

Question Paper

Date & Time: 06-May-2019 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.
MPharm - Pharmaceutical Biotechnology Specialization
MPharm Semester 2 - End-Semester Examination May-2019
Date : 06/05/2019

Bioinformatics and Computational Biotechnology [PBT-MPB203T]

Marks: 75

SECTION - A

Duration: 180 mins.

Answer all the questions.

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

- 1) Discuss the enzymology of DNA replication. Add a note on conservative and semiconservative mode of replication. (10)
- 2) What is MPF, explain its structure and functions. How it is oscillating in a cell division cycle?. (10)
- 3) What are Caspases, classify them. How they are activated? Explain the importance of BCL-2 family proteins in apoptosis. (10)
- 4) What are substitution matrices? Discuss the various types of substitution matrices. Explain in detail the steps involved in global alignment of two sequences using dynamic programming. (10)
- 5) Explain the different steps involved in rational drug design for Hit identification. Describe in detail Hit-to-Lead identification. How do you predict the ADME properties? (10)

SECTION - B

Answer all the questions.

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

- i) What are spontaneous mutations? How they are repaired? (5)
-) Briefly outline the hallmarks of cancer. (5)
-) Briefly outline the role of cGMP and Ca²⁺ as second messengers. (5)
-) Define the terms "Data", "Information", and "Knowledge". List the different supervised and unsupervised machine learning methods. (5)
-) How do you validate a protein structure predicted through homology modeling? (5)

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