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

Total No. of Pages : 02

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M.Sc. (Chemistry) (Campus) (2015 to 2017) (Sem.-4)

ADVANCED ORGANIC CHEMISTRY

Subject Code : CHL-511

M.Code : 74897

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

Answer briefly :

1. Explain the meaning of relative and absolute configuration in molecules.
2. What are chiral auxiliaries? Explain.
3. What is Heck coupling and why it is important?
4. What kind of transition states forms in Diels-Alder cycloaddition reaction?
5. What is the Michael-addition reaction?
6. What is the difference between heterogeneous and homogenous catalyst? Give one example of each.
7. Write mechanism of ring-opening metathesis polymerization.
8. What is oxidative addition reaction?
9. What transition metal frequently uses in the hydrogenation of imine?
10. Organometallics need to be kept absolutely free of moisture. Why?

SECTION-B

11. Define stereoselectivity and stereospecificity with proper examples. Explain the key difference between them.

12. Write the catalytic cycle of Negishi Coupling.

13. What are the importance and challenges of C-H activation?

14. Write a note on Cram's rule.

15. What do you understand by the chiral pool of comounds. Explain with the examples.

16. Write one coupling reaction uses Cu- and Pd-salts as a catalyst in the same catalytic cycle.

SECTION-C

17. What is the active catalyst in Sonogashira coupling reaction? Schematically demonstrate how $(PPh_3)_2$ $PdCl_2/Et_3N$ pre-catalyst generates the active catalyst.

18. What is claisen rearrangement? Explain the mechanism.

19. What is transition metal catalyzed carbonylation process? Explain the mechanism of alkene to aldehyde conversion using rhodium catalyzed carbonylation process.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.