

GREENLAWNS HIGH SCHOOL
PRELIMINARY EXAMINATION YEAR 2020

SUBJECT : CHEMISTRY
TIME : 2 HRS.

CLASS : X
MARKS : 80

Answers to this paper must be written on the paper provide separately.

You will not be allowed to write for the first ten minutes.

This time is to be spent in reading the question paper.

Section I is compulsory.

Section II has 6 questions. Solve any four.

SECTION - I

Question 1.

[10]

a) Name them

- i) A soluble lead salt.
- ii) Property of carbon atoms to link to each other to form chains or rings.
- iii) Avogadro number
- iv) A halide ore of aluminium
- v) A saturated compound prepared from sodium propionate
- vi) 1st member of alkyne group
- vii) An acidic oxidising agent
- viii) General formula of aldehydes
- ix) An alloy containing mercury
- x) An oily explosive liquid.

b) Give a reason for the following statements.

[5]

- i) Acetic acid is a monobasic acid.
- ii) Sulphuric acid is kept in closed air tight bottles
- iii) Metals are good reducing agents
- iv) Electron affinity decreases if atomic size increase
- v) Cryolite and fluorspar are added to alumina

c) What would you observe

[5]

- i) When a piece of calcium is dropped in cold water
- ii) Copper oxide is treated with dilute hydrochloric acid.
- iii) Acetylene is bubbled through ammonical cuprous chloride solution.
- iv) Copper is heated with concentrated nitric acid and the gas evolved is bubbled through potassium iodide solution.
- v) Ammonium sulphate is heated with caustic soda and the gas bubbled through methyl orange solution.

- d) A to F are salts [3]
A – Copper nitrate
B – Iron (II) sulphate
C – Ferric chloride
D – Lead nitrate
E – Magnesium sulphate
F – Zinc chloride

- i) Which solution will give a white precipitate with dilute hydrochloric acid.
ii) Which solution will become inky blue on reacting with excess ammonium hydroxide?
iii) Which salt is deliquescent?
iv) Which salt solution is used to carry out Brown Ring Test?
v) Which salt on heating gives a black residue.
vi) Which solution is formed by direct synthesis

- e) Calculate the weight of each of the following [2]

- i) An atom of sulphur (S = 32)
ii) A molecule of sulphur dioxide (O=16)

- f) Draw the electron dot diagram to show the formation of hydronium ion [1]

- g) Give the composition of the following [2]

- i) Bronze
ii) Solder

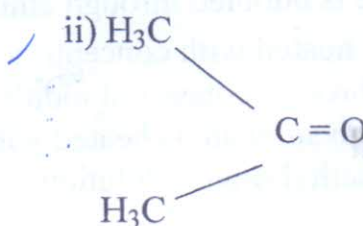
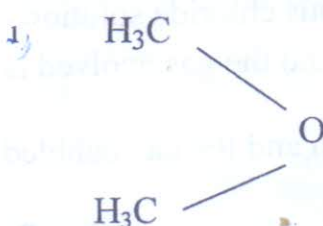
- h) Give equations for the following organic compounds [5]

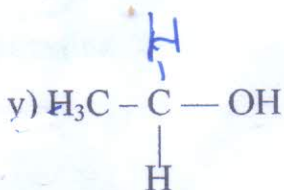
- i) Methane using a salt
ii) Ethanol using an alkyl halide
iii) Methane using an alkyl halide
iv) Ethyl acetate using ethanol
v) Laboratory preparation of ethyne

- i) Ammonia reacts with sulphuric acid to form ammonium sulphate. Calculate [2]

- i) the volume of ammonia required at S.T.P
ii) the mass of sulphuric acid used to produce 66 g of ammonium sulphate

- j) Name the following organic compounds (IUPAC names) [2 ½]





k) Draw the structural formula of

[2 ½]

- i) Acetone
- ii) 1,2 dichloro ethane
- iii) Ethyl bisulphate
- iv) Chloroform
- v) Butyric acid

SECTION - II

Solve any 4 questions from the given 6 questions.

Question 2.

a) With reference to the laboratory preparation of ammonia answer the questions that follow.

[5]

- i) Give an equation for the same.
- ii) How is the gas collected? Why?
- iii) Give a chemical test for the gas.
- iv) Give equation for the laboratory preparation of ammonia using a metal
- v) Give 1 difference between Aqua fortis and Aqua Regia (composition)

b) Study the table and answer the questions that follow

[5]

IA	IIA	IIIA	IVA	V A	VIA	VIIA	O
A							H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X

- i) Which is the most electro positive element?
- ii) Which is the most electronegative element?
- iii) Which elements have properties similar to O ?
- iv) Which elements are noble gases ?
- v) Which elements have valency 4 ?
- vi) Which is more metallic Q or R ?
- vii) Which is more non-metallic, T or M. ?
- viii) Which elements are represented by letters J, N and O?

Question 3.

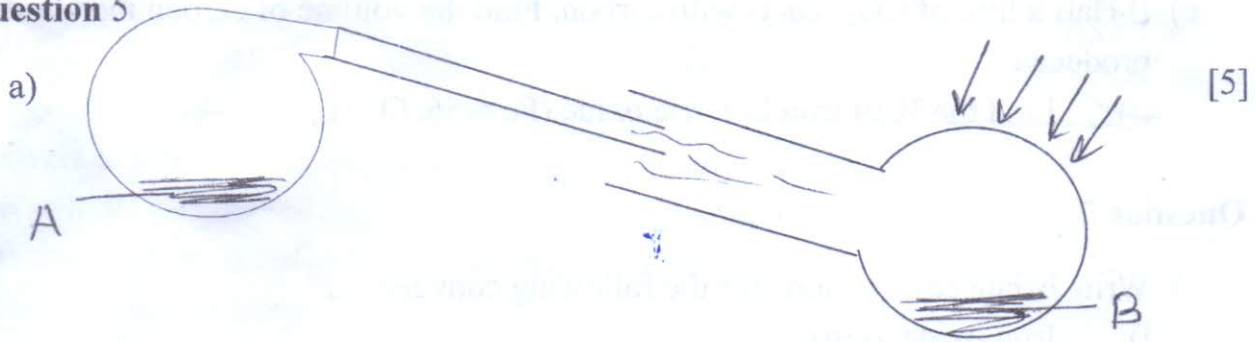
- a) Give a chemical test to differentiate between the following pairs. [5]
- i) Ethene/ethane
 - ii) Ethene/ethyne
 - iii) Ethanol/ ethanoic acid
 - iv) Silver nitrate/ lead nitrate
 - v) Sulphur dioxide/ hydrogen sulphide
- b) With respect to the extraction of aluminium. [5]
- i) Give the dissociation reaction of the electrolyte in Hall Heroult's.
 - ii) Explain 'seeding' with respect to extraction of aluminium.
 - iii) What do you mean by 'passivity of aluminium? How is it useful?
 - iv) Name any 2 alloys of aluminium. Give their composition.

Question 4.

- a) With respect to contact process. [5]
- i) Give an equation of for oxidation of the ore.
 - ii) How is the sulphur trioxide obtained in this process converted into an acid (give an equation)? Why? Give equation.
 - iii) How would you differentiate between dilute and concentrated sulphuric acid.
 - iv) Give an equation to show non-volatile nature of H_2SO_4 .
- b) With respect to electroplating and article with silver. [5]
- i) Give the name of the electrolyte used?
 - ii) Give the dissociation of the above mentioned electrolyte.
 - iii) What type of a salt is it?
 - iv) List 3 conditions necessary for electro plating. Give a reason for each.
 - v) What is the importance of electroplating (2 points)

vi) Give the equations for the reactions taking place at the cathode and anode

Question 5



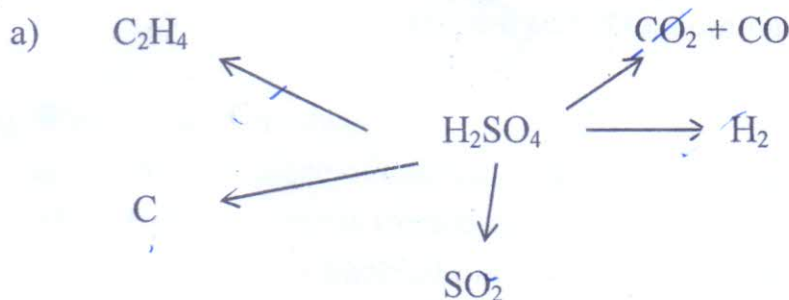
The above set up represents the preparation of nitric acid in the laboratory.

- i) Give an equation for the same.
 - ii) Give 3 special features of this set up.
 - iii) List 1 condition necessary for the Brown Ring Test. Give reason.
 - iv) Give equations for Ostwald's process.
 - v) Complete the following equation copper + dilute nitric acid.
- b) Give differences between. [3]
- i) slag/Flux
 - ii) quenching / annealing
 - iii) roasting and calcination

- c) An organic compound contains [2]
C = 12.67% H = 2.13% Br = 85.11%
Find the M.F.
V.D. = 94
(C = 12, H = 1, Br = 80)

Question 6.

Write equations for the above conversions. Remember to mention dilute or concentrated acid. [5]



- b) Define [3]
- i) Homologous Series
 - ii) Alloy
 - iii) Isomerism

- c) i) Half a litre of CO_2 reacts with carbon. Find the volume of carbon monoxide produced. [2]
ii) Find the % of iron in ferric oxide ($\text{Fe} = 56, \text{O} = 16$)

Question 7

- a) Write balanced equations for the following conversion. [5]
i) Iron oxide to iron
ii) Sodium thiosulphate to sodium chloride
iii) Aluminium nitride to a basic gas
iv) A black basic oxide to a pinkish metal
v) Carbon to an acid
- b) Using hydrochloric acid give equations to prepare [3]
i) A neutral gas
ii) An acidic gas containing carbon
iii) A gas with the smell of rotten eggs.
- c) Give a reason why the following are used: [2]
i) NH_3 as a refrigerant
ii) HCl acid in pickling
iii) NH_4OH in the laundry
iv) Ethyne in agriculture.