LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2018**

16UCH3MC02 – STEREOCHEMISTRY AND ORGANIC FUNCTIONAL GROUPS-I

Date: 07-05-2018 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

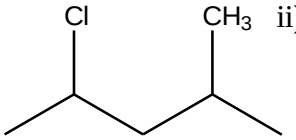
SECTION A

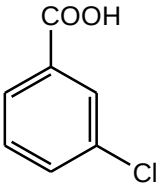
ANSWER ALL QUESTIONS: (10x2=20)

1. Mention any two conditions for a molecule to be optically active.

2. Draw the skew and staggered Newmann projections of n-butane.

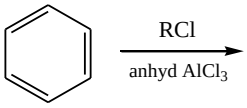
3. Write the IUPAC name of

i) 

ii) 

4. E2 is a single step elimination, with a single transition state. Is it true or false? Cite an example for E2.

5. Predict the product



6. How are primary, secondary and tertiary alcohols distinguished by oxidation?

7. What are crown ethers? Mention their use?

8. How are epoxides prepared from alkenes? Cite an example.

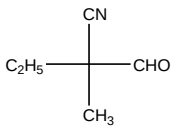
9. What is the product formed when nitrobenzene is reduced with tin and Conc.HCl ? Write the reaction.

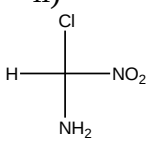
10. Which is more basic, CH_3NH_2 or $C_6H_5NH_2$? Why?

SECTION B

ANSWER ANY EIGHT QUESTIONS: (8x5=40)

11. Assign R and S notation for the following

i) 

ii) 

12. What is atropisomerism? Explain with biphenyls.

13. Explain Cahn-Ingoldprelog rules with an example.

14.What are asymmetric synthesis and racemization?

15. Explain the mechanism of halogenations of alkanes.

16. Write the S_N2 mechanism and stereochemistry of bromination of ethyl chloride.

17. How will you prepare aliphatic alcohols from Grignard reagent?

18. Explain Reimer-Tiemann reaction and Kolbes reaction with mechanism.

19. Write a note on ring opening reactions of epoxides by acid and base catalysts.

20. How are aliphatic nitro compounds prepared by nitration and oxidation of amines?

21. Explain the effect of substituents on the basicity of aniline.

22. How are o-,m-,and p-dinitro benzenes prepared ?

SECTION- C

ANSWER ANY FOUR QUESTIONS: **(4 X 10=40)**

23 a) What is resolution? **(2)**

b) Explain biochemical and chemical method of resolution. **(8)**

24. Compare and contrast E1 and E2 mechanism with examples.

25. Explain the preparation of phenols from diazonium salts and sulphonic acids.

26. How are the following prepared by Williamson's synthesis?

i) aliphatic ii) aromatic and iii) cyclic ethers.

27. Explain with examples

i) Basicity of amines ii) reduction of nitro compounds by chemical and electrolytic methods.

28. Starting from benzenediazonium chloride how will you prepare the following?

i) Anisole ii) Benzene iii) Biphenyl iv)phenyl hydrazine.

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