

M.Sc. DEGREE (C.S.S.) EXAMINATION, AUGUST 2014**Second Semester**

Faculty of Science

Branch : Chemistry

AN 2C 06/AP 2C 06/CH 2C 06/PH 2C 06/PO H2 C06—ORGANIC REACTION
MECHANISMS

(2012 Admission onwards)

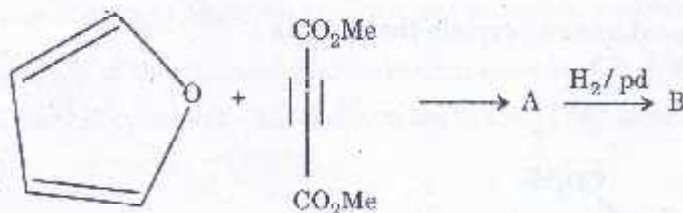
Time : Three Hours

Maximum Weight : 30

Section A

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

1. Alcohol reacts with a halide ion only in the presence of a strong acid. Why ?
2. Illustrate S_N1 mechanism with suitable example.
3. Write a brief note on carbanion and its stability.
4. Draw and explain the structure of carbocation. Write of its method of preparation.
5. Explain oxymercuration reaction.
6. Give example for both addition and insertion reactions of carbene.
7. What is auto oxidation. Explain with an example.
8. Explain the mechanism of Aldol condensation.
9. Give the products when alcohol react with aldehyde and ketone.
10. Explain electro cyclic reaction using an example.
11. Predicts the products A and B in the following reaction.



Turn over

12. Discuss the stereo chemical aspects of ene reaction.
 13. Write note on Mislow-Evan rearrangement.

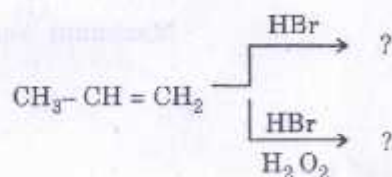
(10 × 1 = 10)

Section B

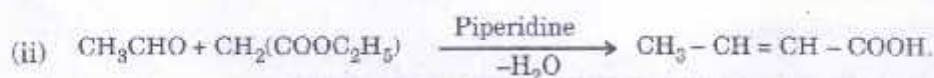
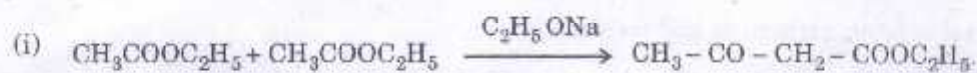
Answer five questions by attempting not more than 3 questions from each bunch.
 Each question carries a weight of 2.

BUNCH 1 (Problem Type)

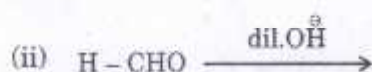
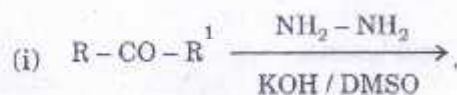
14. Predicts the products and explain with mechanism of following reaction



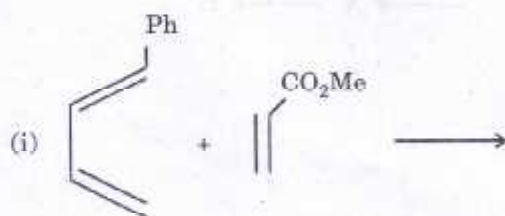
15. Write the mechanism of following reactions :

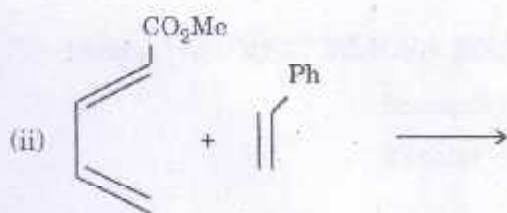


16. Explain Predicts the product and explain with mechanism



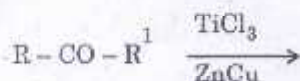
17. Predicts the major products and explain the reaction :





BUNCH 2 (Short Essay Type)

18. Explain classical and non-classical carbocation using suitable example.
 19. What is nitrene? How they are formed? Draw its structure. Give its reactions.
 20. (a) Predict the product and explain



- (b) Illustrate Barton deoxygenation reaction.
 21. Explain following re-arrangement—Claisen, Cope, Wittig and Sommelet-Hauser.

(5 × 2 = 10)

Section C

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

22. (a) Discuss the factors affecting nucleophilic substitution.
 (b) Explain with suitable example about chemistry of phosphorous Ylids.
 23. Write a note on following rearrangement—Curtius, Hoffmann, Wagner—Meerwein, Pinacol-Pinacolone and Benzilic acid.
 24. (a) Illustrate with suitable example on inter and intramolecular radical intermediate addition to unsaturated system for C-C bond formation.
 (b) Write the mechanism of Mannich reaction and Robinson annulation.
 25. Predict the feasibility of thermal and photochemical closure of E, Z, E - 1, 6-dimethylhexa -1, 3, 5-triene to 5,6-dimethyl cyclohexa -1, 3-diene on the basis of FMO method and correlation approach.

(2 × 5 = 10)