Seat Number

April-2016

कंठस्थ - 036

CHEMISTRY PAPER - II : CH-112
Organic and Inorganic Chemistry
(113102)

P. Pages : 4

Time : Two Hours

Max. Marks : 60

Instructions to Candidates :

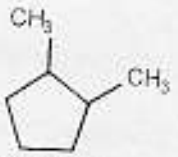
1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All questions are compulsory.
5. Figures to the right indicate full marks.
6. Use of logarithmic table and non-programmable calculator is allowed.

1. a) Attempt **any six** of the following. **6**

i) Which of the following is Lewis acid?

a) H_2SO_4 b) NH_3

c) H_3O^+ d) $AlCl_3$

ii) The IUPAC name of  is.....

a) 1, 2 – dimethyl cyclopentane
b) 1, 1 – dimethyl cyclopentane
c) 1, 2 – dimethyl cyclohexane
d) 1, 1 – dimethyl cyclohexane

iii) Homolytic fission of bond produces.....

a) Carbocation b) Carbanion
c) Free radicals d) All of these

iv) The heat liberated per unit mass of fuel is called.....

a) Calorific value b) Hydrolysis
c) Bromination d) Sulphonation

v) Dehydration of alcohols produces.....
   a) Alkane b) Cycloalkane
   c) Alkene d) Alkyne

vi) On moving down the group from Li to Cs, the atomic size of element.....
   a) Decreases b) Increases
   c) Remains same d) First increases then decreases

vii) Anamolous behaviour is shown by.....
   a) Li b) Be
   c) Both 'a' and 'b' d) None of these

viii) The acid which gives two H^+ ions when dissolve in water is known as.....
   a) Monobasic acid b) Dibasic acid
   c) Monoacidic base d) Diacidic base

b) Answer **any six** of the following. 6

i) Explain Lewis definition of base.

ii) Define & explain pH.

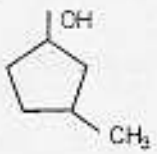
iii) Give the valence shell electronic configuration of sodium (Atomic No. of sodium is 11).

iv) Explain with suitable example aprotic solvent.

v) What is the action of Grignard reagent on acetylene ?

vi) Write the structure of 1, 2, 3 – tribromopropane.

vii) What are S-Block elements ?

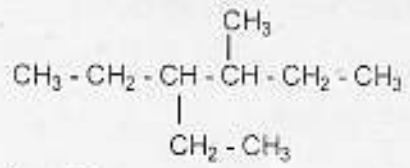
viii) Give the IUPAC name of 

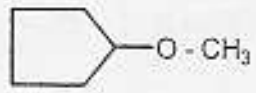
2. Answer **any six** of the following. 12

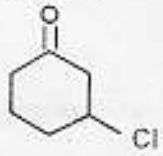
a) Discuss in brief about crystallistaion.

b) Calculate the pH value of 2×10^{-3} M solution of HCl.

c) Give the IUPAC name of any two of the following.

i) 

ii) 

iii) 

d) Define nucleophile & electrophile with suitable example.

e) State Markovnikov's rule with suitable example.

f) Define Ozonolysis with example.

g) Give the limitations of Arrhenius theory.

h) Draw the structure of following.
i) Benzaldehyde ii) Benzoic acid

i) Enlist the theories that have been proposed to define acids & bases.

3. Answer **any four** of the following. 12

a) Explain polar & non-polar solvents with suitable example.

b) Give the IUPAC rules for nomenclature of carboxylic acid.

c) Give any two reactions of alkyne.

d) Give the biological functions of Na^+ & k^+ ions in cells.

e) Write any three properties of Li which make it anomalous in the group.

f) Distinguish between inductive effect & resonance effect.

4. Answer **any three** of the following. 12

a) Write the structural formula of any two of the following.
   i) Benzene sulphonic acid
   ii) 2-methyl – 2- nitro propane
   iii) 3- methoxycyclohexane – 1- amine

b) Name four different types of organic reactions and explain elimination reaction with suitable example.

c) Give IUPAC rules for nomenclature of alkane.

d) Explain the methods of preparation of Cis and trans alkenes.

e) Describe Dissociation constant of acid with example.

5. Answer **any two** of the following. 12

a) State Ostwald's dilution law and give its derivation in case of weak electrolyte.

b) Write a note on nitration, Sulphonation & pyrolysis of alkane.

c) Name the different purification techniques of organic substance and give the procedure of sublimation.

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