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MPC 102 T

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2023

M.Pharm. 1<sup>st</sup> Semester End-Term Examination

ADVANCED ORGANIC CHEMISTRY - I

Full Marks - 75

Time - Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *seven* from the rest.

1. Answer the following questions : (5 × 1 = 5)
  - (a) Explain reaction intermediates with two examples.
  - (b) Draw the structure of Alprazolam and Theophylline.
  - (c) Explain the term heterolytic cleavage citing example.
  - (d) Describe two advantages of retro synthesis.
  - (e) Differentiate Nucleophilic uni and bi molecular reaction with stereochemical aspects.
2. Explain the mechanism and synthetic application of the following name reactions: (2.5 × 4 = 10)
  - (a) Brook rearrangement.
  - (b) Ullmann coupling reactions.
  - (c) Shapiro and Suzuki reaction.
  - (d) Sharpless asymmetric epoxidation.
3. Describe the application of the following reagents: (2.5 × 4 = 10)
  - (a) Wilkinson reagent,
  - (b) Wittig reagent.
  - (c) Osmium tetroxide.
  - (d) Titanium chloride.

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4. Analyse the role of protecting group in organic synthesis. Describe the protection of amino group and amino acids citing example of reactions showing protection and deprotection in a systematic way. (10)
5. Describe the Basic principles, terminologies and advantages of retrosynthesis citing example of an individual drug by giving systematic approach. (10)
6. Explain the synthesis of the followings: (2.5 × 4 = 10)
  - (a) Debus-Radziszewski imidazole synthesis
  - (b) Pinner Pyrimidine Synthesis
  - (c) Combes Quinoline Synthesis
  - (d) Traube purine synthesis
7. Explain different types of rearrangement reaction citing examples. (10)
8. Explain the synthesis of Metronidazole, Miconazole, celecoxib, Triamterene, Chloroquine. (10)
9. Differentiate E1 and E2 reaction with mechanism with example. Explain Nucleophilic aromatic substitution with mechanism. (10)
10. Classify reaction mechanism with example. Explain four different types of reactions with mechanism. (10)