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J – 1155

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, March 2020

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1441: ORGANIC CHEMISTRY I

(2014-2016 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions in **one** word/**two** sentences. Each question carries **1** marks

1. The least stable carbanion is:

(i) $C_6H_5CH_2^-$ (ii) $(CH_3)_3C^-$ (iii) Cl_3C^- (iv) CH_3^-

2. Homolytic fission of covalent bond between carbon atoms will produce _____.

3. State Huckel's rule

4. Propene on ozonolysis gives _____.

5. What happens when benzene is treated with acetyl chloride in presence of $AlCl_3$? Name the reaction.

P.T.O.

6. Tertiary alcohol on treatment with Grignard reagent gives _____.
7. Which of the following compounds show optical isomerism?
- (i) 1- Aminopentane
 - (ii) 2-Aminopentane
 - (iii) 3-Aminopentane
 - (iv) 2, 2-Dimethylpropylamine
8. Name two reagent used for cis-hydroxylation
9. Explain isotopic effect
10. Define diastereoisomers

(10 × 1 = 10 Marks)

SECTION – B

Answer **any 8** questions. Each question carries **2** marks

11. What is Saytzeff rule? Give an example.
12. Give the mechanism of chlorination of benzene.
13. Why Chair conformation is more stable than boat conformation?
14. Explain the term chirality with suitable example.
15. Draw the Newman projection formula for the different conformation of n-butane
16. Give an account of non-benzenoid compound.
17. Write notes on the stereochemistry of thalidomide.
18. Explain Bayer's strain theory.
19. Explain the geometrical isomerism of Maleic and Fumaric acid.

20. Write notes on asymmetric catalyst
21. Write notes on erythro and thero representation
22. What is tautomerism?

(8 × 2 = 16 Marks)

SECTION – C

Answer **any 6** questions. Each questions carries **four** marks

23. Discuss the mechanism of SN1 and SN2 reaction with example.
24. Write notes on Reformasky reaction.
25. Explain the conformation of methyl cyclohexane.
26. Explain why benzyl carbonium ion is more stable than ethyl carbonium ion?
27. Explain the conformation of n-butane with energy level diagram.
28. Compounds which do not possess an asymmetric carbon atom can also exist in optically active forms. Explain the statement with suitable example.
29. Write notes on resonance effect with suitable example.
30. Explain homolytic and heterolytic bond fission reactions.
31. Give an account of elimination- addition mechanism.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any 2** questions. Each questions carriers **15** marks

32. Give an essay on the rule of R-S and E-Z nomenclature in stereochemistry.
33. Give a detail account of the mechanism of electrophilic and nucleophilic aromatic substitution reaction with examples
34. Write notes on the following
 - (i) Friedel-Craft alkylation and acylation
 - (ii) Grignard reagents and
 - (iii) Asymmetric synthesis

35. (a) Explain with mechanism the addition of HBr on propene in presence and absence of peroxide. 5
- (b) Discuss the conformations and relative stability of cyclo hexanes 5
- (c) Write notes on Inductive effect and hyper conjugative effect 5

(2 × 15 = 30 Marks)
