D 70920 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR) EXAMINATION NOVEMBER 2019

Chemistry

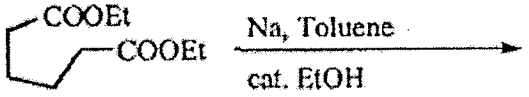
CH 3E 01—SYNTHETIC ORGANIC CHEMISTRY

Time : Three Hours Maximum : 36 Weightage

Section A

Answer **all** *questions.*
Each question carries 1 *weightage.*

1. Write a note on Gilman reagent.
2. Explain the mechanism of Robinson annulation.
3. Give the names and structures of any two protecting groups for the amino group.
4. Write down the mechanism of Sonogashira cross coupling reaction
5. What is Birch reduction ?
6. Predict the product and explain the mechanism of the reaction :



7. What are phase transfer catalysts ? Give two examples.
8. What is Swern oxidation ?
9. Explain Umpolung equivalent with suitable example.
10. Explain two group disconnections used in retrosynthetic analysis with suitable examples.
11. Explain Sharpless asymmetric epoxidation with example.
12. Give a chemical reaction in which selenium dioxide as an oxidizing agent.

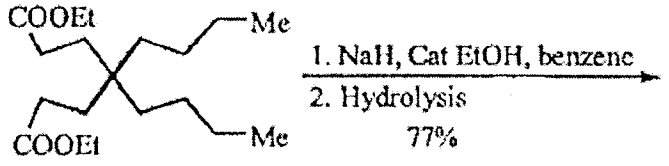
(12 × 1 = 12 weightage)

Section B

Answer any **eight** *questions.*
Each question carries 2 *weightage.*

13. Differentiate between Woodward and Prevost hydroxylation.

14. Give the name of the following reaction and write its mechanism :



15. Write the mechanism of reactions :

    (a) Claisen.

    (b) Stork enamine.

16. Write down the protection and deprotection of carbonyl group with suitable examples.

17. Explain the enantioselective synthesis of :

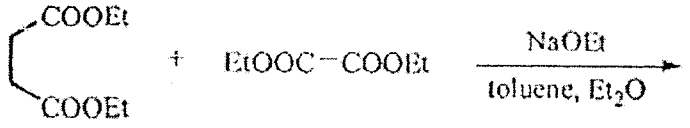
    (a) Corey lactone.

    (b) Longifolene.

18. Write down the synthesis of any two fused ring heterocycles.

19. Explain one group C-X disconnections used in retrosynthesis.

20. Write down the mechanism of the following reaction :



21. Discuss in detail :

    (a) Hydroboration reaction.

    (b) TEMPO oxidation.

22. Write down the retrosynthetic analysis of :

    (a) Paracetamol from phenol.

    (b) Benzocain from toluene.

23. Explain Birch reduction.

24. What are the important strategies of functional group interconversions ?

(8 × 2 = 16 weightage)

Section C

Answer any **two** *questions.*
Each question carries 4 *weightage.*

25. (a) Briefly discuss Wacker oxidation in organic synthesis.

    (b) Write down the structure snd synthesis of :

        (1) Vit C.

        (2) Benzodiazepines.

26. Write down the mechanism of following reactions:

    (a) Prins. (b) Mannich.

    (c) Perkin. (d) Darzen.

27. Give an account of the application of following reagents in organic synthesis :

    (a) Lead tetra acetate. (b) Osmium tetroxide.

    (c) Aluminium isopropoxide. (d) PCC.

28. Explain the mechanism of the following coupling reactions :

    (a) Suzuki-Miyaura. (b) Hiyama.

    (c) Sonogashira. (d) Heck.

(2 × 4 = 8 weightage)