

G 2796

(Pages : 4)

Reg. No.....

Name.....

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

Second Semester

Faculty of Science

Branch : Chemistry

AN2C06/AP2C06/CH2C06/PH2C06/POH2C06—ORGANIC REACTION MECHANISMS

(Common to all Branches of Chemistry)

[2012 Admissions]

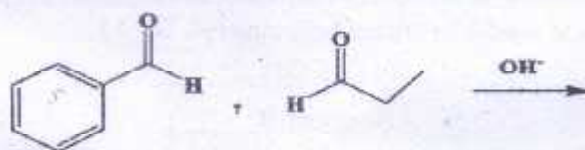
Time : Three Hours

Maximum Weight : 30

Section A

*Answer any ten questions.
Each question carries a weight of 1.*

1. With suitable discuss the regioselectivity of addition reaction.
2. What are the effects of leaving group in S_N2 reaction ?
3. Write down the product and mechanism of :

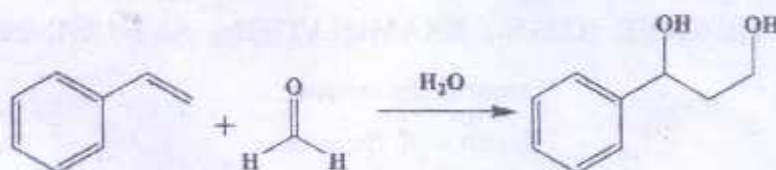


4. What are nitrenes ? Outline any *two* methods for their formation.
5. Sketch the mechanism of the reaction.



Turn over

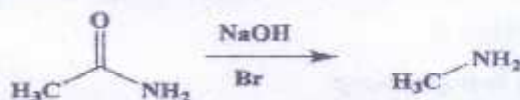
6. Give the mechanism of :



7. Discuss Baldwin's rules.

8. What is meant by auto-oxidation? Discuss.

9. Sketch the mechanism of :



10. What is benzyne? How is it prepared? What are its main reactions?

11. What are Grignard reagents? What are their applications?

12. How hydroperoxides are formed? What are their uses?

13. "Of the following four related reactions; Hoffmann, Schmidt, Lossen and Curtius, the Lossen rearrangement is the least useful in organic chemistry". Why?

(10 × 1 = 10)

Section B

Answer any **five** questions.

Each question carries a weight of 2.

14. Discuss the Markovnikov's addition mechanism.

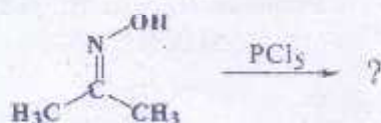
15. Discuss the mechanism of Mannich reaction.

16. What are enolates? How are they differing from enamines? Compare the reactivities of enolates and enamines.

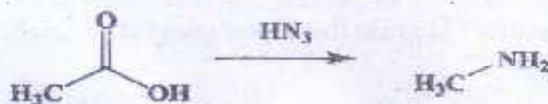
17. Discuss the mechanism of the reaction :



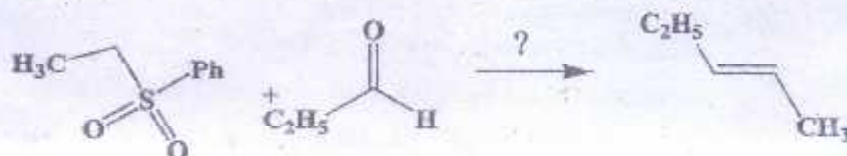
18. Predict the product(s) and write down the mechanism of



19. Discuss the mechanism and applications of:



20. Use appropriate reagents for the following conversion and discuss its mechanism



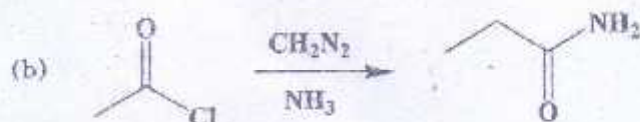
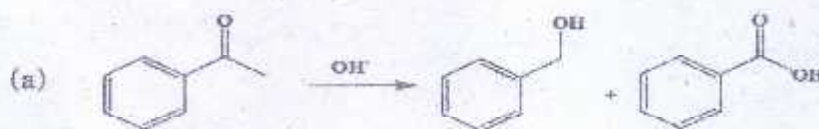
21. Discuss the mechanism of Stobbe condensation. What are its synthetic applications?

(5 × 2 = 10)

Section C

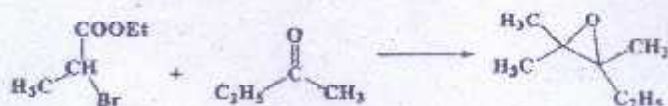
Answer any two questions.
Each question carries a weight of 5.

22. What are carbanions? Discuss their formation, structure and stability. What are their importances as reaction intermediates?
23. Explain the mechanisms of the following reactions:



Turn over

24. (a) What product would you obtain from a base catalyzed Michael Reaction of 2, 4- pentanedione with each of the following α, β -unsaturated acceptors ? (i) Propenenitrile ; (ii) Ethyl-2- butenoate
- (b) Explain the mechanism of the reaction :



25. What are the different types of pericyclic reactions ? Discuss the importances of pericyclic reactions in organic synthesis.

(2 × 5 = 10)