

(Pages : 4)

J – 1207

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, March 2020

First Degree Programme Under CBCSS

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY – I

(2017 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 electrophiles?
2. What is a symmetry element?
3. Define mesomeric effect?
4. What are carbenes?
5. What are dyes?
6. What are enantiomers?
7. What is angle strain in cycloalkanes?

P.T.O.

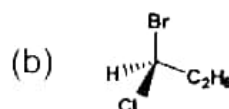
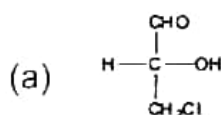
8. What is homolytic bond fission?
9. What are conformational isomers?
10. What are photosensitizers?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Explain Hoffmann elimination with suitable example.
12. Why 2-butene is more stable than 1-butene?
13. Explain the stability of tropylium cation.
14. What are electrocyclic reactions? Explain with examples.
15. Explain the mechanism of Friedel Craft's alkylation reaction.
16. Assign the configuration R or S to the following compounds.



17. Draw and label the Sawhorse representation for the two extreme conformations of ethane.
18. Explain Bayer's strain theory.
19. Distinguish between relative and absolute configurations.
20. Explain *cis*-hydroxylation with a suitable example.
21. What are the different types of arrows used for writing reaction mechanism? Explain.
22. Explain Markownikoff's rule with a suitable example.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Explain the mechanism of E1 and E2 reactions.
24. Discuss the elimination-addition mechanism of aromatic nucleophilic substitution reactions with suitable examples.
25. Discuss the stereochemical aspects of S_N1 and S_N2 reactions.
26. Explain Huckel's rule of aromaticity.
27. Write a brief note on the optical activity of tartaric acid.
28. What is inductive effect? How does it influence the acidity of organic acids?
29. Discuss the uniqueness of carbon.
30. Explain the mechanism of aromatic electrophilic substitution reactions.
31. Explain Norrish type-I and Norrish type-II reactions.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Discuss with suitable examples, structure, formation, stability and reactions of carbocations, carbanions and free radicals.
33. Explain
 - (a) Conformational isomerism in cyclohexane.
 - (b) Geometrical isomerism in ketoximes.

34. Give an account on

(a) Methods of resolution of racemic mixtures.

(b) Carcinogenic polynucleararenes.

35. Discuss the theories of colour and constitution.

(2 × 15 = 30 Marks)
