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Fourth Semester B.Sc. Degree Examination, August 2022

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY — I

(2019 Admission)

Time : 3 Hours

Max. Marks : 80

PART – A

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

1. Name two reagents used for cis-hydroxylation.
2. What are the products obtained when naphthalene under goes sulphonation at different temperatures?
3. What is meant by chelate effect?
4. What are enantiomers?
5. Write an example for electrocyclic reaction.
6. Draw the cis trans structures of hex-2-ene.
7. What is geometrical isomerism?

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8. What are chromophores?

9. What is meant by superposable?

10. What are conformers?

(10 × 1 = 10 Marks)

PART – B

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

11. What will happen when Cl_2 under goes homolytic fission? Write the products.

12. What is Walden inversion?

13. Explain Saytzeff's rule with an example.

14. What is enantiomeric excess?

15. Nitro Phenol or Phenol which is more acidic. Why is it so?

16. Explain photosensitization with an example.

17. Define Huckel's rule.

18. Stare Hoffman's rule with an example.

19. Nitration of Nitro Benzene is difficult. Why?

20. How will you convert Propene to 1-Bromo Propene? Explain the rule behind this.

21. What are electrophiles and nucleophiles? Give examples.

22. Write the structure of the compounds

    (a) 3, 4 dimethyl hept 3-ene

    (b) Pentan 2-one.

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23. $CH_3Cl + NaOH \rightarrow$ _____ + _____

Write the products and the type of reaction involved.

24. Tertiary carbo cation is more stable than primary carbo cation. Why?

25. Explain any one method for resolution of a racemic mixture.

26. Explain with examples the importance of dipole moment measurements in distinguishing geometrical isomerism.

(8 × 2 = 16 Marks)

PART – C

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

27. What is inductive effect? How does it affect the acidity and basicity of organic acids and bases?

28. Write two differences between SN_1 and SN_2 reactions.

29. Determine the R and S notations of the asymmetric carbon atoms in (+) tartaric acid and (-) tartaric acid.

30. Explain the mechanism of E1 and E2 eliminations.

31. Give a brief account of optical activity due to restricted rotation.

32. Explain Baeyer's strain theory.

33. Write briefly on optical activity of glyceraldehydes.

34. Explain hyper conjugation effect with an example.

35. What are the conditions for a compound to show aromaticity?

36. Explain any two methods of determination of reaction mechanism.

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37. Explain Norish I and Norish II reactions.

38. What are non-benzenoid aromatic compounds? Explain their aromaticity.

(6 × 4 = 24 Marks)

PART – D

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

39. How will you convert Benzene to

    (a) p-nitro bromobenzene

    (b) m-nitro chlorobenzene

    (c) acetophenone.

40. Explain the mechanism of Nitration and halogenation of Benzene.

41. Explain addition and substitution reactions with examples.

42. Explain the optical isomerism of Tartaric acid.

43. Explain the mechanism of Markonikoff's addition of HBr to $CH_3-CH=CH_2$.

44. Discuss the classification of dyes on the basis of structure.

(2 × 15 = 30 Marks)

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