LOYOLA COLLEGE (AUTONOMOUS), CHENNAI - 600 034



B.Sc. DEGREE EXAMINATION - **CHEMISTRY**

FIFTH SEMESTER - NOVEMBER 2018

CH 5510- ORGANO-NITROGEN COMPOUNDS & STEREOCHEMISTRY

Date: 27-10-2018	Dept. No.	Max. : 100 Marks
Time: 00:00 12:00		

PART-A

Answer ALL the questions. Each question carries two marks: $(10 \times 2 = 20 \text{ marks})$

- 1. Write the preparation of p-nitrobenzene.
- 2. Name and classify the following amines:
 - $(i)(CH_3)_2NCH(CH_3)_2$
- $(ii)H_2N(CH_2)_4NH_2$
- 3. How is pyrrole prepared?
- 4. How is degradation study useful in the structural elucidation?
- 5. What do you understand by 1, 3-diaxial interaction?
- 6. How are geometrical isomers distinguished by dipolemoment?
- 7. What is meant by (+) and (-) notation?
- 8. Write the Fischer projections of lactic and tartaric acids.
- 9. Give an example for intermolecular rearrangement reaction.
- 10. Write Cope rearrangement reaction.

PART-B

Answer EIGHT questions. Each question carries five marks:

 $(8 \times 5 = 40 \text{ marks})$

- 11. Write any five chemical reactions of nitromethane.
- 12. How are primary, secondary and tertiary amines distinguished and separated from a mixture?
- 13. Starting from aniline how will you prepare:
 - (i)p-nitroaniline and (ii)sulphanilic acid
- 14. Write a short note on nucleophilic substitution reactions of pyridine.
- 15. What happens when quinoline and isoquinoline are oxidisedusing alkaline KMnO₄?
- 16. Write the synthesis of camphor from camphoric acid?

17. What are the rules for assignment of the rules for a second of the rule of the rules for a second of the rule of the rules for a second of the rules for a second of the rule of the rul	gning E and Z configurations to geometrical isomers	s? Assign configuration of
trans-2-butene.		
18.Explain the following term	ns:	
(i)dihedral angle	(ii)torsional strain	
19.Write short note on Walde	n inversion.	
20.Discuss the optical activity	exhibited by the spiranes.	
21.Give the mechanism of Be	ckmann rearrangement.	
22.Discuss the mechanism of	Claisen rearrangement.	
	<u>PART-C</u>	
Answer any FOUR question	s. Each question carries ten marks:	(4 x 10 =40 marks)
23.Discuss the reduction of ni	trobenzene in acid, alkaline and neutral medium.	(6)
b.Discuss the effects of the fo	llowing groups on the basicity of aniline when they	are in para position
(i)-NO ₂	(ii)-OR	(4)
24.a.What is diazotisation? D	iscuss its reaction mechanism.	(5)
b.Give Skraup's synthesis of	(5)	
25.Establish the structure of n	nicotine.Give its synthesis.	
26.a.Discuss the conformation	(8)	
b.Write the cis and trans isom	ers of 1,2 dimethyl cyclohexane by using chair conf	formers. (2)
27.a.Outlineany two methods	for the resolution of recemic mixture.	(6)
b.Write configurations of the	following chiral molecules:	
(i)(R)-2-chlorobutane	(ii)(S)-glyceraldehyde	(4)
28.Explain the mechanisms of	f the following rearrangement reactions:	
(i)Pinacol-pinacolone	(ii)Curtius	(5+5)
