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Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, FEBRUARY 2021

Third Semester

Faculty of Science

Branch III—Pure Chemistry

CH 3C 10/AN 3C 10—ORGANIC SYNTHESIS

(2012—2018 Admissions)

[Common to M.Sc. Analytical Chemistry and Pure Chemistry]

Time : Three Hours

Maximum Weight : 30

Section A

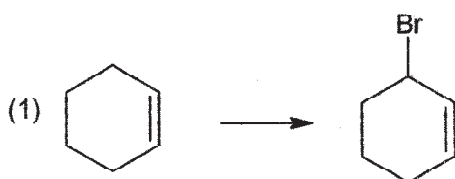
*Answer any **ten** questions.*

Each question carries a weight of 1.

1. What are the reagents used in Prevost reaction ? Give an example.
2. Explain the use of Baker's yeast in organic synthesis using a suitable example.
3. Give the structure of DDQ. What is its use ? What is the driving force for the reactivity of this reagent ?
4. Write down the products formed in the following reactions :



5. How the following conversions are carried out ? Give the reagent and solvent of choice.



Turn over

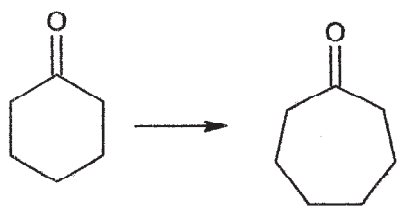




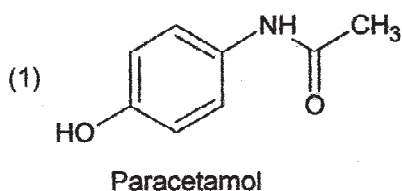
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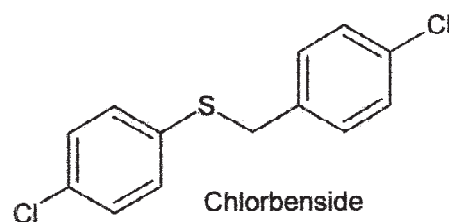
6. What are Oxetanes ? How they are synthesised ?
7. How the following change is brought out ? State the reagents and name the reaction used.



8. What is meant by chemo and regio selective protection ? Explain taking examples.
9. Give two important uses of Trimethylsilyl chloride in organic synthesis.
10. Give the retro synthetic analysis of the following molecules.



(2)



Chlorbenside

11. What are 'Unpolung equivalent' ? Explain using suitable example.
12. Give the important steps in the biosynthesis of Phenyl alanine.
13. Explain the terms Biogenesis and Biomimetic synthesis.

(10 × 1 = 10)

Section B

Answer any **five** questions.

Each question carries a weight of 2.

14. Give the biomimetic synthesis of Progesterone.
15. Explain the term enantio selective synthesis using synthesis of Corey lactone as an example.





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16. Explain Peterson olefination. Compare it with Wittig reaction.
17. Name two protecting groups each for 1) amino group ; and 2) Carboxyl group. Explain their method of protection and deprotection
18. Give one important chemical synthesis each of 1) Thiazole ; and 2) Oxazole.
19. Give two methods each for synthesising a) Five membered rings ; and b) six membered rings.
20. Give the mechanism of the following reactions using suitable examples 1) Stille coupling ; and 2) Suzuki coupling.
21. What is Birch reduction ? Give the mechanism of the reaction. What are its uses in organic synthesis ?

(5 × 2 = 10)

Section C

*Answer any **two** questions.*

Each question carries a weight of 5.

22. Discuss briefly on the metal based oxidations useful for the synthesis of a) Alcohols ; b) Epoxides ; c) Diols ; and d) carbonyl compounds.
23. Write briefly on the biosynthesis of Cholesterol.
24. Write notes on a) Ullmann coupling reaction ; and b) Glaser coupling reaction.
25. Explain the solid phase peptide synthesis using a suitable example.

(2 × 5 = 10)

