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Total Pages : 5

**239405**

May 2019

M.Sc. (Chemistry) IVth Semester  
**ORGANIC CHEMISTRY SPECIAL-I**  
(CH-411 A)

Time : 3 Hours]

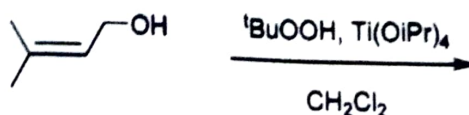
[Max. Marks : 75

*Instructions :*

- (i) *It is compulsory to answer the questions of Part-A. Limit your answers within 20-40 word in this part.*
- (ii) *Answer any four questions from Part-B in detail.*
- (iii) *Different parts of the same question are to be attempted adjacent to each other.*
- (iv) *Assume suitable standard data wherever required, if not given.*

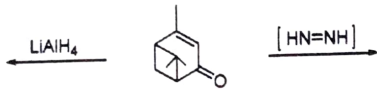
**PART-A**

1. (a) Giving suitable evidence, prove that migration of alkyl group (C—N) occur intramolecularly in Hoffman rearrangement. (1.5)
- (b) Draw major product in the following reaction: (1.5)



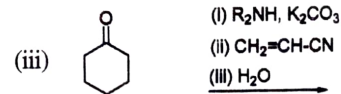
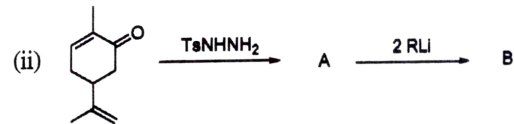
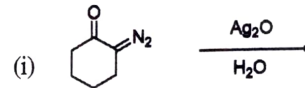
**PART-B**

- (c) How hydrogenolysis differ from hydrogenation? (1.5)
- (d) What precautions are to be taken while handling Raney Nickel in reduction reactions. (1.5)
- (e) Draw the products in the following reactions. Also mention stereochemistry of the product where needed. (1.5)



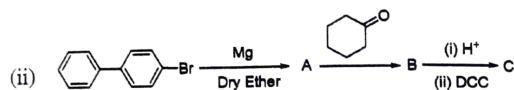
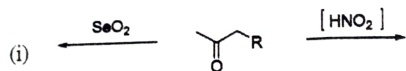
- (f) Reflect upon the chemoselectivity of organometallic reagents R-Ti(OR<sub>3</sub>) and RMgX. (1.5)
- (g) What is Collman's reagent? Briefly explain its reactions. (1.5)
- (h) What are organometallic reagents? Describe the steps involved in their reactions with organic compounds. (1.5)
- (i) What do you understand by reversal of polarity? Briefly explain giving suitable example. (1.5)
- (j) Give two synthetic applications of Wilkinson's catalyst. (1.5)

2. Briefly explain the following name reactions giving plausible mechanism :
- (a) Beckmann rearrangement.
- (b) Schmidt rearrangement.
- (c) Favorskii rearrangement. (15)
3. (a) Draw the products of following reactions proposing plausible mechanism; (9)

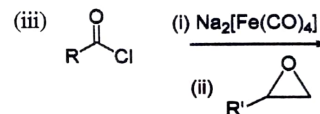
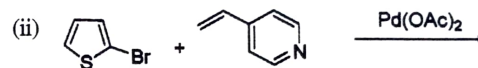


- (b) Explain Clemmenson and Wolff Kishner reduction reactions. (6)
4. (a) Discuss the different approaches for formation of trans diols from alkenes with plausible mechanism. (7)

- (b) Complete the following reactions with plausible mechanism : (8)



7. Write down the product of following reactions with mechanism ; (3×5)



5. Explain the following name reactions :

- Wacker's process.
- Pauson Khand reaction.
- Alkene metathesis. (3×5)

6. (a) Describe briefly the applications of following reagents in organic synthesis and propose suitable mechanism wherever applicable.

- Dithiane.
- DDQ. (2×4)

- (b) How is  $\text{Me}_2\text{S}=\text{C}^-\text{CH}_2$  prepared? What is its reaction with  $\text{R}_2\text{C}=\text{O}$ ?

- (c) Using appropriate starting materials, give steps for the synthesis of  $\text{PhCH}=\text{CHCOOMe}$  while making use of Wittig reaction. (4)