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Total No. of Printed Pages: [01]

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B.Sc. (Hons.) Physics (Semester – 2nd)

ORGANIC CHEMISTRY-I

Subject Code: BCHMS1-201

Paper ID: [19131512]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

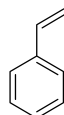
1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. Write the alkylation reaction of terminal alkyne.
- b. Define Optical activity and Specific rotation
- c. Define Huckel's rule to evaluate the aromaticity of compounds.
- d. Explain the mechanism of E1^{CB} elimination reaction.
- e. Draw the Wedge, Fischer, Newmann & Saw-Horse representations for tartaric acid.
- f. Write the trival and IUPAC name of



- g. Write the E- & Z- isomers of 2-butene.
- h. State Saytzeff's rule.
- i. Draw the resonating structure of the o-nitrophenoxide ion.
- j. Define Enantiomers and Diastereomers and give two examples for each.

Section – B

(5 marks each)

Q2. Write a short note on

- a) Hofmann elimination reaction
- b) Oxymercuration-demercuration reaction

Q3. What is Baeyer strain theory and what are its limitations?

Q4. Explain the mechanisms for Nitration and Friedel-Craft's alkylation reaction of Benzene.

Q5. Write short notes on the following:

- a) Racemization and Resolution
- b) Walden inversion

Q6. Differentiate between

- a) Homolytic and heterolytic fission
- b) Electrophiles and Nucleophiles

Section – C

(10 marks each)

Q7. i) Explain the mechanism of Markownikoff and Anti-Markownikoff addition of HBr to alkene.

ii) Explain the geometrical isomerism of maleic and fumaric acid. 7+3

Q8. i) Draw the conformations of Cyclohexane and explain their stability by drawing energy profile diagram.

ii) Explain 1,2-and 1,4-addition reactions in conjugated dienes. 5+5

Q9. i) Describe the generation and stability of carbocations and free radicals.

ii) Explain the elimination-addition mechanism in halo benzenes. 7+3