

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY – I

(2017 Admn)

Time : 3 Hours

Max. Marks : 80

SECTION – A

One word. Answer **all** questions. **Each** question carries **1** mark.

1. Give IUPAC name of acetic acid.
2. Write the functional isomer of propanoic acid.
3. Draw the structure of prop-1-ene-1-amine
4. The thermodynamic product of the sulphonation of naphthalene is _____.
5. What is the value of n as per Huckel's rule for phenanthrene.
6. The major product in the Friedel- Crafts alkylation of benzene with n -propyl chloride is _____.
7. C-C bond length in acetylene is _____.
8. Hybridisation of carbocation is _____.

9. _____ is an example of an auxochrome.
10. Cyclohexene on reaction with meta chloroperbenzoic acid in CCl_4 followed by acid catalysed hydrolysis will yield _____.

(10 × 1 = 10 Marks)

SECTION – B

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

11. Draw D and L forms of Erythrose and Threose.
12. Explain cyclo addition reaction.
13. Draw the structure of Alizarin.
14. Make out the differences between singlet and triplet carbene.
15. Give the priority order of the following groups in R/S representation
- (a) $-\text{CH}_2\text{Cl}$, $-\text{CN}$, $-\text{NO}_2$, $-\text{COOH}$;
- (b) $-\text{CHO}$, $-\text{CH}_2\text{OH}$, $-\text{CH}_2\text{SH}$, $-\text{CHCl}_2$.
16. Draw the sawhorse representation for staggered and eclipsed forms of ethane.
17. Give the resonance structure of Nitro Benzene.
18. Compare the basicity of :
- (a) Pyridine
- (b) Pyrrol.
19. Compare the stability of Toluene and Ethyl benzene.
20. Distinguish between electromeric effect and mesomeric effect.
21. Recognize the product when but-1,3-diene is heated with maleic anhydride.
22. Give two examples for photosensitisers.

(8 X 2 = 16 Marks)

SECTION – C

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

23. Explain the use of isotopic labelling in the study of mechanism of ester hydrolysis.
24. With the help of Bayer's theory calculate the angle strain and predict the stability of alicyclic compounds.
25. Explain the term atropisomers with examples.
26. Discuss the stability of t-butyl, allyl, benzyl and cyclopentadienyl carbanions.
27. Write a short note on asymmetric synthesis.
28. Describe the evidences of benzyne intermediate mechanism.
29. Optical purity is important in medicinal chemistry. Justify with example.
30. Describe the effect of substituent on the acidity of phenol.
31. Elucidate mechanism of Friedel-Crafts alkylation of benzene.

(6 X 4 = 24 Marks)

SECTION – D

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

32. (a) Discuss the theories behind colour of a dyeing compound.
(b) Classify various dyes based on structure and method of application. (7 + 8)
33. (a) Explain the mechanism of S_N1 and S_N2 reactions.
(b) What are the factors that will affect the course of aliphatic nucleophilic substitution?
(c) Describe a note on stereochemistry of these reactions. (5 + 7 + 3)