* U F - 6 1 2 3 *

UF-6123

B. E. - II (Sem. - III) (Chem.) Examination

May\June – 2012

Engineering Chemistry - II

(Organic Chemistry)

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - II (Sem. - III) (Chem.)**

Name of the Subject :

☛ **Engineering Chemistry - II**

☛Subject Code No. : **6 1 2 3** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Give reactions and neat diagrams wherever necessary.
(3) Question 1 and 4 are compulsory and carries 20 marks each.
(4) Question 2, 3 and 5, 6 are of 15 marks each.

1 (a) Fill in the blanks : **10**

(i) Isomers posess same _____ formula but different _____ formula.

(ii) Ethene and 1-Butene are the IUPAC names of _____ and _____ respectively.

(iii) Nitrogen of organic substance gives _____ or _____ colour in Sodium Fusion Test.

(iv) _____, _____, _____ and _____ isomers are the types of structural isomerism.

(b) Define the following : **10**

(i) Carbonium ion and Free redicals.

(ii) Specific rotation and Diasteromers.

(iii) Cis and Trans isomers.

(iv) Functional group and Inductive effect.

(v) Homologus series and Straight-chain alkanes.

2 Attempt any three : **15**

(i) Describe Fractional Distillation.

(ii) Explain the different rules for naming an organic compound through IUPAC nomenclature of heterocyclic and alicyclic compounds.

(iii) Write the IUPAC names of the following :
  (1) Acetaldehyde
  (2) Ethylene glycol
  (3) Acetone
  (4) Dimethyl ether
  (5) Formic acid.

(iv) Explain Duma's method to estimate nitrogen.

3 Attempt any **three** : **15**

(i) Describe optical isomerism with suitable examples.

(ii) Explain rearrangement and condensation reaction by taking examples.

(iii) Write preparation, properties and uses of Carbon tetrachloride.

(iv) Write preparation, properties and uses of Formaldehyde.

4 (a) Short answer questions : **10**
  (i) Define Assymetric carbon atom.
  (ii) Differentiate Heterocyclic and Polynuclear compounds.
  (iii) Discuss general properties of Aromaticity.
  (iv) Write structure of Cinnamaldehyde and Sulpanilamide.
  (v) Define Unit Operations.

(b) Optical isomerism of Tartaric acid. **5**

(c) Explain Halogenation (Aromatic and Aliphatic) in detail. **5**

5 Write Preparation, Properties and Uses of : **15**
(attempt any **three**)

(i) Dimethyl aniline

(ii) Catechol

(iii) Salicylic acid

(iv) Chlorobenzene

(v) Cinnamaldehyde.

6 Answer the following :

(i) Discuss Organometallic compoinds. Write the formation of Organo Lithium and Organo Magnesium compounds and discuss in detail some important chemical reactions them. **9**

(ii) Explain different reactions to identify the presence of Aldehyde, Ketones, Alcohol and Esters in organic compound with different reactions. **6**

OR

(ii) Write preparation & properties of Benzoic acid and Salicylic acid. **6**