15P2020

Reg. No..... Name.....

M. Sc. DEGREE END SEMESTER EXAMINATION APRIL 2017

SEMESTER **– 2: M. Sc CHEMISTRY / APPLIED CHEMISTRY**

COURSE: **15P2CHET06 -15P2CPHT06, ORGANIC REACTION MECHANISM**

(For Supplementary - 2015 & 2014 Admissions)

Time: Three Hours Max. Marks: 75

SECTION A

*(Answer any **Ten** Questions, Each Question Carries 2 marks)*

1. Discuss the stereochemistry of S_N2 reaction.
2. Explain the addition of HX into unsymmetrical alkenes using Markownikoff rule.
3. Compare SE1 and SN1 reaction mechanisms.
4. Give one example for neighbouring group participation in nucleophilic substitution reaction.
5. Why benzyl carbanion is more stable than allyl carbanion?
6. What is Michael addition?
7. Provide suitable example for kinetic and thermodynamic stability of enolates.
8. Draw example for non-classical carbonations.
9. What is oxymercuration reaction?
10. Write a stereo specific reaction to distinguish singlet carbenes from triplet carbenes.
11. Provide two reactions that involve nitrene intermediate.
12. Explain Mc Murray coupling.
13. What is ene reaction? Give one example.

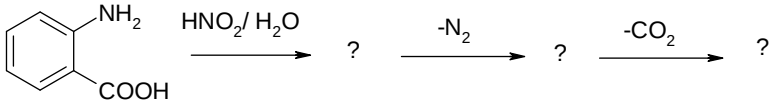
(2 x 10 = 20)

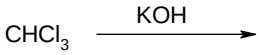
SECTION B

*(Answer **5 questions** by attempting not more than 3 **questions** from each of the following bunch. Each question carries **5 marks**)*

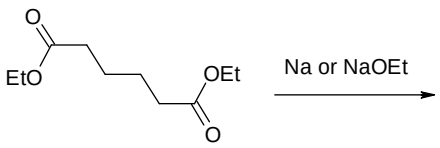
Bunch 1

14. Complete following reactions and explain

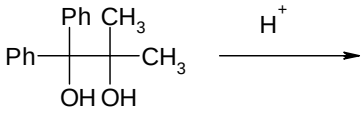
A) 

B) 

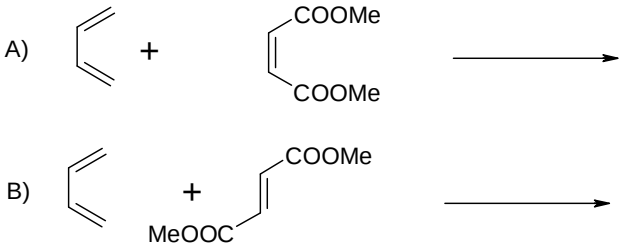
15. Predict the product and write down the mechanism



16. Predict the products and give the mechanism



17. Give the products and explain the stereochemistry



Bunch 2 (Short Essay Type)

18. Discuss a) cheletropic elimination b) pyrolitic elimination of xanthates.
19. Explain the utility of Mannich reaction with mechanism
20. Discuss Barton decarboxylation with mechanism.
21. Write a note on Favorskii rearrangement with mechanism.

(5 x 5 = 25)

SECTION C

*(Answer any **two** questions, each carries **15 marks**)*

22. Discuss the following rearrangement reactions with special reference to intermediate and synthetic utility. a) Hoffmann rearrangement b) Benzilic acid rearrangement c) Beckmann rearrangement and e) Wolff rearrangement.
23. Explain with mechanism, the following reactions a) Claisen condensation, b) Wittig reaction c) Cannizaro reaction d) Grignard reaction.
24. Write an essay on the S_N1 and S_N2 reactions with a comprehensive discussion on the role of substrate, reagents, leaving group and solvent.
25. a) With the help of Correlation diagram method, derive the Woodward-Hoffmann selection rule for cycloaddition reactions.
    b) With suitable example, explain Endo principle in Diels-Alder reaction.

(2 x 15 = 30)

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