



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – CHEMISTRY

SECOND SEMESTER – APRIL 2015

CH 818 – ORGANIC CHEMISTRY - II

Date : 18/04/2015

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

Part-A

Answer all questions. Each question carries two marks.

(10x2=20)

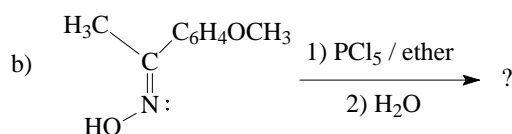
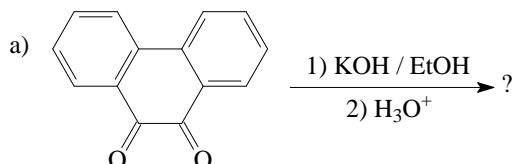
1. Allylbromide undergoes S_N2 reactions slightly more rapidly than ethyl bromide. Justify.
2. Predict the product for the reaction of CH_3Br with a) KCN and b) $AgCN$.
3. State Saytzeff rule in an elimination reaction with a suitable example.
4. How will you differentiate $E1cB$ and $E2$ mechanisms?
5. What are long lived free radicals? How are they detected?
6. Mention various factors affecting migratory aptitude in a chemical reaction.
7. *N*-methyl propanamide does not undergo Hoffmann rearrangement reaction when treated with aq. $NaOBr$. Give reason
8. Give an example for the deamination of protein.
9. Mention the characteristics of coenzymes.
10. What are nucleosides and nucleotides? Draw their structures.

Part-B

Answer any eight questions. Each question carries five marks.

(8x5=40)

11. Describe the various factors affecting $E1$ - $E2$ - $E1cB$ spectrum.
12. Explain the stereochemistry of pyrolytic elimination reaction with a suitable example.
- 13 a. Mention the important characteristics of free radical reaction.
b. Write the effect of solvent on the reactivity of free radical reaction.
14. Discuss the mechanism and stereo chemistry of $E1$ elimination reaction with an example.
15. Predict the product with mechanism.



16. Write the mechanism of Bayer-Villiger rearrangement reaction. Mention some of its uses.

17. Discuss the mechanism and stereochemistry of the alkaline hydrolysis of t-butyl bromide.
18. The *cis*-isomer of 4-butylcyclohexyl bromide reacts with sodium thiophenoxide (PhS-Na⁺) in aqueous ethanol at a much faster rate than the *trans*-isomer. Explain.
19. Discuss mechanism and stereochemistry of reactions involving neighbouring group participation.
20. Discuss any two methods to study the conformation of proteins.
21. Explain the tertiary structure of proteins.
22. Explain the Michaelis theory of an enzyme catalyzed reaction.

Part-C

Answer any four questions. Each question carries ten marks. (4x10=40)

23. Discuss the mechanism and stereochemical course involved in the following reactions.
 - a) active-1-bromo-1-phenylethane with CH₃COOAg in acetic acid.
 - b) threo 3-bromo-2-butanol upon treatment with HBr.

(5+5)

- 24a. Account for the following: 2-chloro-2,4,4-trimethylpentane undergoes E1 reaction to produce an excess of the less substituted alkene.

b. Describe the regioselectivity of E2 elimination reaction with suitable examples.

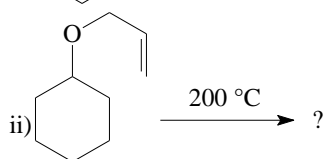
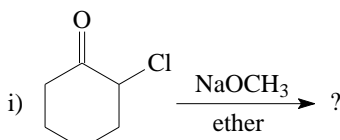
(5+5)

- 25a. Explain the effect of aromatic substrate on the free radical reaction.

(4+6)

b. Write a mechanism for the free radical rearrangement reaction of ester with evidences.

- 26a. Predict the product and sketch a suitable mechanism for the following reactions



- b. Describe the mechanism of cope rearrangement reaction with evidences.

(5+5)

- 27 a. Write note on the secondary structure of proteins.

b. Explain two methods of determination of the sequence of amino acids.

(6+4)

- 28 a. Mention the function and roles of co-enzymes.

b. Discuss the biosynthesis of proteins.

(4+6)
