D 150268 **(Pages : 3)** **Name.....**

Reg. No.....

THIRD SEMESTER M.Sc. (CBCSS) [REGULAR/SUPPLEMENTARY] DEGREE EXAMINATION, NOVEMBER 2026

Chemistry

CHE 3E 01—SYNTHETIC ORGANIC CHEMISTRY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

Part A

Answer any **eight** *questions.*

Each question carries a weightage of 1.

1. Discuss the stereochemistry of Wacker oxidation.
2. What is Swern oxidation ?
3. What is Collins Reagent ? What is its advantage ?
4. What is combinatorial chemistry ?
5. What is Robinson annulation ?
6. What is Kumada reaction ?
7. What is stereo-selectivity ? Illustrate with an example.
8. Discuss the effect of catalysts in determining the reaction rate of an organic synthesis.
9. What is functional group transposition ?
10. Describe the steps involved in the Reichstein process of synthesis of Vitamin C.

(8 × 1 = 8 weightage)

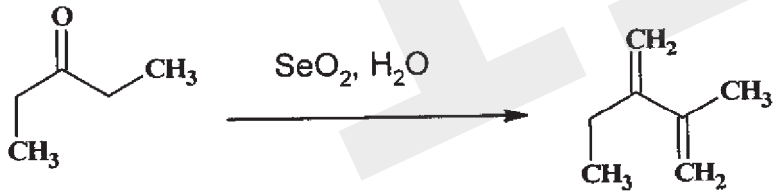
Turn over

Part B

Answer any **six** *questions.*

Each question carries a weightage of 2.

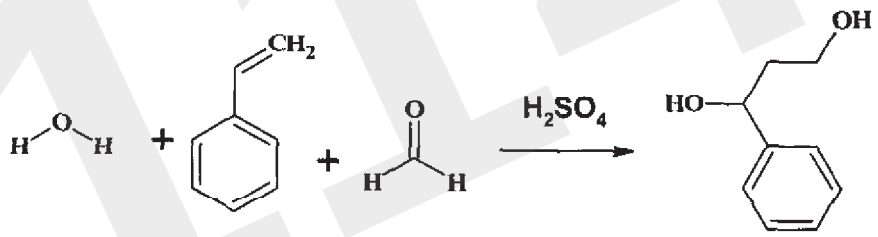
11. Discuss the mechanism of the following reaction :



12. Discuss the use of Osmium tetroxide in oxidation reactions.

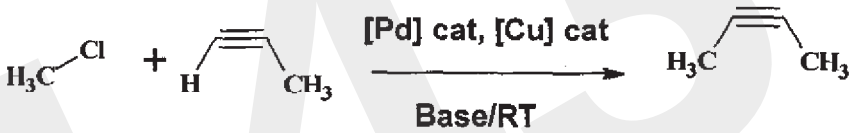
13. What are the uses of *n*-butyl tin hydride in synthetic organic chemistry ?

14. Discuss the mechanism of the following reaction :



15. Illustrate the mechanism of Stille carbonylative cross coupling reaction.

16. Discuss the mechanism of :



17. What are protective groups ? Why protective groups are important in organic synthesis ? With suitable example, discuss the protection of carboxylic acid groups during synthesis.

18. Describe a method of synthesis and main reactions of quinoline.

(6 × 2 = 12 weightage)

Part C

Answer any **two** *questions.*

Each question carries a weightage of 5.

19. (a) Discuss the use of $NaBH_4$ in organic reduction reactions. What is its scope and limitations ?

(b) Discuss the use of Silicon reagents in organic synthesis. Discuss its applications.

20. Describe the mechanisms of : (a) Stork-Enamine ; and (b) Mannich reactions.

21. (a) Discuss the synthetic applications of Suzuki-Miyaura coupling reaction.

(b) Explain the steps involved in the synthesis of Djerassi Prelog lactone.

22. Illustrate the general principles of retrosynthetic analysis. Describe the retrosynthetic analysis of propranolol from 1-naphthol

(2 × 5 = 10 weightage)