15P312 (Pages: 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCSS - PG)

(Chemistry)

CC15P CH3 E01 - Synthetic Organic Chemistry

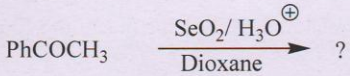
(2015 Admission)

Time: Three Hours Maximum: 36 Weightage

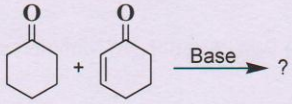
Section A

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

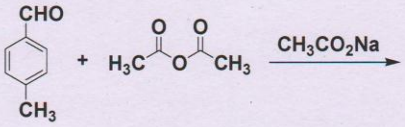
1. What are synthons? Illustrate with an example.
2. Complete the following reaction.



3. Give the mechanism of Suzuki-Miyaura coupling.
4. What is IBX? Give any one synthetic applications of IBX?
5. What is Hiyama coupling?
6. What are Mannich bases? Give any two synthetic applications of Mannich bases.
7. What is meant by functional group interconversion? Illustrate with an example.
8. What is the significance of hydroboration reactions in organic synthesis?
9. What are the synthetic applications of Stille coupling?
10. Predict the product formed in the following reaction.



11. How will you convert diethyl adipate to ethyl 2-oxocyclopentanecarboxylate?
12. Identify and complete the following reaction.

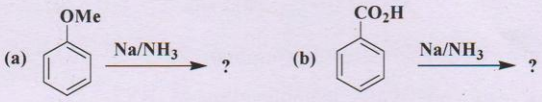


(12 x 1 = 12 weightage)

Section B

(Answer any 8 questions. Each question carries 2 weightage)

13. Give the mechanism of Swern oxidation.
14. Explain the stereoselectivity observed in Sharpless asymmetric epoxidation.
15. Explain the role of PTC in organic synthesis?
16. Explain the mechanism of Heck reaction.
17. Give a method for the synthesis of (a) Azepines (b) Tetrazole.
18. Write a note on the synthetic applications of (i) OsO_4 and (ii) HIO_4
19. Explain chemo, regio, stereo selectivities using suitable examples.
20. How Gilman reagent is prepared? What are its synthetic applications?
21. Discuss about the structure and synthesis of Vitamin C.
22. Explain the mechanism Kumada couping.
23. What are the products formed in the following reactions? Explain.



24. Write a note on combinatorial chemistry.

(8 x 2 = 16 weightage)

Section C

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

25. Discuss the general principles of reterosynthesis. Explain one group C-C and C-X disconnections.
26. Outline the mechanism of (a) Prins reaction (b) Mannich reaction (c) Wittig reaction and (d) Darzens condensation.
27. Discuss the retrosynthetic analysis and synthesis of longifolene.
28. Discuss the synthetic applications of organo-nonmetallic reagents.

(2 x 4 = 8 weightage)

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