D 111110 **(Pages : 3)** **Name.....**

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2024

(CBCSS)

Chemistry

CHE 3E 01—SYNTHETIC ORGANIC CHEMISTRY

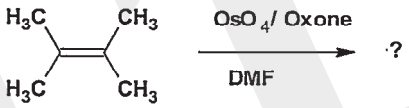
(2019 Admission onwards)

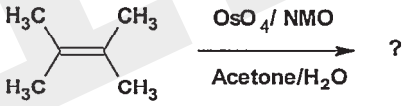
Time : Three Hours Maximum : 30 Weightage

Section A

Answer any **eight** *questions.*
Each question carries a weightage of 1.

1. What is Birch reduction ?
2. Complete the reaction :

a) 

b) 

3. What are the applications of phase transfer catalysts ?
4. What is Robinson annulation ?
5. How the reactivity of C=O group is affected by $-NH_2$ and –OCl groups ?
6. Discuss the use of umpolung reaction in organic synthesis
7. What are the advantages of coupling reactions ?

Turn over

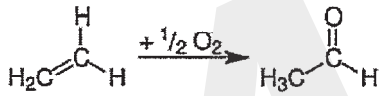
8. What is the importance of leaving group in organic reactions ?
9. What is meant by functional group transposition ?
10. Discuss any *two* methods of synthesis of indole.

(8 × 1 = 8 weightage)

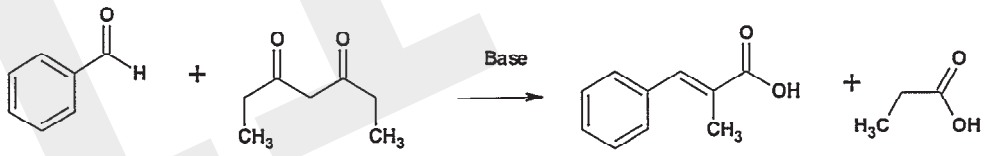
Section B

Answer any **six** *questions.*
Each question carries a weightage of 2.

11. Discuss the mechanism of the following reaction



12. What are hydroborane reactions ? What is its specialty ? Give two examples.
13. Briefly explain the mechanism of the following reaction :



14. What is Michael addition reaction ? Discuss its mechanism.
15. Discuss the mechanism of Negishi coupling
16. With suitable examples, discuss the selection of solvents for organic reaction.
17. Describe a method of synthesis and general reactions of benzothiophene.
18. Discuss the structure and synthesis of thiepins.

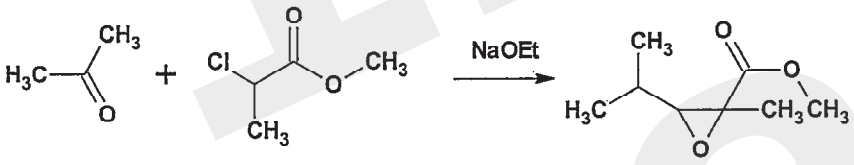
(6 × 2 = 12 weightage)

Section C

Answer any **two** *questions.*
Each question carries a weightage of 5.

19. Explain the use of OsO_4 and SeO_2 as oxidizing agents in organic chemistry.

20. a) Explain the mechanism of the following conversion :



b) Explain the mechanism of Suzuki - Miyaura coupling.

21. Illustrate the synthesis of Corey lactone

22. Explain the retrosynthetic analysis and synthesis of benzocaine from toluene.

(2 × 5 = 10 weightage)