LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **CHEMISTRY**

FIFTH SEMESTER – NOVEMBER 2022

UCH 5501 - ORGANIC FUNCTIONAL GROUPS - II

Date: 23-11-2022 Dept. No. Time: 09:00 AM - 12:00 NOON

PART-A

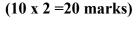
Answer ALL the questions.

- 1. Among NaBH₄ and LiAlH₄, which one is a powerful reducing agent? Justify.
- 2. Suggest a method to convert carbonyl compound to alkene.
- 3. What is meant by trans esterification?
- 4. Give a method to prepare lactic acid.
- 5. Write the mechanism of cope rearrangement.
- 6. Give a method of intra molecular rearrangement reaction.
- 7. Write the synthesis of diazomethane.
- 8. What is an active methylene group? Mention its significance.
- 9. Classify organo-metallic compounds.
- 10. What is meant by coupling reaction? Give an example.

PART-B

Answer EIGHT questions

- Write the structural formulas and give IUPAC's names for all aldehydes and ketones with the molecular formula, C₅H₁₀O.
- 12. Explain Norrish type I and Norrish type II reactions.
- 13. Arrange the following compounds in the order of increasing acidity and explain your answer. CH₃COOH, (CH₃)₂CHCOOH, (CH₃)₃CCOOH.
- 14. Explain (i) the action of heat and (ii) stereospecific addition reaction of maleic and fumaric acids.
- 15. Describe the mechanism of ring contraction and ring expansion (enlargement) reactions.
- 16. Describe the mechanism of the following rearrangement reactions: (i) Para-Claisen (ii) photo Fries.
- 17. Describe the synthetic uses of diethyl malonic acid.
- 18. Write any three synthetic applications of cyanoacetic ester.
- 19. Describe the uses of alkylating organo metallic compounds with suitable examples.
- 20. Discuss the properties of Mg containing organo metallic compounds.
- 21. Explain the mechanism of Schmidt rearrangement.
- 22. Write the reaction and mechanism of Knoevenagel reaction.



Max.: 100 Marks

(8 x 5 =40 marks)

Date: 23-11-2022



PART-C	
Answer any FOUR questions.	(4 x 10 =40 marks)
23. Discuss the mechanism of the following condensation reactions:	
(i) aldol (ii) benzoin	(5+5)
24. Discuss the preparation, reactions and applications of acid anhydrides.	
25. Explain the reactions and mechanisms of the following:	(2x5)
(i) Pinacol-pinacolone (ii) Hoffmann.	
26. How will you synthesize the following from ethylacetoacetate?	(4x2.5)
(i) butanoic acid (ii) succinic acid (iii) crotonic acid (iv) 4-methyl uracil.	
27. Discuss the preparation and properties of organo metallic compounds of zinc met	al.
28. Write notes on the following:	(4+3+3)
(i) hydrolysis of esters (ii) Fischer esterification (iii) reduction of ester	ers

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