

8

GREENLAWNS HIGH SCHOOL  
PRELIMINARY EXAMINATION YEAR 2018

SUBJECT : CHEMISTRY  
TIME : 2 HOURS

CLASS : X  
MARKS : 80

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

SECTION - I  
(40 MARKS)

Question 1 [10]

a) Name them

- i. The element with least ionization potential in period 3.
- ii. A basic hygroscopic substance
- iii. Impurities left behind at the bottom of the tank after electrolysis
- iv. Mixture of conc HCl and Conc  $\text{HNO}_3$  used to purify noble metals
- v. Basicity of sulphuric acid
- vi. A gas which turns acidified potassium dichromate from orange to green
- vii. Common name for methane.
- viii. A salt which turns from blue to colourless on heating.
- ix. A compound used as an anti freeze
- x. A stable carborate.

b) What do you observe when [5]

- i) Hydrogen chloride is bubbled through silver nitrate solution.
- ii) Dry ammonia is passed over red hot copper oxide.
- iii) Hot, conc sulphuric acid is poured on wood.
- iv) ammonium hydroxide solution is added to copper sulphate solution in excess.
- v) concentrated sulphuric acid is added to sodium chloride and the mixture is heated.

c) Give the composition of the following alloys. [3]

- i. solder
- ii. magnalium
- iii. brass
- iv. Sodium amalgam
- v. Bronze
- vi. Type metal

d) 2 elements A and B having atomic number 12 and 16 respectively. Write down [3]

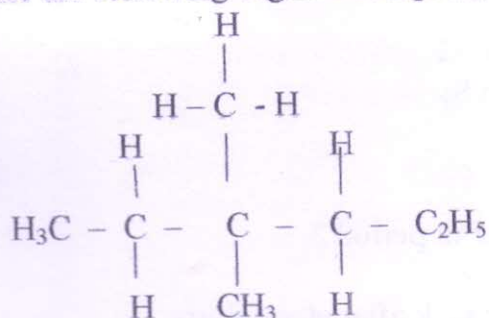
- i. The period they belong to
- ii. The group they belong to
- iii. The electron dot diagram of the compound formed between A and B
- iv. Is A an oxidizing agent or a reducing agent? Why?
- v. Give difference between I.P. and E.A
- vi. C, Li, N, F (ascending size)

e) Draw the structural formula of the following compound. [2 ½]

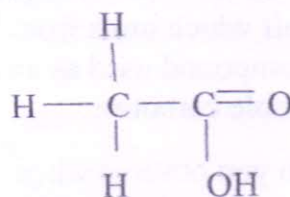
- i. Propanone
- ii. Butanal
- iii. Dimethyl ether
- iv. 2,3 dimethyl butane
- v. Propanoic acid

f) Name the following organic compound (IUPAC) [2 ½]

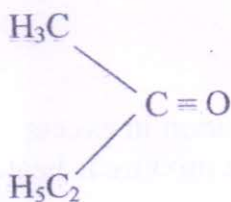
i)



iv)



v)



g) Give an equation and write your observation to show how you would differentiate between. [5]

- i. Ethene / ethyne
- ii. Sodium carbonate/ sodium sulphate
- iii. Copper nitrate/ copper carbonate
- iv. Acetic acid and ethanol
- v. Dilute and concentrated sulphuric acid

h) With respect to Oswald's process. [4]

- i. Give equation for the catalytic reaction.
- ii. Give a reaction to show the action of cold, dilute nitric acid on copper
- iii. How would you differentiate between dilute or concentrated nitric acid. Give equation and observation
- iv. Name the reagents used for the lab preparation of nitric acid.
- v. What do you mean by Passivity of iron?

- i) With respect to electrolysis. [5]
- What do you mean by 'electrolysis'?
  - Name the particles present in a compound which is a non electrolyte.
  - If a compound is defined as a strong electrolyte, what does this mean. Name one.
  - Arrange the followings coin in order of discharge of ions during electrolysis  
 $\text{Al}^{+3}$ ,  $\text{Cu}^{+2}$ ,  $\text{Na}^{+1}$ ,  $\text{Zn}^{+2}$
  - Name a compound which is covalent but dissolves in water to conduct electricity.
  - With respect to electrolysis of copper sulphate using platinum electrodes, list 3 changes seen.

SECTION - II

Solve any 4 from the given 6 question.

Question 2.

- a) Drawn below is a diagram showing the preparation of acetylene gas. [5]
- Give an equation for the preparation.
  - What is the role of acidified copper sulphate
  - Give equation to show hydrogenation of acetylene.
  - Give the structural formula and molecular formula of the next member of the same homologous series.
  - Give an equation to obtain acetylene from an alkane.
  - Convert acetylene to an alkyl chloride.
- b) Name the property and give an equation for the following (using sulphuric acid) [5]
- Preparation of hydrogen chloride
  - Preparation of carbon monoxide.
  - Preparation of sodium sulphate.
  - Preparation of carbonic acid.
  - Preparation of  $\text{CO}_2$ .

Question 3.

- a) With respect to electroplating with silver, [5]
- Name the electrolyte
  - Give its molecular formula
  - Give the dissociation of the above named compound.
  - Give 2 reasons why articles are plated
  - Name another electrolyte that may be used to plate with silver
  - Why is it not commonly used.
  - What type of salt is the compound mentioned in (i)
- b) Give equations to carry out the following equations. [5]
- Litharge to lead nitrate
  - Ferric chloride from iron filings
  - Ammonia to an explosive liquid
  - Decomposition of nitric acid
  - Iron pyrites to sulphurdioxide

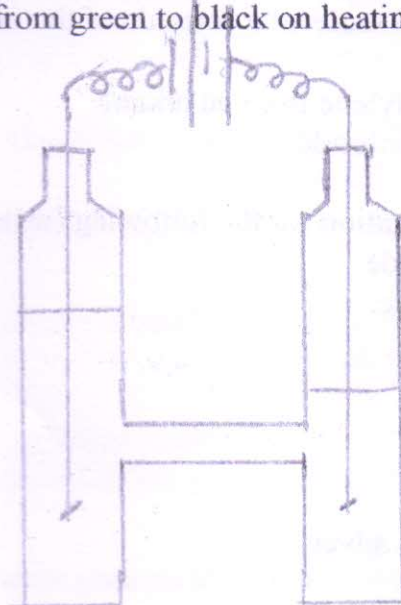
Question 4.

- a) With respect to Hall Heroult's process, 2 compounds are added to alumina
- Give 1 reason why each of these compounds is added
  - Give equation to show the electrolytic reaction taking place at cathode and anode.
  - List 3 features during the electrolysis except the ones mentioned above.
  - What is the importance of adding caustic soda to the ore in Baeyers process.
  - Name the process for refining the aluminum obtained in Hall Heroult process.
- b) Calculate (i) volume (ii) no of molecules law (iii) no of moles in 8g of oxygen. State avogadro's laws [3]

- c) From the list given  $\text{AgCl}$ ,  $\text{CuCO}_3$ ,  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ,  $\text{KNO}_3$ ,  $\text{NaCl}$ ,  $\text{Na}_2\text{CO}_3$ ,  $\text{NaHSO}_4$ ,  $\text{Pb}(\text{NO}_3)_2$ ,  $\text{ZnCO}_3$ ,  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$  (use options only) [3]
- an acidic salt
  - an insoluble chloride
  - salt which decipitates on heating
  - salt which produces brown fumes on heating
  - salt which changes from green to black on heating.
  - soluble carbonate

Question 5.

a)



Drawn above is a set -up to show electrolysis of water.

- Name the apparatus
- Give an equation for the reactions taking place at the cathode and anode.
- What information does this electrolysis give us.
- Above reaction is a catalysed reaction. Justify.
- List 3 factors that affect selection charge of ions during electrolysis.

- b) Define. [5]
- i) pH
  - ii) Catenation
  - iii) Flux
  - iv) Lone pair
  - v) Dissociation

Question 6.

- a) Give reasons [5]
- i)  $\text{H}_2\text{SO}_4$  is diluted by pouring the acid into water.
  - ii) It is dangerous to burn methane in insufficient supply of air.
  - iii) Hydrogen chloride does not turn dry blue litmus red, but turns moist blue litmus red.
  - iv) A cation is smaller than its atom.
  - v) Group I A elements are called alkali metals.
- b) Explain with the help of equation aluminothermy [2]
- c) Give the importance of the following [3]
- i) Cold water spray in lab prep of  $\text{HNO}_3$
  - ii)  $\text{CCl}_4$  in halogenations of alkene.
  - iii) Seeding in Hall Heroult.

Question 7.

- a) What is the mass of nitrogen in 1000 kg of urea [ $\text{CO}(\text{NH}_2)_2$ ] [2]  
N = 14, H = 1, C = 12, O = 16
- b) Find the M.F of the following compound 37.6% sodium, 23.1% of silicon, 39.3% oxygen.  $\text{O} = 16$ ,  $\text{Na} = 23$ ,  $\text{Si} = 28$  [3]
- c) Identify the type of salts given below. Also give their formula [3]
- i) Alum
  - ii) Sodium Potassium Carbonate
  - iii) Potassium mercuric iodide
- d) Draw the atomic structure electron dot diagram of hydronium ion. [2]