

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 4

91035

B.Sc. (Chemistry Hons.) 1st Semester

Examination, March-2021

(w.e.f. 2012-13)

ORGANIC CHEMISTRY

Paper-III

Time : Three Hours] [Maximum Marks : 40

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :- Attempt five questions in all, selecting one question from each Section. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) State Huckel's rule of aromaticity.
- (b) Give one example of a Meso Compound.
- (c) Why cis isomer has higher boiling point than trans isomer in geometrical isomers ?
- (d) What are equatorial hydrogens in cyclohexane ?
- (e) What are Nitrenes ?
- (f) Give one example of carbocation rearrangement.
- (g) State reactivity-selectivity principle in alkanes.
- (h) What is Blanc's Rule ? 1×=8

Section-A

2. (a) Describe the following :
 - (i) Inclusion compounds
 - (ii) Van der Waals interaction
- (b) Explain inter and intramolecular hydrogen bonding.
- (c) Why vinyl and aryl halides are less reactive than alkyl halides towards nucleophilic substitution reactions ? 4,2,2

3. Describe the following :

- (i) Enantiomers
- (ii) Axis of symmetry
- (iii) Resolution
- (iv) External and internal compensation

Section-B

4. (a) Differentiate between :

- (i) Relative and absolute configuration
- (ii) Configuration and conformations

(b) Write the necessary condition for geometrical isomerism.

(c) Discuss atropisomerism with examples.

5. (a) Describe the relative stability of different conformations of cyclohexane.

(b) What are Sequence Rules ? How they can be used in assigning R and S configuration ?

Section-C

6. (a) Describe the generation and stability of carbanions.

(b) What are Neutral Electrophiles ? Give examples.

(c) Explain the stability of carbenes.

7. (a) How are arynes generated ?

(b) Describe Column Chromatography.

(c) Explain the method of determining reaction mechanism by product analysis.

Section-D

8. (a) Give reason :

(i) Alkanes are less reactive towards most of chemical reagents.

(ii) The boiling point of isomeric alkanes decreases with increase in branching of chains.

(b) Describe the following :

(i) Wurtz reaction

(ii) Kolbe reaction

9. (a) What is Angle Strain ? Describe Baeyer's strain theory.

(b) Describe the following :

(i) Tharpe-Ziegler reaction

(ii) Demjanov Rearrangement