THE BISHOP'S SCHOOL,CAMP

PRELIMINARY EXAMINATION- 2

CHEMISTRY

CLASS-10 MARKS-80
TIME-2 HOURS DATE- 3-12-18

Answer to this paper must be written on the paper provided separately.
You will not be allowed to write during the first fifteen minutes.
This time is to be spent in reading the question paper.
The time given at the head of the paper is the time allowed for writing the answers.

SECTION A

(ATTEMPT ALL QUESTIONS FROM THIS SECTION)

Question 1

a) Select the correct answer from the options given below: (5)

1. During electrolysis of concentrated sodium chloride the product formed at cathode is

A. hydrogen

B. chlorine

C. oxygen

D. sodium

2. The hydroxide of this metal is soluble in excess of ammonium hydroxide solution

A. magnesium

B. zinc

C. lead

D. calcium

3. An example of deliquescent salt is

A. magnesium sulphate

B. zinc chloride

C. sodium sulphate

D. sodium carbonate

4. Which of the following has the maximum number of molecules at STP

A. 2 moles of nitrogen gas

B. 0.8gm of methane

C. 22.4lt of hydrogen

D. 20 gm of carbon monoxide

5. The organic compound which when mixed with ethyl alcohol makes it spurious

A. methy alcohol

B. formic acid

C. ethylene glycol

D. formaldehde.

b) Name the formula (formula is not accepted) (5)

1. Element with highest electronegativity .

2. Second member of acid series.(IUPAC name)

3. A metal other than mercury present in liquid amalgam.

4. The gas which turns acidified potassium dichromate solution clear green.

5. The reagent which can distinguish between 2thane and ethyne.

c) Write balanced chemical equation for the following reactions (5)

1. Sodium sulphide is added to dilute sulphuric acid.

2. Copper is heated with concentrated nitric acid.

3. Burning of ammonia in oxygen in absence of catalyst.

4. Red lead is heated with conc. HCl.

5. Cold water is added to calcium carbide.

d) State your observation for each of the following: (5)

1. Sodium hydroxide is added to lead nitrate solution in small quantity and then in excess.

2. Conc. HCl is added to potassium permanganate solution.

3. When acetic acid is added to neutral ferric chloride solution.

4. Excess of chlorine gas is reacted with ammonia gas.

e) Solve: (5)

1. Two organic compounds X and Y Containing carbon and hydrogen only have vapour densities 13 and 39 respectively. State the molecular formula of X and Y.

(C=12, H=1)

2. Calculate the percentage of iron in $[K_3Fe(CN)_6]$ (K=39, Fe=56, C=12, H=1)

f) i) Give reason : (3)

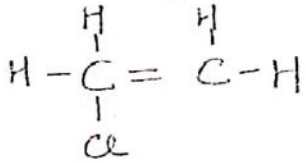
1.It is dangerous to burn methane in an insufficient supply of air.

2. During electroplating an article, the current used is direct current.

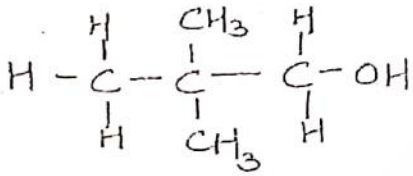
3. A solution of sodium bicarbonate is alkaline in nature.

ii) Give the IUPAC NAMES of the following compounds: (2)

1.



2.



g) i) State the property of underlined compound involved in the following reaction: (3)

1. *Conc sulphuric acid* is used in the preparation of HCl.

2. *Ammonia* is collected by downward displacement of air.

3. Spontaneous burning of saw dust on addition of *concentrated nitric acid.*

ii) Differentiate between (2)

1) calcination and roasting

2) drying agent and dehydrating agent

h) i)Give a chemical test to distinguish between : (3)

1. Potassium chloride and potassium nitrate

2. Zinc nitrate and calcium nitrate

3. Manganese dioxide and copper (II) oxide.

ii) Identify (2)

a) The flame test with a salt P gave a brick red flame. What is the cation in P.

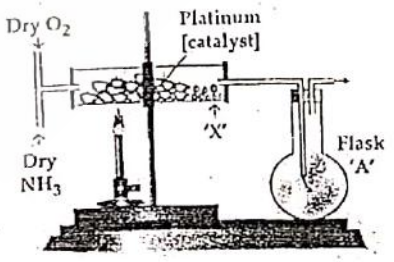
b) Gas Q turns moist lead acetate paper silvery black. Identify Q.

SECTION B

ATTEMPT ANY FOUR QUESTIONS FROM THIS SECTION

Question 2 (3)

a) Study the figure given along side and answer the questions that follow:



i) Give a balanced equation for the reaction represented.

ii) State the change in colour if the product X formed is reacted with anhydrous copper sulphate.

iii) Is the final product formed in flask A a neutral or an acidic oxide.

b) Write the percentage composition of the following alloy: (2)

1. Brass 2. Stainless steel

c) Write the reactions for concentration of bauxite ore using Baeyer's process. (3)

d) Solve : (2)

If 6 litres of hydrogen and 4 litres of chlorine are mixed and exploded and if water is added to the gases formed, find the volume of the residual gas.

Question 3

a) Give a balanced chemical equation with conditions for the following conversions: (3)

1. Ethyl chloride to ethanol

2. ethanol to ethene

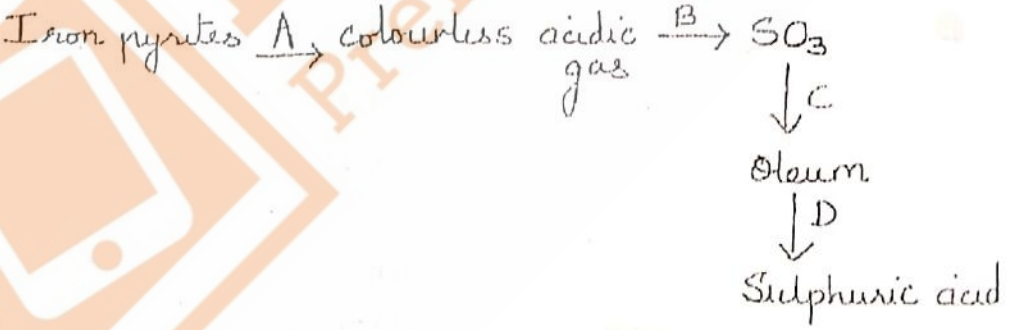
3. ethene to ethanol

b) Draw the branched structural formula for the following organic compounds whose IUPAC NAMES are given below: (2)

1. pent-1-ene

2. but -2-yne

c) Answer the questions based on the following flow chart: (5)



1. Give a balanced chemical equation for conversion A.

2. Is the conversion B an exothermic or an endothermic reaction. Would lowering the temperature favour or retard the forward reaction.

3. Give a balanced equation for conversion of sulphur trioxide to oleum.

4. State why water is added for the conversion D and not for the conversion C.

Question 4

a) Name the methods for the preparation of the following salts and also write balanced chemical equations for the same. (6)

1. Lead sulphate

2. Ferrous sulphate

3. Sodium sulphate

b) Answer the following questions based on reduction of alumina to aluminium metal. (4)

1. Name the process of reduction.

2. Write the reaction at cathode.

3. Why is the anode replaced continuously in the process.

4. Write the formula for cryolite and why it is added.

Question 5

a) Compound Y is bubbled through bromine dissolved in carbon tetrachloride and the product is CH_2Br-CH_2Br. (3)

1. Write the balanced equation for the above reaction.

2. What type of organic reaction has Y undergone.

3. What is your observation.

b) Draw the electron cross dot diagram and name the type of bonding:(4)

1. Ammonium ion

2. Calcium chloride

c) Solve (3)

Write the balanced chemical equation for the laboratory preparation of ammonia gas. Using the above equation find out the volume of ammonia at STP obtained from 8.56gm of ammonium chloride. (N=14, H=1,Cl=35.5, Ca=40,O=16)

Question 6

a) Answer the following: (3)

1. Define glacial acetic acid. Write the reaction when ethanol is added to ethanoic acid. State the observation for the same.

b) Identify the gas evolved: (3)

1. When dil HCl is added to sodium thiosulphate.

2. When dil HNO_3 is added to ferrous sulphate solution with few drops of conc. H_2SO_4.

3. When sodium propionate is heated with soda lime.

c) During electroplating an article with nickel (4)

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1.Name the electrolyte.

2. What is placed at cathode and anode.

3. Reaction at cathode.

Question 7

a)Answer the following questions based on the laboratory preparation of nitric acid (5)

1. Name the liquid and solid reactant .

2. Why only all glass apparatus should be used for the above reaction.

3. Give one chemical test used for the identification of the product acid formed.

4. Nitric acid is prepared in the above reaction is yellow in colour. Why.? How is the yellow colour removed ?

b) Answer the questions based on the Periodic table (3)

1. Define IP and explain its trend down a group.

2. Name the element with the highest IP

c) Give a balanced chemical reactions for the following conversion (2)

1. methane to methanol.

2. methanol to methanoic acid.