

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI**  
(END SEMESTER EXAMINATION SP2025)

CLASS: I.M.Sc.  
BRANCH: CHEMISTRY

SUBJECT: CH328 ORGANIC CHEMISTRY-V

SEMESTER: VI  
SESSION: SP-2025

TIME: 03 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

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|--------|--|----|----|
| Q.1    | Show the retro synthetic analysis of the following compounds and carry out the synthesis (any four) [2.5x4]  | 2  | 4  |
|        | <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>(i) </p> </div> <div style="text-align: center;"> <p>(ii) </p> </div> <div style="text-align: center;"> <p>(iii) </p> </div> <div style="text-align: center;"> <p>(iv) </p> </div> <div style="text-align: center;"> <p>(v) </p> </div> </div> |    |    |
| Q.2(a) | Explain Edman degradation method to determine the sequence of polypeptide. Describe the Darapsky synthesis and explain the mechanism of Curtius rearrangement step and successive hydrolysis. [2+3]  | 2  | 3  |
| Q.2(b) | Show the mechanism of selective cleavage of polypeptide by BrCN. Describe the Merrifield peptide synthesis and include its advantages. [2+3]   | 2  | 3  |
| Q.3    | Identify the structure of the products and reagents in the following reactions [3+3+4]   | 1  | 3  |
|        | <p>(i) </p> <p>(ii) </p> <p>(iii) </p>   |    |    |
| Q.4(a) | Write down the source and the laboratory synthesis of Coniine and Nicotine. [2.5x2]  | 2  | 4  |
| Q.4(b) | Write down the source and the laboratory synthesis of Menthol. [5]   | 2  | 4  |
| Q.5(a) | What is nucleosides? Describe the possible structures of nucleotide for DNA and RNA. [1+2+2]   | 1  | 3  |
| Q.5(b) | What is the sutural difference of main chemical compound in hard soap, soft soap and detergent? What is the significance of saponification value of oil? [3+2]   | 2  | 4  |