TM153085A **Reg. No ……**

Name……

M. Sc. DEGREE (C.S.S.) EXAMINATION, OCTOBER 2016

SEMESTER III – CHEMISTRY

CH3C10TM - SYNTHETIC ORGANIC CHEMISTRY

Time: Three Hours **Maximum Marks: 75**

PART A

I. Answer any five questions. Each question carries 3 marks

1. Explain the mechanism of Meerwein-Pondorff-Verley reduction. What is the advantage of using isopropanol as the H-donor?
2. Describe Ugi reaction.
3. What is Heck reaction? Explain mechanism.
4. How can you prepare cyclopentanol from cyclobutyl methylamine? Explain with mechanism.
5. What is Umpolung? Explain with suitable example.
6. Explain the application of Michael addition reaction in synthesis of Longifolene.
7. Give the mechanism of Wacker oxidation.

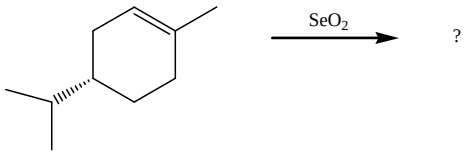
(5x3=15)

PART B

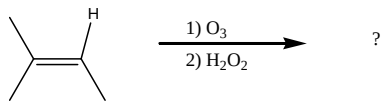
II. Answer any six questions. Each question carries 5 marks

8. What are the requirements for a protecting group? Discuss on common protecting groups used in Solid Phase Peptide Synthesis.
9. Explain briefly the biosynthesis of cholesterol.
10. Explain the protection and deprotection of alcohols as trialkylsilylethers and tetrahydro-pyranyl ether.
11. Complete the following reactions with mechanism.

a)

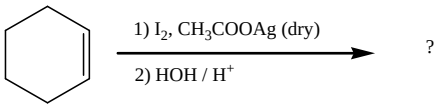


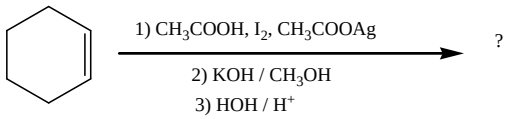
b)



12. Discuss the mechanisms of the reactions a) Wohl-Zeigler reaction b)Ullmann reaction
13. Give mechanistic description on Mitsunobu reaction. What is its synthetic importance? Draw the structure of DIAD.
14. Describe Pauson-Khand reaction with mechanism.
15. Discuss the following conversions with mechanism a) Nitro compound to aldehyde b) nitro compound to -nitro alcohol.

16. Complete the following reactions with mechanism.

a) 

b) 

(6x5=30)

PART C

III. Answer any two questions. Each question carries 15 marks

17. Explain the following reactions with mechanism a) Sharpless asymmetric epoxidation b) Jacobson epoxidation c)Shi epoxidation d) Baeyer Villiger oxidation e) Birch reduction
18. Explain the following reactions with mechanism a) Baylis-Hillman reaction b) Kulinkovich reaction c) Sakurai reaction d) Brook rearrangement e) Tebbeolefination
19. Write an account on a) Photochemical approaches for the synthesis of oxetanes and cyclobutanes b) Bergman cyclization c) Nazarov cyclisation d) ring closing metathesis
20. a) Describe the enantioselective synthesis of Corey Lactone using retrosynthetic approach
    b) Explain the biomimetic synthesis of progesterone.

(2x15=30)