



MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No. :.....

Name :.....

Fourth Semester B.Sc. Degree Examination, June 2016**First Degree Programme under CBCSS****Core Course: Chemistry – II****AUCH441: Organic Chemistry I**

Time: 3 Hours

Max. Marks: 80

SECTION – A

Answer ALL questions in a word or one or two sentences.

1. Why chloroacetic acid is stronger than acetic acid ?
2. Distinguish between electrophiles and nucleophiles.
3. A compound on ozonolysis yield propanal and hydrogen peroxide. Identify the compound.
4. What is hydroboration ?
5. State Huckels rule of aromaticity.
6. Draw the structures of any two aromatic compounds.
7. How Grignard reagent reacts with water ?
8. How many optical isomers are possible for 2, 3, 4 – Trihydroxybutanal ?
9. Draw the structure of the product of nitration of nitrobenzene.
10. Draw Newman projection formula of eclipsed and staggered conformation of ethane.

(10 × 1 = 10 Marks)**SECTION – B**

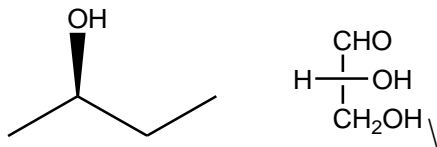
Answer any EIGHT questions, not exceeding a paragraph.

11. What is hyperconjugation ?
12. Why benzyl carbocation is more stable than methyl carbocation ?
13. State and explain Markonikoffs rule with an example.
14. What is tautomerism ?

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15. Why phenol undergoes nitration faster than benzene ?
16. Write the mechanism of aromatic electrophilic substitution.
17. Draw the energy profile diagram of aromatic electrophilic substitution.
18. Draw all optical isomers of 2, 3 – Dibromobutane.
19. Draw the energy versus dihedral angle graph of n – butane.
20. Write any two reactions that lead to racemised products.
21. Why aniline is less basic than ammonia ?
22. Assign R and S to the following structures.



(8 × 2 = 16 Marks)

SECTION – C

Short essay type : Answer any SIX questions.

23. Write four examples of reactions in which carbocations are intermediates.
24. Give an account on the stability of free radicals.
25. How S_N1 mechanism is different from S_N2 mechanism ?
26. Explain S_Ni mechanism with an example.
27. What are the factors which favour elimination over substitution ?
28. How will you synthesize ethyl acetoacetate ?
29. Write the mechanism of nitration of nitrobenzene.
30. Explain the significance of chiral drugs.
31. Explain the terms – asymmetric carbon atom and chirality.

(6 × 4 = 24 Marks)

SECTION – D

Long essay type : Answer any TWO questions.

32. With energy level diagram and Newman projection formula explain the stability of conformations of butane.
33. Write a note on synthetic applications of Grignard reagents.
34. Write an essay on stereochemistry and effect of substrate structure on nucleophilic substitution.
35. Explain the different methods of determining the reaction mechanism.

(2 × 15 = 30 Marks)
