

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, May 2021

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY – I

(2017-2018 Admission)

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. Define electromeric effect?
2. What are nitrenes?
3. What are meso compounds?
4. What is photosensitization?
5. What are configurational isomers?
6. What are nucleophiles?
7. Draw the structure of alizarin.
8. What is meant by centre of symmetry?

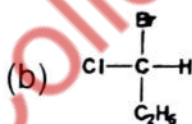
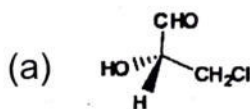
9. What is meant by heterolytic bond fission?
10. What is meant by torsional strain?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Explain the mechanism of Friedel Craft's acylation reaction.
12. Explain Saytzeff rule with suitable example.
13. What are sigmatropic rearrangements? Explain with examples.
14. What is hyperconjugative effect?
15. Assign the configuration R or S to the following compounds



16. Explain the stability of cyclopentadienyl anion.
17. Draw and label the Newman projection formula for the two extreme conformations of ethane.
18. Explain Kharasch effect with a suitable example.
19. Explain Sachse-Mohr theory of strainless rings.
20. Explain cycloaddition reaction with a suitable example.
21. Explain the structure of carbenes.
22. Distinguish between the terms enantiomers and diastereomers.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Naphthalene undergoes electrophilic substitution reactions preferentially at α -position. Explain.
24. Discuss *benzyne* mechanism of aromatic substitution reactions with suitable examples.
25. Discuss the conformations of mono and dialkyl substituted cyclohexanes.
26. Write a brief note on the optical activity of lactic acid.
27. Discuss the aromaticity of benzenoid and nonbenzenoid compounds.
28. Explain the orientation effect of substituents in aromatic electrophilic substitution reactions.
29. Phenol is more acidic than ethanol but less acidic than acetic acid. Explain.
30. Describe the classification of organic reactions with examples.
31. Explain the mechanism of S_N1 and S_N2 .

(6 × 4 = 24 Marks)

SECTION – D

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

32. Give an account on
 - (a) Optical activity of allenes and biphenyls.
 - (b) Cahn-Ingold-Prelog rules.
33. Explain :
 - (a) Methods of distinguishing geometrical isomerism.
 - (b) Conformational isomerism in n-butane and explain the relative stability of the conformers.

34. Discuss the various methods for the determination of reaction mechanism.

35. Describe the preparation and use of the following dyes.

(a) Congored

(b) Crystal violet

(c) Indigo.

(2 × 15 = 30 Marks)

St. Xaviers College, Thumba