

15P212

(Pages : 2)

Name.....

Reg.No.....

**SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JULY 2016**

(CUCSS - PG)

(Chemistry)

**CC15PCH2C07-ORGANIC REACTION MECHANISMS**

(2015 Admission)

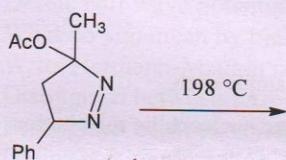
Time: Three Hours

Maximum: 36 Weightage

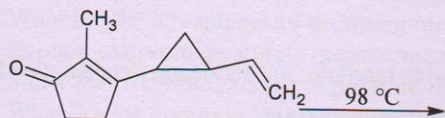
**Section A**

(Answer all questions. Each question has 1 weightage)

1. Give an example for Norrish type I and II cleavage reactions.
2. Mention the effect of solvent polarity and nature of nucleophiles on  $S_N1$  and  $S_N2$  reactions.
3. What are FMOs? Why they are called so? Give the FMOs of propenyl cation.



5. Why is elimination of hydrogen halide from a bridgehead halo compound difficult?
6. Describe an example for  $\infty$ -elimination. Give its mechanism.
7. Give the structure of quinine.
8. What are flavones and isoflavones?
9. What is Prins reaction? Explain the mechanism of formation of allyl alcohol in this reaction.
10. Give the name of the following reaction and write its mechanism



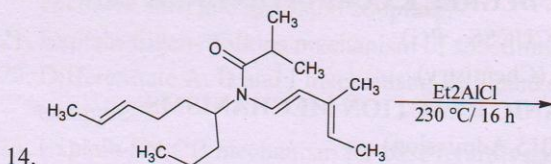
11. Write the mechanism of Photo Fries rearrangement?
12. What is meant by  $S_N^i$  mechanism?

(12 x 1 = 12 weightage)

### Section B

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

13. Discuss the  $BAC^2$  mechanism of ester hydrolysis with suitable evidences



15. Explain the mechanism, a) pyrolytic elimination of esters of acetic acid and b) E1cB eliminations?
16. Write an account of the a) photodimerisation of alkenes and b) photoaddition of alkenes to ketones.
17. Derive the selection rules for thermal ring closure/ring opening reactions of conjugated trienes, by correlation diagram method?
18. How can Longifolene be obtained by synthesis?
19. Describe Claisen and Cope rearrangements by taking one example each.
20. Describe the benzyne mechanism and its evidence, of aromatic nucleophilic substitutions.
21. Discuss the structure and reactions of carbenes.
22. Explain the stereochemical outcome of aliphatic uni and bi molecular substitution reactions?
23. Write a note on stereochemistry of Diels Alder reactions.
24. Write notes on i) ion pair mechanism and ii) cine substitution in aromatic nucleophilic substitution reactions?

(8 x 2 = 16 weightage)

### SECTION C

(Answer any 2 questions. Each question carries 4 weightage)

25. Give total synthesis of Reserpine.
26. Discuss in detail the mechanism of the following reactions: a) Dieckmann Condensation b) Stobbe condensation c) Wittig reaction d) Reformatsky reaction
27. Write brief notes on a) photoreactions of acyclic and cyclic ketones, b) Barton reaction, c) di- $\pi$  methane rearrangement and d) photochemical polymer degradation
28. Describe in detail the mechanism of Zaitzev and Hofmann eliminations and explain the orientation of newly formed C=C bond with attention to the substrate structure.

(2 x 4 = 8 weightage)

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