

Question Paper

Exam Date & Time: 16-May-2023 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Bioinformatics and Computational Biotechnology [PBT-MPB203T -S3]

Marks: 75

Duration: 180 mins.

SECTION - A

Answer all the questions.

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

- 1) What are the different mechanisms of DNA repair? How do they work, and how do they prevent the accumulation of mutations? (10)
- 2) Describe the role of cyclins and cyclin-dependent kinases (CDKs) in regulating the cell cycle. Citing the role of Retinoblastoma, explain what happens when these regulatory proteins are not properly controlled. (10)
- 3) How do receptors facilitate signal transduction in cells? Describe the different types of receptors and their mechanisms of action. (10)
- 4) Explain how to develop a point accepted mutation (PAM) scoring matrix. (10)
- 5) Discuss target identification and target validation in the early drug discovery process. (10)

SECTION - B

Answer all the questions.

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

- 6) Describe the different types of RNA processing that occur in eukaryotes and their significance in gene expression. (5)
- 7) Describe the role of p53 in DNA damage response and the consequences of its dysregulation. (5)
- 8) What is GenBank? List the key difference between GenBank and UniProt. (5)
- 9) Write a note on the evolutionary basis of sequence alignment. (5)
- 10) Write a brief note on alignment correction and its importance in homology modeling. (5)

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