**Sample Paper – 2011**

**Class – X**

**Subject – Chemistry**

(One and half hour only)

You will not be allowed to write during first 15 minute

This time is to be spent in reading the question paper

The time given at head of question paper is the time allowed for writing the answer

Section I is compulsory.Attempt any four questions from section II

The intended for questions are given in brackets [ ]

SECTION -- I (40 Marks)

Question  1 [ 8 + 8 + 4 +6 + 5 +3 + 6 = 40 ]

A. Mention the terms defined by the following sentences:-

[I] The mass of a given volume of gas compared to the mass of an equal volume

of hydrogen.

[ii] A soluble base.

[iii] The insoluble solid formed when two solutions are mixed together.

[iv]Compounds containing carbon and hydrogen only.

[ v]The property of spontaneous giving up water of crystallization to the

atmos phere.

[vi]A compound ,which is soluble in water and the only negative ions

in solution are hydroxyl ions.

[vii] an oxide , which forms salts when it reacts with both acids & alkalis.

[viii] The number which tells us that how many times the atom \ molecule is heavier

than 1 \ 12 of mass C-12 Carbon atom

B. What is change in following properties of elements,when we move from

(a) Left to right in a period (b) Up to down in a group

[1] Non metallic character

[2] Electron affinity

[3] Atomic size

[4] Reactivity of element

C. Name the following

[1]A solid acid

[2] A complex salt

[3] A tri basic acid

[4]An element having highest electronegative

[5]A polar covalent neutral compound

[6] Element having lowest ionization energy .

[ 7] An acidic solution in which there is only partial ionization of the solute

molecules. [8] A solution containing molecules as well as ions.

D. Write the balanced equation for following reactions 

[1] Manganese (iv) oxide & conc. Hydrochloric acid.

[2] sulpher & hot conc. Nitric acid

[3] Zinc & conc. Nitric acid

[4] Amonia gas with excess chlorine

[5] Ammonia with hot copper (ii)oxide

[6] H ydrochloric Acid with Potassium permanganate

A. Explain

[1] A black spongy mass is obtained, when conc.Sulphuric acid is added to sugar.

[2] A red rose petal loses it’s colour when placed in moist sulpher dioxide.

[3] White fume are produced when excess ammonia and chlorine are mixed.

[4] Reddish brown fumes are seen when conc. Nitric acid is heated with copper.

[5] A yellow ppt. Is obtained when KI solution is added to lead nitrate solution

E. What volume of hydrogen sulphide at S.T.P will burn in oxygen to yield 12.8 gm of

sulphur dioxide according to equation. 2H2 S + 302  2 H2 0 + S02

[H = 1, 0 = 16, S = 32 ]

F. Give a chemical test to distinguish between the following pair of substance. State

the result of test as applied to each member of the pair 

[1] Ammonium sulphate & Ammonium Chloride

[2] Conc. Nitric acid & dil. Nitric acid

[3]Sodium carbonate & Sodium sulphatethe

SECTION II ( 40 Marks )

Attempt any four question from thi section

Question  2 [ 1x3 + 2 + 5 = 10]

A. Which feature of the Ammonia molecule leads to the formation of the

Ammonium ion when ammonia is dissolved in water?

B. Name the other ion formed when Ammonia is dissolved in water

C. Give one test that can be used to detect the presence of the ion produced in

[2B]

D. Write the reaction for following reactions which result in the formation of

Ammonia 

[1] A mixture of Ammonium chloride and slaked lime is heated.

[2]Aluminum nitride & Water

E. Answer following questions in reference to industrial preparation of NitricAcid

[1] What are the different condions required in the process.

[2] Why no heating of catalytic chamber is required when production starts?

[3] write down equations of different reactions taking place in this production.

Question  3 [ 1x6 + 1 \ 2 x 8 = 10]

A. The electron arrangement of atoms of three elements, E, F and G is as under:

E (2, 8, 8, 1); F(2, 6); G (2, 8, 7).(I) Represent the molecule of F by a dot diagram.

(II) What type of bonding is in the molecule of F?

(III) Write down the formula of the compound formed between E

and G.

(IV) What type of bonding is between E and G?

(V) Classify the elements E, F and G as metals and non-metals.

(VI) Which amongst E, F and G is likely to be a good conductor of electricity

B. Add word or words to each of the sentences given below to make a correct statement.

[1]Sulphur reacts with oxygen to form sulphur dioxide gas.

[2]Sodium sulphate reacts with calcium nitrate to form calcium sulphate.

[3] Electrolysis of lead bromide liberates lead and bromine.

[4] Sulphur dioxide turns potassium dichromate green.

[5] Sulphuric acid dehydrates crystals of copper sulphate.

[6] Zinc reacts with sulphuric acid to give hydrogen gas.

[7] Ionic compounds are good conductor of electricity.

[8] Hydrochloric acid gas is acidic in nature.

Question  4 [ 3 +4 + 2 + 1 = 10]

A. You are given a mixture of precipitated copper hydroxide and zinc hydroxide. Name a

solvent in each case which will dissolve

[1] Copper hydoxide only

[2] Coper hyhdroxide and Zinc hydroxide both.

B. Name the property of the sulphuric acid which is made use in each of the following

reactions. Give an equation for the chemical reaction in each case.

(i) Preparation of HCl gas when the acid reacts with a metal chloride.

(ii) Preparation of carbon monoxide gas from formic acid.

(iii) As a source of hydrogen from active metals .

(iv) As a source of sulphur dioxide gas, when boiled with copper dust.

C. How will you bring about oxidation of sulphur dioxide, using chlorine water? Write a

chemical equation support of your answer.

D. “Carbon dioxide and sulpher dioxide gases can not be identified with the help of

Lime water.” Justtyfy.

Question  5 [ 2 + 2 +1+3+2 = 10]

A. What is the special feature of structure or Ethene and Ethyne . What type of reaction is

common to these compounds

B. Give two test by which you can distinguish Alkane ; Alkene and Alkyne.

C. Name two raw materials from which ethyl alcohol is manufactured.

D. What is denatured spirit (alcohol)? Name two chemicals commonly used for denaturing

alcohol. Write harms caused in drinking denatured alcohol.

E. Write balanced equations when ethyl alcohol is

[1] made to react with sodium.

[2] made to react with acetic acid.

Question  6 [ 2 + 3 +2+3 = 10]

A. Why does not aluminium occur in free state? Name one ore of aluminium which is found

in abundance in India.

B. The alumina is purified by Hall's process. Write three fully balanced equations, showinghow the alumina is purified?[Disciption is not required]

C. It has been found the pure alumina cannot be reduced to aluminium metal easily by

electric current. Give two reasons.

D. Name two substances which are added to alumina, so as to reduce it electrically.

How does these substances help in the extraction of aluminum?

Question  7 [ 4 + 4 + 1+1 = 10]

A. An acid of phosphorus has the following percent composition H=2.47%,

P=38.27% 0=59.26%

Find the empirical formula of acid and its molecular formula. Given that its

relative molar mass is 162 (H = 1, P = 31, 0 = 16).

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B. What is electroplating.What is it’s purpose. During electroplating of a spoon by

silver –[1] Name electrolyte [2] Anode [3] Cathode [4] Write electrode reactions

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C. Why A.C. current should not be used for electrolysis.

D. Normally small steady current is used in electrolysis.