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90979 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER M.A./M.Sc./M.Com. DEGREE (REGULAR) EXAMINATION, NOVEMBER 2020

(CBCSS)

Chemistry

CHE 3C 11—REAGENTS AND TRANSFORMATIONS IN ORGANIC CHEMISTRY

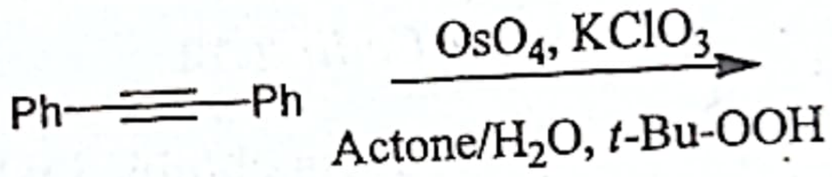
(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

Section A

Answer at least **six** *questions.*
Each question carries 1 *weightage.*
All questions can be attended.
Overall Ceiling 6.

1. Predict the product in the following reaction :

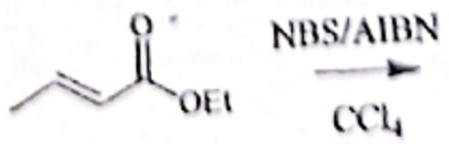


2. Suggest reagents and conditions to effect the following conversion with high enantiomeric excess.

3. Name two reagents and reaction conditions that are useful for the selective reduction of nitriles and esters to aldehydes.

4. What is Lindlar catalyst ? Give the applications in organic synthesis.

5. Predict the major product in the following reaction. What is the role of AIBN in the reaction ?



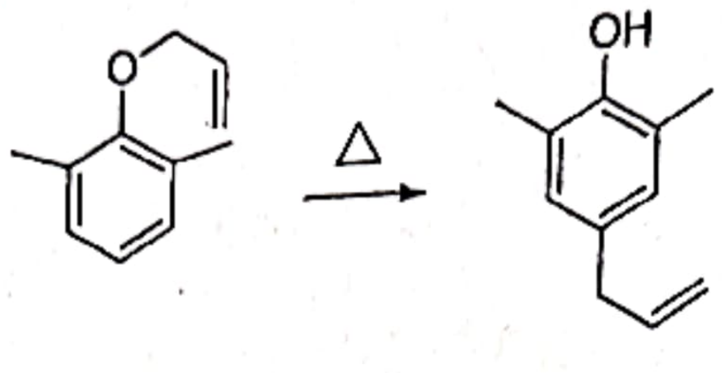
Turn over

6. Illustrate the use of 18-crown-6 as a phase transfer catalyst with an appropriate exampl

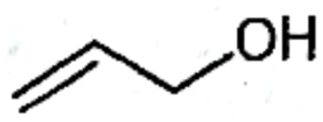
7. Differentiate between thermosets and thermoplastics.

8. Write down the structure of : a) Aziridine ; b) Imidazole.

9. Indicate the mechanism of the following transformation.



10. Predict the major product obtained in the Heck reaction of the following compou bromobenzene.



(6 × 1 = 6 wei

Section B

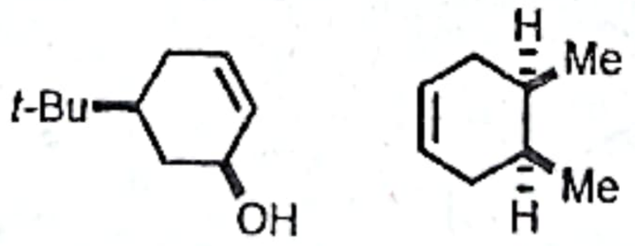
Answer at least **four** *questions.*

Each question carries 3 *weightage.*

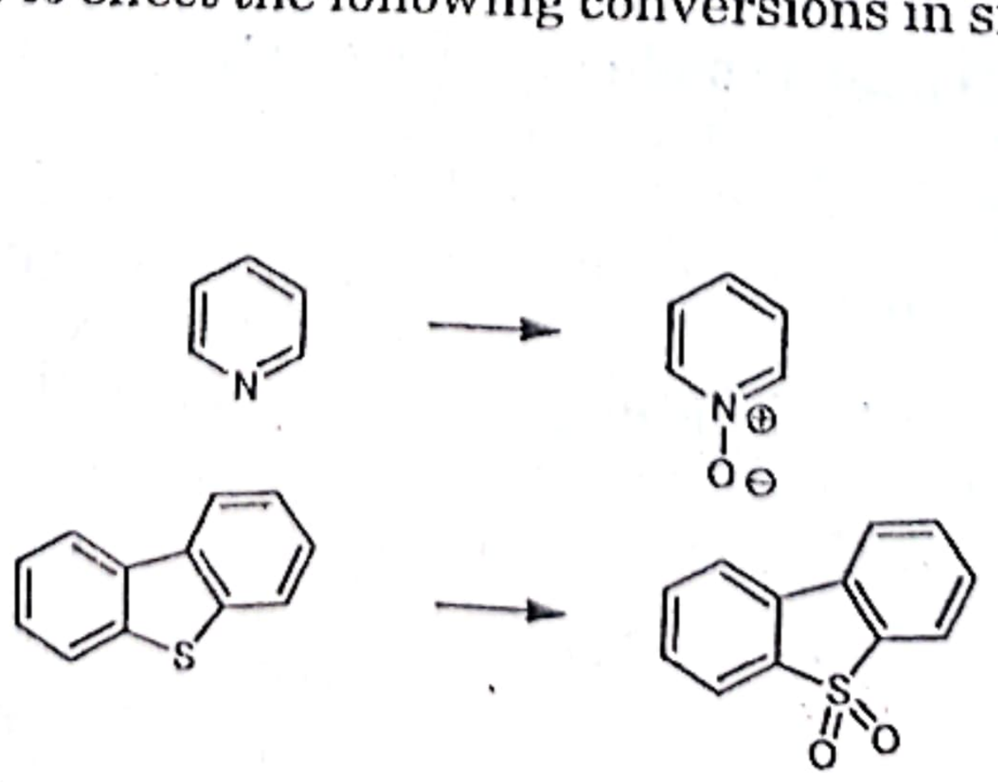
All questions can be attended.

Overall Ceiling 12.

11. Write down the structure of the major products obtained when each of the following al treated with *m*-chloroperbenzoic acid.



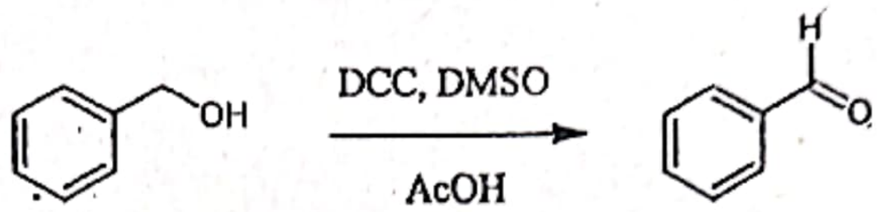
12. Suggest suitable reagents to effect the following conversions in single step with appreciable y



13. Explain the regioselectivity in Birch reduction with suitable examples.

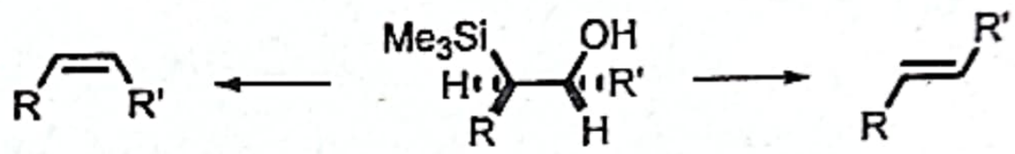
14. Discuss McMurry coupling reaction with reference to its mechanism and applications.

15. Rationalize the following reaction. Suggest a plausible mechanism.

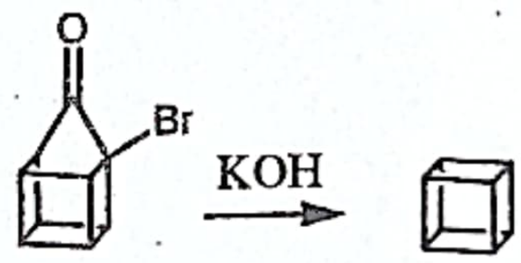


16. Outline a synthesis of uracil starting with urea as one of the substrates.

17. How will you effect the following conversions ? Indicate the mechanism involved.



18. Suggest a plausible mechanism for the following base catalyzed transformation.



(4 × 3 = 12 weightag

Section C

Answer at least **two** *questions.*
Each question carries 6 *weightage.*
All questions can be attended.
Overall Ceiling 12.

19. Discuss the mechanism and applications of Swern oxidation. What are its advantages over othe oxidation methods ? Give examples.

20. Write notes on : a) Noyori asymmetric hydrogenation, ; and b) Shapiro reaction.

21. Write short notes on : a) Role of DEAD in Mitsunobu reaction ; b) Role of DBU as a base.

22. Outline a total synthesis of 8-hydroxy quinoline.

(2 × 6 = 12 weightag