

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: B. PHARMACY
BRANCH: PHARMACY

SEMESTER: IV
SESSION: SP2023

SUBJECT: BP401T PHARMACEUTICAL ORGANIC CHEMISTRY III

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
 2. Before attempting the question paper, be sure that you have got the correct question paper.
 3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
 4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.
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PART-I

Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

- A. Define enantiomers with suitable example
- B. Differentiate racemic mixture and mesocompounds.
- C. Write the structure for the following compounds in Fischer projection (i) 4-[(1R)-2-amino-1-hydroxyethyl]benzene-1,2-diol, and (ii) (S)-2-(4-(2-methylpropyl)phenyl)propanoic acid
- D. Draw the all possible conformers with their nomenclature for butane
- E. Draw the possible isomers with their configuration for the following compounds: (i) 3-bromo-2-methyl-prop-2-enoic acid, (ii) 3-bromo-2-methyl-but-2-enoic acid
- F. Draw the structure of all possible azoles containing any two heteroatoms (O, N, S), number and name them appropriately.
- G. Name the heterocyclic ring present in the following drugs: (i) Oxymetazoline, (ii) Pyridostigmine, (iii) Prazosin, and (iii) Trimethadione
- H. Name any one drug containing following heterocyclic rings: (i) Pyrimidine, (ii) Benzodiazepine, (iii) Dibenzazepine, and (iii) pyrrole
- I. Draw the canonical structures for electrophilic attack at beta position of furan.
- J. Name the reduction which is suitable for the synthesis of ethyl benzene from acetophenone. Give the equation

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. With sequence rule explain the R/S system of nomenclature.
- Q3. Write a note on assignment of relative configuration of optical isomers with suitable example.
- Q4. Briefly discuss on Asymmetric induction covering definition and types with suitable example.
- Q5. Explain cis/trans, E/Z and syn/anti nomenclature with suitable examples.
- Q6. Discuss on the Hantzsch synthesis of pyrrole.
- Q7. Discuss about the Diels-alder reaction given by furan.
- Q8. Write a note on metal hydride based reduction.
- Q9. Discuss the Beckmann's rearrangement with its mechanism and application.
- Q10. Discuss the Schmidt rearrangement with its mechanism and application.

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PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. Elaborate on elements of symmetry with suitable examples
- Q12. In detail discuss about the chemical method of assigning configuration to alkenes
- Q13. With retrosynthetic route explain various synthetic routes for the synthesis of furan

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