

Question Paper

Exam Date & Time: 11-May-2023 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Semester II Theory End-Semester Examinations May 2023.
Specialization: Pharmaceutical Biotechnology

Subject Code: PBT-MPB201T
Subject Title: Proteins and Protein Formulations
Date: 11-05-2023

Proteins and Protein Formulations [PBT-MPB201T -S1]

Marks: 75

Duration: 180 mins.

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

- 1) Discuss different types of protein structures. Differentiate alpha helix and beta sheet protein conformations. (10)
- 2) Discuss different methods used for microbial cell lysis during extraction of intracellular microbial metabolites. With suitable example, explain the principle involved in two liquid phase separation technique. (5 + 5) (10)
- 3) Explain the implications of deamidation in the stability of a protein. (4m) Discuss the analytical methods to determine deamidation. (6m) (10)
- 4) Discuss various excipients used in the successful development of a protein formulation. (10)
- 5) Sketch the approval process of biosimilars in India. (4m) Enlist the steps in biosimilar development and explain 'any TWO' in detail. (6m) (10)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

- 6) What are the major factors that influence protein folding and stability? Explain. (5)
- 7) Describe Edman degradation technique of protein sequencing. (5)
- 8) Explain the peptidomimetic approach used for improving the stability and efficacy of peptides. (5)
- 9) Write short notes on the following: (5)
 - a. Forced degradation studies
 - b. Biophysical characterization techniques
- 10) Enlist and define the pharmacokinetic parameters. Add a note on clearance concepts. (5)

-----End-----