LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SIXTH SEMESTER – **APRIL 2019**

CH 6615– SYNTHETIC ORGANIC CHEMISTRY

Date: 09-04-2019 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART-A

Answer ALL the questions.Each question carries two marks: (10 x 2 =20 marks)

1.What is regiospecific reaction?

2.Define disconnection approach.

3.Mention any two uses of DIBAL.

4.Write the Oppenauer oxidation reaction.

5.Write the reaction of cope rearrangement.

6.What are pericyclic reactions?

7.Give a method for the preparation of diazoacetic ester.

8.How will you arrive at the linear structure of diazomethane?

9.What are the precautionary measurements adopted while carrying out microwave synthesis?

10.What is atom economy in green synthesis?

PART-B

Answer EIGHT questions. Each question carries five marks: (8 x 5 =40 marks)

11. What is retro synthetic analysis? Explain with an example.

12.Explain Umpolung synthesis with suitable example.

13. Write the mechanism of oxidation of 2-propanol with DMSO-DCC.

14.Distinguish between $LiAlH_4$ and $NaBH_4$ reduction reaction with examples.

15.Discuss the rules for thermal and photochemical electrocyclic ring closure.

16.Explain group transfer reactions with suitable example.

17.Explain the FMO approach for cyclo addition reaction with a suitable example.

18.Discuss Cannizzaro reaction and explain the probable mechanism of this reaction.

19.Give the mechanism of aldol condensation. Why does HCHO fail to undergo aldol condensation?

20.How will you prepare acetoacetic ester? Mention any two synthetic uses of it.

21.Write the principles of green chemistry.

22. What are the advantages and limitations of microwave assisted organic synthesis?

PART-C

Answer any FOUR questions. Each question carries ten marks: (4 x 10 =40 marks)

23. Why is it needed to protect functional group in organic synthesis? How are the following functional groups protected and deprotected?

(i)-OH (ii)-COOH **(5+5)**

24.a.Explain the mechanism of hydroboration-oxidation. **(5)**

b. Write briefly on Wolff-Kishner reduction. **(5)**

25.a.Discuss the role of electron withdrawing and electron donating groups in Diels-Alder reaction. **(4)**

b. Write the mechanism of (3,3) and (5,5) sigmatropic rearrangement reactions. **(6)**

26.How are malonic ester and cyano acetic ester prepared? Illustrate three synthetic applications for each.

27.a.Differentiate linear and convergent synthesis. **(5)**

b.Write the green synthesis of (i)Paracetamol (ii)benzaldehyde **(5)**

28.Write short notes on

(a)solid state synthesis (b)ionic liquid reaction. **(5+5)**

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