



# THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)  
Re-accredited (2<sup>nd</sup> Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

## Backlog Arrear Examination, March 2021

CHE/CHS 2512/2522

CHE 2512

Organic Chemistry – III

Department of Chemistry

The American College

Answer any five

5 × 15 = 75

1. Give the mechanism of the following reactions (5 × 3 = 15)
  - i) Meerwein-Ponndorf-Verley reduction
  - ii) Wolf-Kishner reduction
  - iii) Clemmensen reduction
  - iv) Perkin reaction
  - v) Claisen-Schmidt reaction
  
2. A. Discuss the following reactions and their applications (9)
  - i) Diels-Alder reaction
  - ii) Michael addition reaction
  - iii) Stobbe condensation

B. Discuss Ingolds mechanism by which esterification of an acid and the hydrolysis of an ester can take place. (6)
  
3. A. Write short notes on the following using suitable mechanisms (9)
  - i) Bouveault-Blanc reduction
  - ii) Rosenmund reduction
  - iii) Arndt-Eister reaction

B. How will you prepare the following compounds (6)

  - i) Acyloin from ethyl alkanoate
  - ii) Acetophenone from acetyl chloride
  - iii) Methylamine from acetamide
  
4. A. Define primary, secondary and tertiary amines. How are they distinguished and separated from a mixture of the amines. (6)

B. Using suitable mechanism explain the following rearrangements (9)

  - i) Hofmann rearrangement
  - ii) Curtius rearrangement
  - iii) Lossen rearrangement
  
5. Discuss the mechanism of following reactions (15)
  - i) Sandmeyer reaction
  - ii) Gattermann reaction
  - iii) Baltz-Schiemann reaction
  - iv) Gomberg reaction
  - v) Azo coupling

6. A. What is Benzidine rearrangement? Give its mechanism and applications. (5)  
B. How will you perform the following conversions. (10)
- p-Nitrotoluene into p-nitrostilbene
  - TNT to trinitrophenyl styrene
  - p-Nitrochlorobenzene into p-nitrophenol
  - p-Dinitrobenzene into p-nitrophenetole
  - Nitrobenzene into p-nitrophenol
7. A. Explain the following (5)
- Skraup synthesis of quinoline
  - Hantzsch synthesis of pyridine derivatives.
- B. How would you perform the following conversions? (10)
- Pyrrole into 3-chloropyridine
  - Furan into 2-acetyl furan
  - Indole into 3-Iodoindole
  - Furan into furoin
  - Thiophene into thiophen-2-carboxylic acid.