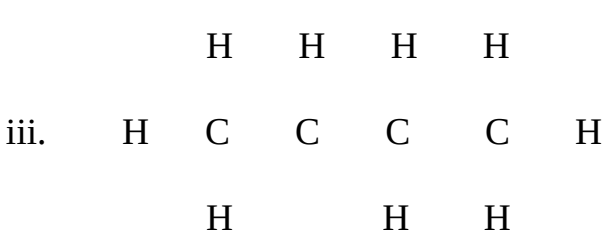
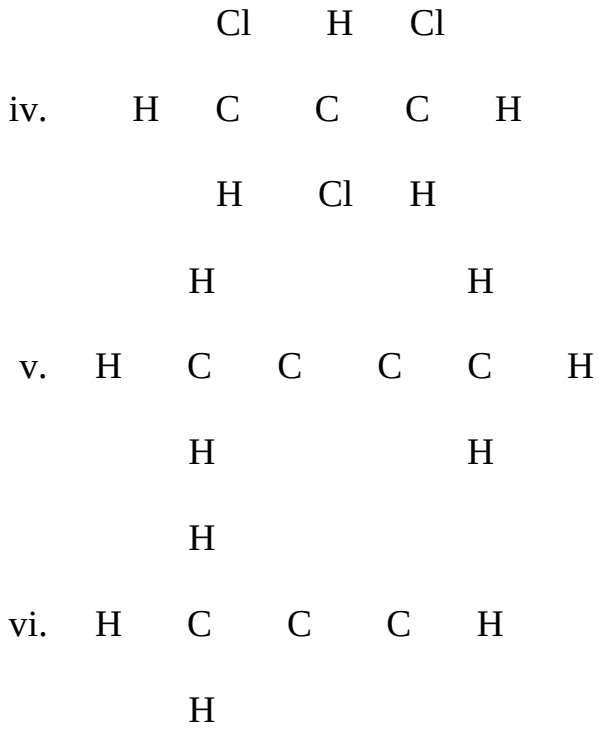




iv.

v.

vi.

i) Draw the structural formula of the following: (5)
   i) Acetone
   ii) Acetic acid
   iii) Acetaldehyde
   iv) ethanol
   v) But – 2 – yne

SECTION II

Solve any 4 questions from the given 6.

Question 2

a) Alumina cannot be electrolysed easily. Therefore certain substance are added to convert this alumina to aluminium. (5 ½)
   i) Name the substances added to the main electrolyte.
   ii)What is the importance of the substance.
   iii)Name the material the cathode and anode are made of?
   iv)Give equations for the reactions taking place at the cathode and the anode.
   v)Give the name and the formula of the main ore.
   vi)Why is sodium hydroxide added.

b) Copy and complete the following table relating to 3 important individual processes.(4 ½)

Name of process	Inputs	Equation for catalytic reaction	Output
i) _____	ii)_____	iii)_____	Nitric acid
Habers	iv)_____	v)_____	vi)_____
vii)_____	viii)_____	$2SO_2 + O_2 \rightarrow 2SO_3$	ix)_____

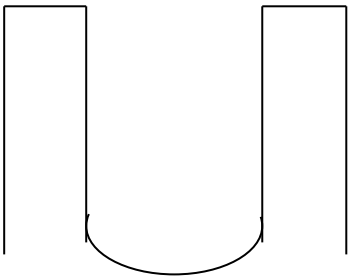
Question 3

a)	1	2	13	14	15	16	17	18
Period 2	A	B	C	D	E	F	G	H
Period 3	I	J	K	L	M	N	O	P
		Q	R	S	T	U		

Study the portion of periodic table as shown above and answer. With respect to above table answer:

i) Which is the most electropositive element?
ii) Which is the most electronegative element?
iii) Which element has properties similar to O?
iv) Name a noble gas
v) Which element has valency 4?
vi) Name the elements of period 3. (5)

b)



The above set up shows electrolyses of acidulated water.

i. Why is the water acidified?
ii. Which acid is added? Why?
iii. Give the dissociation reaction taking place.
iv. What information does this electrolysis give us? (2 points)
v. Give the reaction taking place at cathode and anode.
vi. Is this electrolysis a catalytic reaction? Why?

Question 4 (2 ½)

a) A – Copper nitrate
b) B – Iron (III) chloride
c) C – Iron (II) sulphate
d) D – Magnesium sulphate
e) E – Lead nitrate
f) F – Zinc chloride

i. Which two solutions will give a white precipitate when treated with dilute hydrochloric acid.
ii. Which two solutions which give a white precipitate when dilute nitric and followed by silver nitrate solution.
iii. Which solution will give a white precipitate when either dilute hydrochloric acid or sulphuric acid.

iv. Which solution becomes only blue when excess ammonium hydroxide is added to it.

v. Which solution given white precipitate when excess ammonium hydroxide is added to it.

b) How many molecules are present in (2)

i. 2.2 g of CO_2

ii. 44.8 l of oxygen.

c) A compound X reacts with Y in the presence of soda lime to form Z which is an insoluble gas. (3)

i. Write an equation between X and Y.

ii. Name the product when gas Z undergoes chlorination.

iii. If gas Z undergoes combustion in absence of oxygen, name the compound formed.

d) Give the common names for (2 ½)

i) hydrochloric acid

ii)ammonium hydroxide.

iii) nitric acid.

iv) ammonium chloride

v) calcium hydroxide

Question 5

a) Two different elements A and B have atomic number 12 and 14. Write down (5)

i) their electronic configuration.

ii) the groups they belong to

iii)the formula of the oxides.

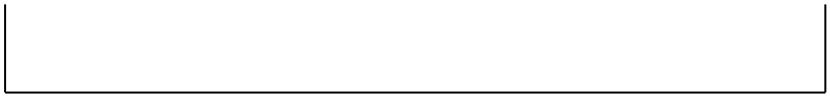
iv)the period they belong to.

b) i) A solution has pH of 7. Explain how you would increase the pH. (3)

ii)Define pH.

iii)List 2 uses of pH.

iv)Studying the scale drawn below identify whether A, B, C are acidic, baric or neutral in nature.



c) i) Calculate the mass of $KClCO_3$ required toproduce 6.72 litres of O_2 at STP. (2)
(K = 39, Cl = 35.5 O = 16)

ii)Also find the number of moles of oxygen produced.

Question 6

a) An electrolytic cell is an set-up using the platinum electrodes and an aqueous solution of copper sulphate. (3)

i) Name the ions present in the cell.

ii) Name the ions moving towards the anode and cathode.

iii)List 2 changes seen at the end of the reaction – except increase in cathode.

b) An organic compound contains 2.15% hydrogen, 26.8% carbon and the rest of oxygen. If its V.D is 45 find the E, F and M.F of the compound. (2)

c) How would you carry out the following conversions. (5)
i) non metal to acid.
ii)salt to base.
iii)an alkali to another alkali.
iv)basic gas to alkali.
v) an oxide to acid.

Question 7

a) (5)

General Formula	C_nH_{2n}	C_nH_{2n+2}	C_nH_{2n-2}
Name of homologous series	alkene	(i)	(ii)
Bond	(iii)	(iv)	(v)
IUPAC name of I st member	(vi)	(vii)	(viii)
Type of reaction	(ix)	substitution	(x)

b) The figure given below shows the lab preparation of acetylene gas. (3)
i) How is it prepared in the lab - give equation.
ii)Give the structured formula and Molecular formula of the compound formed when acetylene is hydrogenated.
iii)What do you mean by esterification.

c) With respect to Aqua Regia (2)

i) Give an equation to show its application.
ii) Hydrogen chloride contains hydrogen and chlorine. Justify with the helps of equation.