

(b) Discuss classification dyes according to method of application. 8, 8

9. (a) Discuss structure elucidation of lactose and confirm by synthesis. 10

(b) Discuss Principle and applications of HPLC. 6

Roll No.

72053

M. Sc. Chemistry 1st Semester
Examination – December, 2015

ORGANIC CHEMISTRY

Paper : Ch-403

Time : Three Hours]

[Maximum Marks : 80

Before answering the question, 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. Question no. 1 is compulsory. Attempt one question from each Section.

1. (a) Why dipole moment of azulene is 1.0D and It is aromatic in nature. $8 \times 2 = 16$
- (b) Which is more acidic and why :
2, 6 - dimethyl - 4 - nitro phenol or
3, 5 - dimethyl - 4 - nitro phenol
- (c) What is Prelog's rule ?

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- (d) Which conformation of 1, 2 - dimethyl cyclohexane is more stable and why ?
- (e) Why triplet methylene is more stable than singlet.
- (f) What are free radicals ? Give examples of electrophilic and nucleophilic free radicals.
- (g) Write chemical name of maltose and draw its conformation.
- (h) Write two examples of azo dyes.

SECTION - A

2. Write notes on :

- (i) Crown Ethers
- (ii) Alternate and non-alternate hydrocarbons
- (iii) Cross conjugation.

3. (a) Using PMO theory, construct π m.o. energy level diagrams of ethylene and 1, 3 - butadiene and explain aromaticity of resulting cyclic compound.

(b) What are catenanes ? Give one method of preparation of [2] - catenane.

SECTION - B

4. (a) Discuss conformations of cis and trans decalins and explain their stability.

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(b) What is prochirality ? Discuss in detail enantiotropic and diastereotopic faces and groups.

5. (a) What do you understand by asymmetric induction. Discuss in detail cram's rule and its modification.

(b) How a racemic mixture can be resolved by chemical method ?

(c) How was relative configuration of alanine assigned ?

SECTION - C

6. Write notes on :

(i) Role of Cross over experiment in determining mechanisms of organic reactions.

(ii) Curtin Hammett Principle

(iii) Isotopic labelling

7. (a) Give an account of generation, stability and reactions of carbanions.

(b) Show that Hammett equation represents a linear free energy relationship.

SECTION - D

8. (a) How was structure of Indigo established and confirmed by synthesis ?

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