18P215 (Pages: 2) Name:……..

Reg. No:……..

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2019

(Regular/Supplementary/Improvement)

(CUCSS - PG)

CC15P CH2 C07 - REACTION MECHANISM IN ORGANIC CHEMISTRY

(Chemistry)

(2015 Admission onwards)

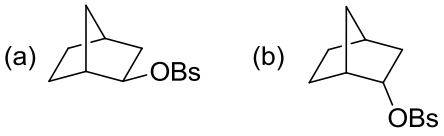
Time: Three Hours Maximum: 36 Weightage

Section A

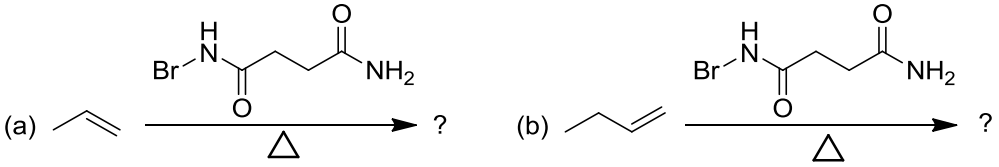
Answer ***all*** questions. Each question carries 1 weightage.

1. What are flavones and isoflavones?
2. What is meant by photosensitization? Give an example for a photosensitizer.
3. Comment on the rate of solvolysis of the following compound.

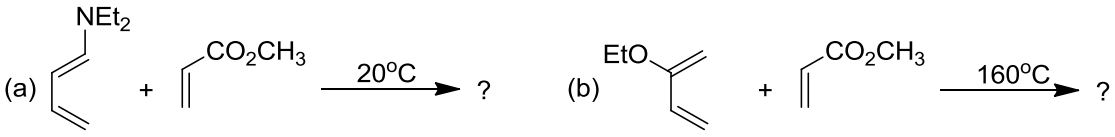
4. What are chelotropic reactions? Give an example.
5. Which among the following compounds is more reactive towards acetolysis? Why?



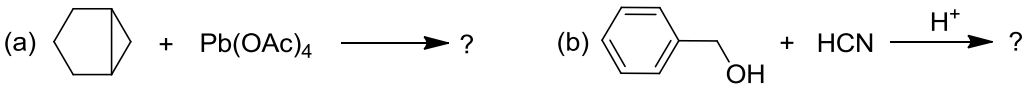
6. Complete the following reactions. Justify your answer.



7. What are extrusion reactions? Give an example.
8. Distinguish between nucleophilicity and basicity.
9. What are 1,3-dipoles? Give an example.
10. What is pyrolytic elimination?
11. What will be the products formed in the following reactions?



12. Predict the products formed in the following reactions.

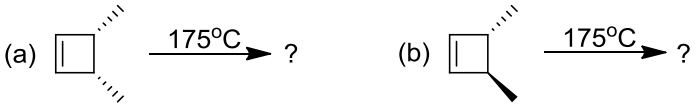


(12 x 1 = 12 Weightage)

Section B

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

13. Explain Alder's "*endo*" rule.
14. Explain the factors that affect the rate of aliphatic nucleophilic substitution.
15. Explain the conversion of cholesterol to testosterone.
16. Explain the structure and reactivity of carbenes.
17. Explain i) Photo Fries rearrangement and ii) Oxa di-π-methane rearrangement.
18. What are the different mechanisms for ester hydrolysis? Explain any two common mechanisms in detail.
19. Predict the products formed in the following reactions. Justify your answer.



20. Give an account on the reactivity and selectivity pattern of organometallic reagents.
21. Write a note on the photochemistry of alkenes.
22. Explain E*i* mechanism with a suitable example.
23. Explain *ipso* and *cine* substitutions.
24. Describe briefly the degradative reactions used in the structure elucidation of alkaloids.

(8 x 2 = 16 Weightage)

Section C

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

25. Explain:
    i) E1cB mechanism ii) $S_{RN}1$ mechanism
    iii) S_NAr mechanism iv) S_Ei mechanism .
26. Discuss the mechanism and stereochemistry of Cope rearrangement.
27. Write the mechanism for
    a) Dieckmann condensation b) Darzen's condensation
    c) Wittig reaction and d) MPV reduction.
28. Describe the total synthesis of longifolene.

(2 x 4 = 8 Weightage)

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