DCB-520

Final Year M.Sc. Degree Examination
August/September 2009
Directorate of Correspondence Course
(Freshers)

APPLIED CHEMISTRY
DEC.APP.CHEM.2.02 : Bio-Organic and Medicinal Chemistry

Time : 3 Hours Max. Marks : 85

Note : 1. **Answer any ELEVEN subdivisions from Part-A, THREE full questions from Part-B and any THREE full questions from Part-C.**

2. **Figures to the right indicate marks.**

PART-A

1. Answer any ELEVEN questions. **11x2=22**

a) What is Hoffmann rearrangement?

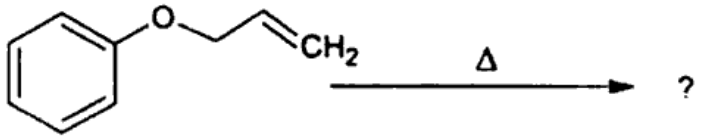
b) Give an example of a [2+2] cycloaddition reaction.

c) Give an example for Birch reduction.

d) What is Chichibabin reaction? Explain with mechanism.

e) What are analgesics? Give an example.

f) Give the product of the following reaction



g) Mention the impurities present in the samples of aspirin.

h) What are sedatives and hypnotics? Give an example.

i) Give two synthetic applications of Riemer-Tiemann reaction.

j) Write the Woodward and Hoffmann rules for electrocyclic reactions.

k) What are anticoagulants? Give one example.

l) Suggest any two methods of synthesis of 1,2-diols from olefins.

m) Give one method of synthesis of sulfapyridine.

n) Write any two reactions of selenium dioxide.

o) What is Fries rearrangement? Explain with an example.

PART-B

Answer any THREE of the following questions. **3x8=24**

2. a) Write a note on Sigmatropic Rearrangements.
   b) Explain the mechanism of Clemmenson reduction. **5+3**

3. a) Discuss the mechanism of action of barbiturates as sedative drugs.
   b) Outline the synthesis of Chlorpromazine. **5+3**

4. a) Discuss the synthetic applications of Lithiumdiisopropylamide (LDA).
   b) Explain the mechanism the Pinacol-pinacolone rearrangement. **5+3**

5. a) What is Peterson's synthesis? Give the mechanism of base catalyzed Peterson reaction.
   b) Write a note on antibacterial agents. **4+4**

6. Give the mechanisms and synthetic applications of the following:
   a) Reformatsky reaction
   b) Wilkinson's catalysis **4+4**

PART-C

Answer any THREE of the following questions. **3x13=39**

7. a) Explain any one theory of drug action and describe the factors affecting drug action.
   b) Discuss Mannich reaction with mechanism.
   c) Explain the therapeutic uses and adverse effects of methadone and diclofenac. **5+4+4**

8. a) Discuss the synthetic applications of Gilman reagent.
   b) Outline the mechanism and synthetic applications of Michael addition reaction.
   c) Explain the therapeutic uses and adverse effects of adrenergic drugs. **5+4+4**

9. a) Electrocyclic reactions are completely streoselective. Justify with suitable examples.
   b) Discuss the mechanism of benzyl-benzilic acid rearrangement.
   c) Write the mechanism of Stork enamine reaction. **5+4+4**

10. a) Write a note on common methods of assay.
    b) Explain the mechanism of action of dicumarol as anticoagulants.
    c) Discuss the synthetic applications of 1,3-dithiane. **5+4+4**

11. a) Discuss the mechanism of Wagner-Meerwein rearrangement.
    b) Describe the therapeutic uses of ibuprofen and diazepam.
    c) Outline the synthesis of indomethacine. **5+4+4**

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