Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 19

M.Sc.(CHEMISTRY) PIT (2015 to 2017) (Sem.-2)

REACTIVE INTERMEDIATES-II

Subject Code : CHL-412

Paper ID : [51149]

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying FIVE marks each and students have to attempt ALL questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. What is the Markovnikov's rule for electrophilic additions of H-X to alkenes?

2. What is the most common reagent for synthesizing cis alkene from alkynes?

3. How the nucleophile affects elimination versus substitution in alkyl halides?

4. How can you make —OH a leaving group in E-2 elimination reactions?

5. What is the Michael-addition reaction?

6. Write the possible product(s) may form via reductive ozonolysis of alkenes using $NaBH_4$?

7. What is Pinacol-Pinacolone rearrangement?

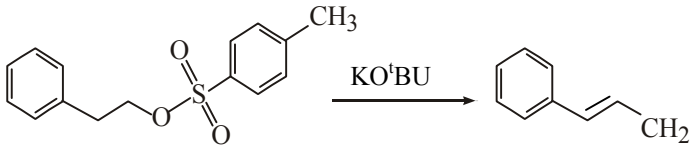
8. What is Baeyer-Villiger oxidation reaction?

9. NaH uses as a strong base while $NaBH_4$ as a reducing agent. Why?

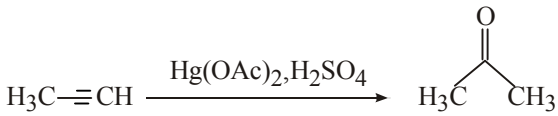
10. Organometallics need to be kept absolutely free of moisture. Why?

SECTION-B

11. Write the mechanisms of following transformation.



12. Write the mechanisms of following transformation.



13. Explain the Clemensen rearrangement.

14. Sodium borohydride is the best choice for reducing aldehydes or ketones not diisobutyl aluminum hydride. Explain.

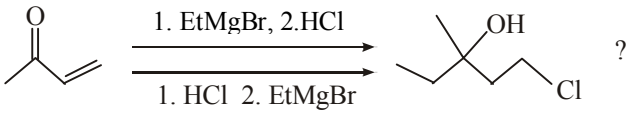
15. Explain the Wittig reaction with the mechanism.

16. Explain any two methods for synthesizing Grignard reagents.

SECTION-C

17. Why is it difficult (though not impossible) for cyclohexyl bromide to undergo an E2 reaction? What conformational changes must occur during this reaction?

18. Which of the two routes suggested here would actually lead to the product? Also, explain the mechanism of your choice?



19. Explain Benzil-Benzile rearrangement with the explanation of each mechanistic step.