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Total No. of Pages : 02

Total No. of Questions : 19

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

ADVANCED ORGANIC CHEMISTRY

Subject Code : CHL-511

Paper ID : [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

1. Give the principle of separation based methods used to determine enantiomeric purity.

2. What is chiron approach for asymmetric synthesis?

3. Give the qualities of a good chiral auxiliary.

4. Briefly describe oxidative addition and reductive elimination step in transition metal catalyzed reaction.

5. Give dihydride mechanism of hydrogenation of alkene.

6. Give polymerization reaction of alkenes via Ziegler-Natta catalyst.

7. What is olefin metathesis reaction?

8. Give one example of functional group interconversion as a means of asymmetric synthesis.

9. What is insertion reaction?

10. Give structure of TBAF.

SECTION-B

11. Explain the method of determining enantiomeric purity using HPLC.

12. Discuss role of conformations of a diene during Diels-Alder reaction with example.

13. Discuss hydroboration reaction with one example and give its mechanism.

14. What is Suzuki cross coupling reaction? Give its applications.

15. Discuss hydroformylation reaction of alkenes with one example.

16. What is Michael addition reaction? Give its mechanism.

SECTION-C

17. Discuss Stille coupling with requirements for alkyl groups in the substrate. Also give its detailed mechanism.

18. Discuss Chiral auxiliary approach as a strategy for asymmetric synthesis. Give applications of asymmetric synthesis.

19. Classify C-H activation reactions. Discuss each with suitable example.