Total Pages : 3

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322209

May-2026

B.Sc - II SEMESTER

Organic Chemistry-I (BCH-201)

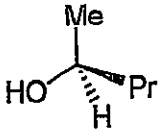
Time: 3 Hours **Max. Marks:75**

Instructions: 1. *It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.*
2. *Answer any four questions from Part -B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART -A

Q1 (a) What do you understand by elimination reactions? Explain giving suitable example. (1.5)

(b) Draw the Fischer Projection formulae of the following compound. (1.5)



(c) What do you understand by recemization? Explain giving suitable example. (1.5)

(d) Draw the energy level diagram for the different conformations possible for n-butane. (1.5)

(e) Discuss the E2 elimination reaction mechanism reflecting upon its stereochemistry. (1.5)

(f) Explain how Baeyer strain theory justifies the ring strain in cyclic compounds. (1.5)

(g) Write down the different conformations of cyclohexane and arrange them in order of their increasing stability. (1.5)

(h) What is Baeyer's test? (1.5)

(i) Write down the chair form of cis-1,2-dichlorocyclohexane. (1.5)

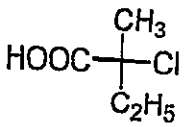
(j) Taking any suitable example, discuss Friedel Craft's alkylation of benzene. (1.5)

PART -B

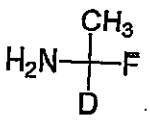
Q2 (a) What are free radicals? Reflect upon their structure, methods of preparation and factors affecting their relative stabilities. (10)

(b) Explain the S_N2 reaction mechanism in detail, including its kinetics, stereochemistry, and factors affecting the reaction. (5)

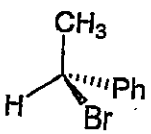
Q3 (a) Assign absolute configuration to the following compounds; (10)



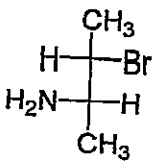
(i)



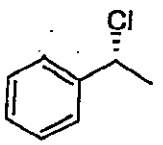
(ii)



(iii)



(iv)

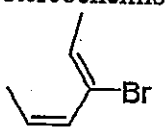


(v)

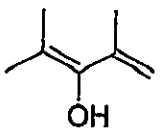
(b) Explain the necessary and sufficient conditions for molecular chirality. Illustrate your answer with at least two suitable examples (5)

Q4 Provide a detailed account of the following named reactions, including their mechanisms and relevant examples: (3x5)
(i) Wurts reaction
(ii) Hydroboration-Oxydation of alkenes
(iii) Oxymercuration–demercuration of alkenes

Q5 (a) Write down the IUPAC names of the following compounds mentioning the stereochemistry of the double bonds. (5)



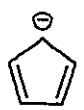
(i)



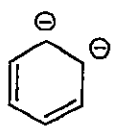
(ii)

(b) Discuss the different conformations of possible for n-butane and their relative stability. Also draw energy profile diagram showing their relative stability. (10)

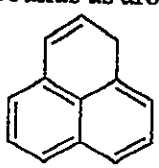
Q6 (a) Assign the following compounds as aromatic, non-aromatic and anti-aromatic; (5)



(i)



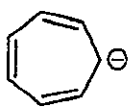
(ii)



(iii)



(iv)

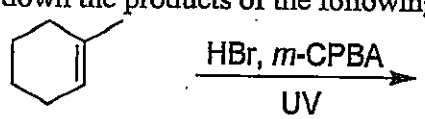


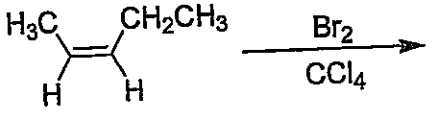
(v)

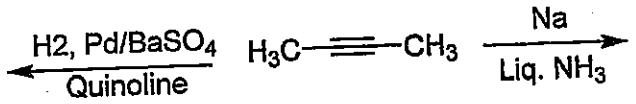
(b) Describe the effect of different substituents on the reactivity and directing effects in electrophilic aromatic substitution reactions, with suitable examples. (10)

Q7 Write down the products of the following reactions with suitable mechanism; (15)

(i)



(ii) 
H3C
CH2CH3
H
H
Br2
CCl4

(iii) 
H2, Pd/BaSO4
Quinoline
H3C
CH3
Na
Liq. NH3