

GREENLAWNS HIGH SCHOOL
TERMINAL EXAMINATION YEAR 2019-20

SUBJECT : CHEMISTRY
TIME : 2 HOURS

CLASS : X
MARKS :80

Answers to this paper must be written paper provided separately.
You will not be allowed to write for the first 10 minutes. This time is to be spent in reading the question paper.

There are 2 sections in the paper.

Section I is compulsory section. Solve all questions

Section II has 6 questions. Solve any 4 questions.

SECTION – I

Question 1

- a) Name them. [10]
- i) Most electronegative element in group VII – A
 - ii) Catalyst used in contact process
 - iii) Metal that reacts with cold and dilute nitric acid to produce hydrogen.
 - iv) Common name for hydrochloric acid
 - v) Heating of sulphide ores
 - vi) Main ore of iron.
 - vii) Aqua Fortis
 - viii) Complex salt containing silver
 - ix) Common name for ammonium chloride
 - x) Zinc vapours
- b) Draw an electron dot diagram to show the formation of ammonium ion. [1]
- c) Give equation for the following reactions. [5]
- i) Catalytic oxidation of ammonia
 - ii) Action of concentrated sulphuric acid on sulphur.
 - iii) Action of caustic soda on zinc granules
 - iv) Reaction between ammonia and red hot copper
 - v) Burning of iron pyrites in excess air.
- d) 3 elements P,Q,R belong to the same period. The sulphate of P is PSO_4 ; nitrate of Q is $Q(NO_3)_3$ and carbonate of R is R_2CO_3 [5]
- i) Arrange the elements in increasing valencies.
 - ii) Arrange elements in decreasing order of their atomic radii
 - iii) Arrange the elements in increasing order of Ionization Potential
 - iv) State the group to which Q belongs
 - v) Among P,Q and R which is the most metallic element
 - vi) Define electron affinity.

- e) Classify the following as strong, weak or non electrolytes. [3]
- Dilute sulphuric acid
 - Acetic acid
 - Sugar solution
 - Acetone
 - Ammonium hydroxide
 - Sodium hydroxide
- f) Give reasons for the following [5]
- Sulphur trioxide is not directly dissolved in water to obtain sulphuric acid
 - Group VII A are strong oxidising agent.
 - Aluminium is extracted from its oxide by electrolysis
 - Fuming nitric acid can be stored in aluminium vessels but not in copper vessels
 - Electrolysis a redox reactions.
- g) What would you observe if [5]
- Ammonium hydroxide is added in excess to Zinc Chloride solution.
 - Lead nitrate is heated
 - Hot water is added to magnesium nitride
 - Dry chlorine is passed over red hot iron.
 - Lead nitrate solution is added to Sodium chloride solution.
- h) Give equations for the preparation of the following salts. Also mention the method of preparation. [6]
- Blue vitriol
 - Washing soda
 - Zinc Blende
 - Marble chips

SECTION - II

This section has 6 questions

Solve any 4 questions

Question 2.

- a) With respect to Hall Heroult's process, answer the questions that follow. [5]
- Give equations for the electrolyte.
 - What is the importance of the 2 substances added to the main electrolyte.
 - What do you mean by anode mud
 - List 3 special features of this process apart from the ones mentioned in (ii)
- b) Identify substances A, B, C and D [5]
- Substance A is a deliquescent substance which reacts with ammonium chloride to produce a gas which reacts with concentrated hydrochloric acid to produce dense white fume.
 - Substance B is a gas which reacts with silver nitrate to form a white precipitate.
 - Substance C is a black solid which when heated with concentrated hydrochloric acid forms a green solution which does not evolve any gas.

- iv) Substance D is a reddish brown deliquescent solid which is prepared by direct combination of neutral with gas.
- v) Substance E produces a brown gas and a gas which relights a glowing splint on heating. If substance E is treated with hydrochloric acid it forms a white precipitate which dissolves in hot water.

Question 3.

- a) With respect to electrolysis of acidulated water. [5]
 - i) What is the role of sulphuric acid?
 - ii) Why are inert electrodes used?
 - iii) Give the dissociation reaction for the electrolyte.
 - iv) Give equations for the reaction taking place at the cathode and anode.
 - v) What information do you get from the above electrolysis
 - vi) Name the special apparatus used for this electrolysis.
- b) Answer the following questions in context to the laboratory preparation of nitric acid. [5]
 - i) Give an equation for the same.
 - ii) How is the yellow colour of the acid removed?
 - iii) How would you differentiate between dilute and concentrated nitric acid (give equation and observation)
 - iv) Give the name for large scale preparation
 - v) Define constant Boiling mixture.

Question 4.

- a) Prepare the following products using sulphuric acid (Remember to write dilute or concentrate) [5]
 - i) a black spongy mass
 - ii) a mixture of Carbon monoxide and carbon dioxide
 - iii) a gas which turns lead acetate paper black
 - iv) ethene
 - v) Phosphoric acid
- b) Give the elements present in each of the following alloys. Also give 1 use. [3]
 - i) Brass
 - ii) Stainless steel
 - iii) Duralumin
- c) Calculate the gram molecules in 21g of nitrogen (at wt N = 14) [2]

Question 5.

- a) Name the kinds of particles present in [2]
 - i) sodium hydroxide solution
 - ii) Carbonic acid
 - iii) sugar solution
 - iv) fused lead bromide

b) Copper on reacting with concentrated sulphuric acid produces copper sulphate. If 1.28g of copper is to be converted to copper sulphate. Find [3]

i) the weight of CuSO_4 formed

ii) weight of H_2SO_4 used

iii) volume of SO_2 produced



(Cu = 64, S = 32, H = 1, O = 16)

c) Arrange the following elements in increasing order as instructed in brackets. [3]

i) Be, C, Li, B, N (Ionisation potential)

ii) Li, Rb, Cs, Na, K (Electro positivity)

iii) Si, S, Mg, Al, Na (Non metallic character)

d) How is sulphuric acid diluted? Why? [2]

Question 6.

a) With respect to laboratory preparation of hydrogen chloride [5]

i) Give an equation for the same

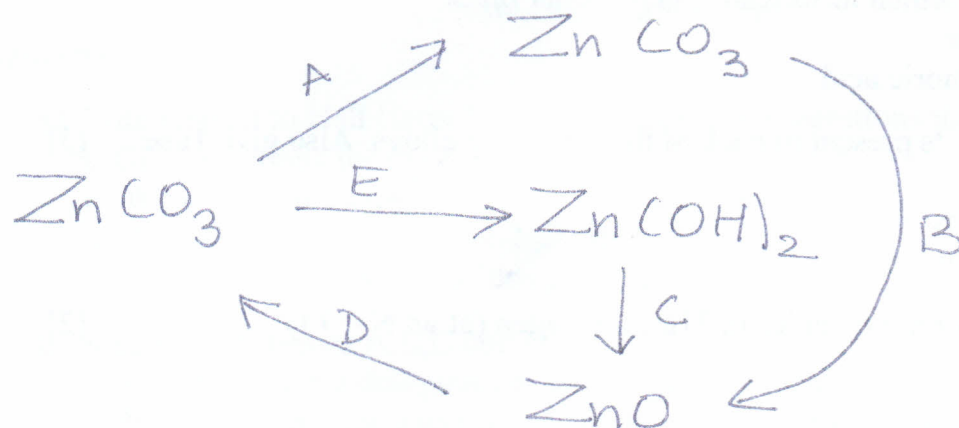
ii) How is the gas collected? Why?

iii) What is the aim of the Fountain experiment with respect to hydrogen chloride

iv) Give an equation to show the reaction between sodium thiosulphate and dilute hydrochloric acid.

v) Complete the following equation $\text{KMnO}_4 + \text{HCl} \longrightarrow$
Conc

b) Give balanced equation for the following [5]



Question 7.

a) How would you differentiate between the following (Chemical test) [5]

Give observation and equation

- i) Potassium Chloride and ammonium chloride.
- ii) Hydrogen chloride and hydrogen sulphide
- iii) Sodium hydroxide and ammonium hydroxide
- iv) Sodium chloride and sodium nitrate
- v) Zinc nitrate and calcium nitrate.

b) With respect to extraction of zinc. [5]

- i) Name any 2 common ores of zinc. Give the common name
- ii) Describe froth floatation
- iii) Give an equation for the reduction of the zinc oxide
- iv) Draw a diagram to show electro refining of zinc
- v) Give 2 uses of zinc.