

**THIRD SEMESTER M.Sc. DEGREE [REGULAR/SUPPLEMENTARY]  
EXAMINATION, NOVEMBER 2025**

(CBCSS)

Chemistry

CHE 3E 01—SYNTHETIC ORGANIC CHEMISTRY

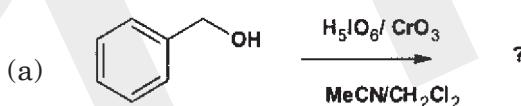
(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

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

1. What is Hoechst-Wacker oxidation ?
2. What are the selectivity of TEMPO oxidation ?
3. How does Gilman reagent work ?
4. Predict the product(s) of the reactions :



5. What are protecting groups ?
6. What is Prins reaction ?
7. Discuss a synthetic application of Negishi Coupling.

**Turn over**

8. What is Stille carbonylative cross coupling reaction ?
9. What are the main protecting groups used for hydroxyl group ?
10. What are synthons ? Give an example.

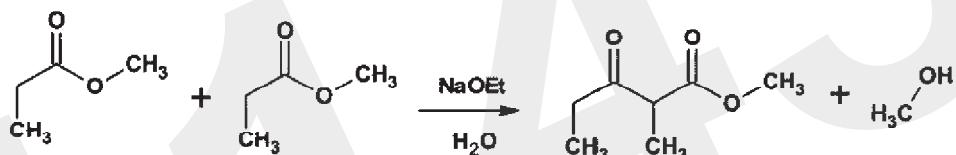
(8 × 1 = 8 weightage)

### Section B

*Answer any six questions.*

*Each question carries a weightage of 2.*

11. Discuss the oxidation of organic molecules using singlet and triplet oxygen.
12. What are phase transfer catalysts ? Discuss their mechanism and applications.
13. Discuss the mechanism of the following reaction :



14. What is Perkin reaction ? Discuss its mechanism.
15. Discuss the mechanism of Heck coupling.
16. Discuss the various types of stereochemical selectivity in organic synthesis.
17. With a suitable example discuss the two group C-C and C-X disconnections
18. Describe the general method of synthesis and main reactions of benzimidazole.

(6 × 2 = 12 weightage)

### Section C

*Answer any two questions.*

*Each question carries a weightage of 5.*

19. By taking examples explain the homogeneous and heterogeneous catalytic hydrogenation of organic molecules.

20. (a) What is Stork enamine alkylation ? Discuss its mechanism.  
(b) What is combinatorial chemistry ? What are its advantages ?

21. Illustrate the synthesis of Djerassi Prelog lactone.

22. Explain the retrosynthetic analysis and synthesis of paracetamol from phenol.

(2 × 5 = 10 weightage)