

17P318

(Pages: 2)

Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(Regular/Supplementary/Improvement)

(CUCSS - PG)

CC15P CH3 E01 - SYNTHETIC ORGANIC CHEMISTRY

(Chemistry)

(2015 Admission onwards)

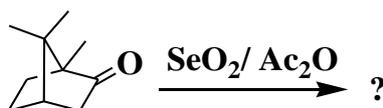
Time : Three Hours

Maximum : 36 Weightage

Section A

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

1. What is PCC? What is the product formed when 1-octene is treated with disiamylborane followed by PCC.
2. What is Hiyama coupling?
3. What is a synthon? Give an example.
4. What is the product formed in the following reaction?



5. Give a method for the synthesis of benzofuran.
6. What is umpolung? Illustrate.
7. Name a reagent which can be used for the conversion of a glycol to a carbonyl compound. Draw the structure of the intermediate formed in the reaction.
8. Give a method for the synthesis of tetrazole.
9. What is a protective group? Give an example for a protective group for carbonyl functionality.
10. What is oxone®? Give one synthetic application of oxone®.
11. What is IBX? What is the use of IBX in organic synthesis?
12. What is functional group transposition?

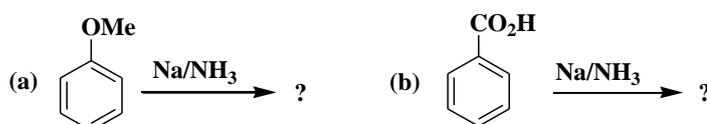
(12 x 1 = 12 Weightage)

Section B

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

13. What is singlet oxygen? How is it prepared? What is the product formed when it reacts with anthracene?
14. Explain the role of PTC in organic synthesis.
15. Discuss diimide and hydrazine mediated reduction reactions.

16. Explain the catalytic cycle and the mechanism of Wacker oxidation.
17. Discuss the selectivity in Woodward and Prévost dihydroxylations.
18. Write a brief account of combinatorial chemistry.
19. Illustrate one group and two group C-X disconnections using suitable examples.
20. Explain the selectivity in Sharpless asymmetric epoxidation.
21. Sketch the retrosynthetic scheme for paracetamol.
22. Explain chemo, regio, stereo selectivities using appropriate examples.
23. Depict the mechanism for Mannich reaction.
24. What are the products formed in the following reactions? Explain:



(8 x 2 = 16 Weightage)

SECTION C

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

25. Discuss the applications of copper, chromium, silicon and boron based synthetic reagents.
26. Discuss the mechanism of (a) Sonogashira cross coupling (b) Heck reaction
(c) Stille coupling and (d) Suzuki-Miyaura coupling
27. Outline the mechanism of (a) Wittig reaction (b) Dieckmann condensation
(c) Perkin reaction and (d) Claisen condensation.
28. What is retrosynthetic analysis? Discuss the retrosynthetic analysis and synthesis of Longifolene.

(2 x 4 = 8 Weightage)
