

Term Test-1

Answer all questions in the Exam Booklets. Put your name and student number on all exam booklets. You may use a calculator, structures and diagrams where appropriate.

The total number of marks is 45, and you have 50 minutes to complete the exam, so spend about 1 minute per mark i.e. 15 min. for a 15-mark question etc.

Answer question 1. It is worth 6 marks.

1. Draw the chemical structure at pH 7 of one of the peptides that results from the treatment of the following peptide with trypsin:
Ala-Gln-Pro-Lys-Met-Pro-Arg

Answer question 2 OR question 3. Each is worth 15 marks.

2. Describe in chemical detail the main steps of an Edman degradation indicating the role and importance of pH, buffers, and organic solvents.
3. Discuss the chemical reactivity of the amino acid Cysteine, give some examples, and describe the role of this chemistry in the folding of proteins.

Answer questions 4 AND 5. Each is worth 6 marks.

4. Explain the problem that arises in amino acid analysis when a protein contains β -branched dipeptides and present a solution to the problem.
5. Give a brief explanation of how Proline protects the proteins of cells under conditions of dehydration.

Answer question 6. It is worth 12 marks.

6. Explain the principles behind the separation of molecules by Capillary Electrophoresis. What are the advantages of capillary electrophoresis compared to polyacrylamide gel electrophoresis? Are there any disadvantages?