

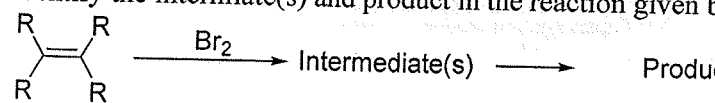
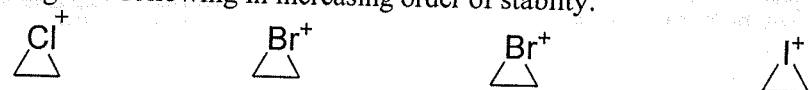
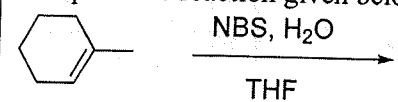
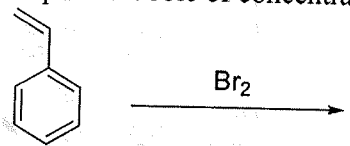
DEPARTMENT OF CHEMISTRY
SCHOOL OF CHEMICAL AND LIFE SCIENCES, JAMIA HAMDARD
MSc CHEMISISTRY, SEMESTER II EXAMINATIONS-MAY 2024
PAPER CODE: MCHCC -202

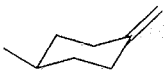
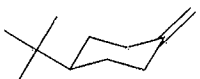
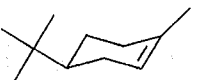
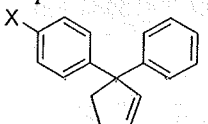
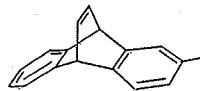
TITLE: ORGANIC CHEMISTRY – II

Time 2½ hours

Maximum Marks 60

Abbreviations Used: CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

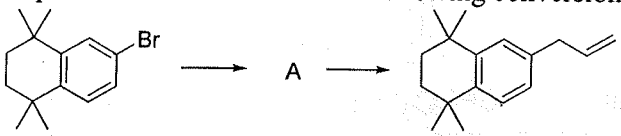
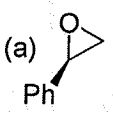
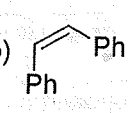
Q. No	Question	BTL	CLO	PLO
Section A				
Very Short Type Questions: Attempt Any Ten of the following questions (10x1.5=15Marks)				
1	Differentiate between the Markovnikov's and anti-Markovnikov's rule on the basis of thermodynamical aspects	1-2	1-2	1-2
2	Explain briefly about the allyl and benzylic radical.	1-2	1-2	1-2
3	How Gilman's reagents are prepared?	1-3	1-3	1-3
4	Identify the intermediate(s) and product in the reaction given below 	3	3	3
5	Arrange the following in increasing order of stability.  SbF ₆ ⁻ salt Br ₃ ⁻ salt CFSO ₃ ⁻ salt CFSO ₃ ⁻ salt	4	4	4
6	Briefly mention two techniques which are important in characterisation of intermediates.	1	1	1
7	Complete the reaction given below 	3	3	3
8	Explain the role of concentration of Br ₂ on the fate of the reaction given below 	3-4	3-4	3-4
9	Justify with suitable example that electrophilic derivatives of both Sulphur and selenium can add to alkene.	2	2	2
10	Why Norbornene is about twice as reactive cyclopentene towards peroxyacetic acid?	4	4	4
11	Explain steric factors associate with epoxide opening reaction.	2-4	2-4	2-4
Section B				
Long Type questions (Attempt any two out four) (10x2=20 marks)				
1.	Explain the preparation of organozinc reagent and Grignard reagent and compare their reactivity with suitable examples	3-5	3-5	3-5
2.	Write short note on: a) Knoevenagel reaction, b) Claisen reaction, c) Mannich reaction, d) Stobbe reaction reactions.	2-6	2-6	2-6

3.	Explain the formation of product(s) along with the suitable reason in support for the reactions given below (mention major and minor if more than one product is possible)  $\xrightarrow{\text{Hg(OAc)}_2}$ $\xrightarrow{\text{NaBH}_4}$ Product(s)  $\xrightarrow{\text{Hg(OAc)}_2}$ $\xrightarrow{\text{NaBH}_4}$ Product(s)  $\xrightarrow{\text{Hg(OAc)}_2}$ $\xrightarrow{\text{NaBH}_4}$ Product(s)	4-6	4-6	4-6
4.	Explain the following observation  $\xrightarrow{\text{mCPBA}}$ Syn/Anti product X = NO₂ then syn:anti product = 73:27 X = H then syn:anti product = 50:50 X = Br or Cl then syn:anti product = 57:43  $\xrightarrow{\text{mCPBA}}$ Syn/Anti product X = NO₂ then syn:anti product = 77:23 X = H then syn:anti product = 50:50 X = F then syn:anti product = 58:42	4-6	4-6	4-6

Section C

Short Type questions. (Attempt all questions)

(5x5=25 marks)

1	Explain the mechanism for the following conversions  OR Justify that Lithiation is more versatile than Grignard based reaction? Support your answer with suitable example	5-6	5-6	5-6
2	Write short note on a) Vilsmeier reaction and b) Gattermann-Koch reaction. OR Differentiate between kinetically and thermodynamically favoured reaction with suitable example	3-5	3-5	3-5
3	Why do 3,4-disubstituted oxymethylcyclobutene shows moderate syn directive effect on reacting with mCPBA? OR Explain the role of ERG in stabilisation of Chlorosulfurane.	3-5	3-5	3-5
4	Complete the reaction given below with mechanism   OR Differentiate between Hydrohalogenation and Hydration of Alkyne.	3-5	3-5	3-5
5	Justify that BH₃ reacts in an anti-Markovnikov fashion, resulting in an anti-Markovnikov product. Explain the transition state of Hydroboration reaction and factors effecting the stabilisation of transition state OR Complete the reaction given below with suitable reaction mechanism $\text{R}_3\text{B} \xrightarrow{\text{X-NH}_2} \text{A} \longrightarrow \text{B} \xrightarrow{\text{H}_2\text{O}} \text{C}$ X = Cl or OSO₃⁻	4-5	4-5	4-5