

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

(CBCSS)

Chemistry

CHE 3C 11—REAGENTS AND TRANSFORMATION IN ORGANIC CHEMISTRY

(2019 Admission onwards)

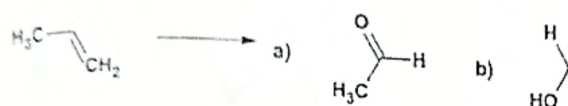
Time : Three Hours

Maximum : 30 Weightage

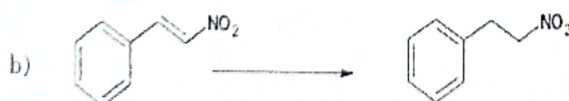
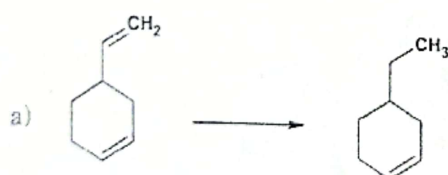
Section A

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

1. How would you carry out the following conversions :

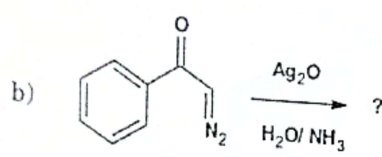
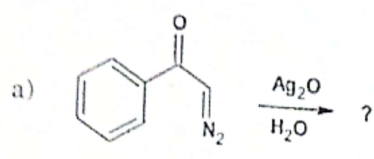


2. What is Riley reduction ?
3. Discuss the mechanism of Noyori asymmetric hydrogenation.
4. Suggest reagent(s) for the following transformations :



Turn over

5. What is Gilman's reagent ?
6. What is DDQ ? Discuss its main uses.
7. Discuss the structure of DNA.
8. Discuss two methods of synthesis of quinoline.
9. Complete the reactions :



10. Give one example each for compounds containing strong, weak and very weak hydrogen bond. (8 × 1 = 8 marks)

Section B

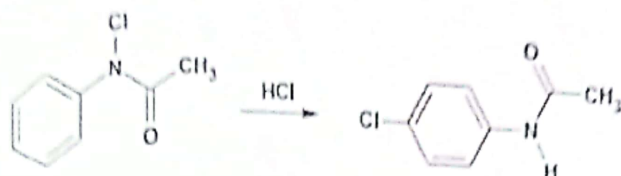
Answer any **six** questions.
Each question carries a weightage of 2.

11. Discuss the mechanism of the reaction :



12. Describe the mechanism of Bouveault-Blanc reduction.
13. Discuss the use of LiBH_4 in organic reactions.
14. What is DBU ? What are its synthetic applications ?

15. Discuss the method for the sequence determination of peptides.
 16. Discuss the general synthesis and main reactions of oxiranes.
 17. Illustrate the mechanism of the following reaction :



18. Discuss the mechanism of conversion of cyclohexanone to caprolactum.

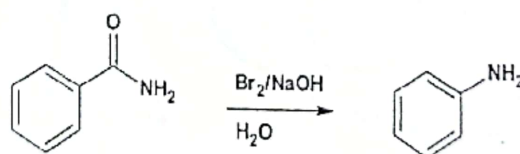
(6 × 2 = 12 weightage)

Section C

Answer any **two** questions.

Each question carries a weightage of 5.

19. What is Epoxidation ? Explain different types of epoxidation of organic molecules.
 20. a) What is Hydroboration ? What are its advantages ?
 b) Explain the use of phase transfer catalyst in organic synthesis.
 21. a) Compare the properties of synthetic and natural rubbers.
 b) Describe the synthesis and main reactions of imidazole
 22. a) Discuss the mechanism of the following conversion :



- b) Explain the mechanism of Suzuki coupling reaction.

(2 × 5 = 10 weightage)