

B.Sc. (Part - I) (With Credits)-Regular-Semester 2012 Sem I (Old)
CHE102 - Chemistry Paper-II (Organic Chemistry)

P. Pages : 2

Time : Three Hours



GUG/S/18/3303

Max. Marks : 50

1. a) What are reaction Intermediates? Explain the stability of carbocation, carbanion and carbon free radicals. 5
- b) Explain the following terms with suitable examples. 5
- i) Bond energy ii) Bond length
- iii) Electrophiles iv) Nucleophiles

OR

- c) Explain hyperconjugation with suitable example. 2½
- d) Distinguish between addition and substitution reactions. 2½
- e) Define Resonance and draw the resonating structures of Benzene. 2½
- f) Explain hemolytic and heterolytic cleavage with examples. 2½
2. a) Explain the conformational isomerisms in n-Butane. 5
- b) What is racemisation? Give chemical separation methods for resolution of racemic mixture. 5

OR

- c) Discuss Geometrical isomerism in fumaric and maleic acid. 2½
- d) Distinguish between enantiomers and diastereomers. 2½
- e) Write a note on Walden Inversion. 2½
- f) What are axial and equatorial bonds. 2½
3. a) What is Markownikoff's rule? Explain the ionic and free radical mechanism of addition reaction of alkenes. 5
- b) Explain the following. 5
- i) Dickmann's method ii) Freud's method

OR

- c) State and explain anti Markovnikov's rule. 2½
- d) Write a note on Baeyer's strain theory. 2½
- e) Give the classification of dienes with example. 2½
- f) Give the mechanism of dehydration of alcohol. 2½

4. a) Explain in details about Aromaticity with suitable examples, state Huckel's Rule and condition for aromaticity. 5
- b) Explain the following reactions. 5
- i) Nitration of Benzene
also explain the general pattern of the mechanism of Electrophilic Aromatic substitution.

OR

- c) Explain the Friedel Craft's alkylation with mechanism. 2½
- d) Draw the structure and orbital diagram of benzene. 2½
- e) Explain the aromaticity of the following. 2½



- f) Explain ortho-para directing influence of -OH group in phenol. 2½

5. Attempt any ten. 10

- i) Geometry of SP^2 hybridised carbon is.
- ii) Select the electrophiles from the following species.
 NH_3 , $AlCl_3$, H_2^{+} .
- iii) From the following molecule, which has shortest bond length?
HF, HBr, HCl
- iv) For dextrorotatory compound which alphabetical letter is used 'd' or 'D'?
- v) Write fully staggered conformation of ethane.
- vi) Write a structure of meso-tartaric acid.
- vii) Define octane number.
- viii) Complete the following reaction.
 $CH_2 = CH_2 \xrightarrow{\text{epoxidation}} ?$
- ix) What are dienes?
- x) Select the ortho para directing group from the following – $-NO_2$, $-COOH$, $-Cl$.
- xi) Metal used in Wurtz reaction is---
- xii) Predict the possible product.


