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Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2023

First Degree Programme Under CBCSS

Chemistry

Core Course III

CH 1441 : ORGANIC CHEMISTRY I

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Answer in **one** word to maximum **two** sentences. **Each** question carries **1** mark.

1. What are configurational isomers?
2. What is a symmetry element?
3. Name any two reagents used for cis-dihydroxylation.
4. What are annulenes?
5. Draw the structure of methyl orange
6. What is meant by tortional strain?
7. Write the IUPAC name for the following compound:



P.T.O.

8. Define reaction mechanism.

9. Among the following which is more basic? Aniline, p-toluidine and p-nitro aniline.

10. What are functional groups?

(10 × 1 = 10 Marks)

SECTION – B

Short answer type. Answer any **eight** questions. Each question carries **2** marks.

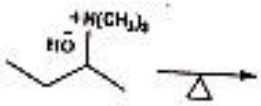
11. What are the unique features of carbon?

12. Why maleic acid is stronger than fumaric acid?

13. Explain the structure of carbenes.

14. Explain Bredt's rule.

15. Predict the product formed in the following reaction. Justify your answer.

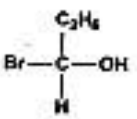


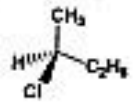
16. Draw the Newman projection formula of the most stable conformations of n-butane.

17. What are the various approaches in asymmetric synthesis?

18. What are conformationally biased molecules? Explain.

19. Assign the configuration R or S to the following compounds.

(a) 

(b) 

20. Explain photosensitization with an example.

21. What are vat dyes? Give any two examples.

22. Explain benzyne mechanism.

(8 × 2 = 16 Marks)

SECTION – C

Short essay type. Answer any **six** questions. Each question carries **4** marks.

23. Explain anchimeric assistance with suitable examples.

24. Discuss the factors which affect the course of aliphatic nucleophilic substitution reactions

25. Naphthalene undergoes electrophilic substitution reactions preferentially at a-position. Explain.

26. Explain Sache-Mohr theory of strain less rings.

27. Write a brief note on the optical isomerism in lactic acid.

28. Write a note on carcinogenic polynuclear arenes.

29. Explain the regioselectivity in elimination reactions.

30. Explain the classification of pericyclic reactions?

31. Write a note on optical brighteners.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks.

32. What are the different techniques used to determine the mechanism of a reaction. Explain.

33. Explain

    (a) Mechanism of electrophilic substitution in benzene.

    (b) Huckel's rule and how it is used to predict the aromaticity of benzenoid and nonbenzenoid compounds.

34. Give an account on

(a) Relative and absolute configuration.

(b) Methods of resolution of racemic mixtures.

35. Draw the different conformers of dimethyl cyclohexane and compare their stability.

(2 x 15 = 30 Marks)
