

May-June 2026	
M. Tech. Program: Artificial Intelligence	Scheme: II
Regular Examination: FY	Semester: II
Course Code: PCEDLC2041 and Course Name: Artificial Intelligence in Bioinformatics	
Date of Exam: 01/06/2026	Duration: 02.5 Hours
	Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

Q No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the role of bioinformatics and Artificial Intelligence in modern healthcare systems.		CO1	U
b)	Explain the importance of sequence analysis in bioinformatics.		CO2	U
c)	Explain the role of computational methods and algorithms in genomics research.		CO3	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the applications of Machine Learning in genomics and personalized medicine.		CO4	U
b)	Discuss the concept of telemedicine and telesurgery.		CO5	U
c)	Explain the role of modern computational tools in bioinformatics applications.		CO6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Analyze the workflow of DNA sequence analysis, including preprocessing, alignment techniques, and interpretation of results.		CO2	An
b)	Explain the role of computer-assisted medical and patient education systems in improving healthcare delivery.		CO4	U
c)	Design an AI-based drug discovery or genomics framework using bioinformatics techniques to identify biological patterns and accelerate research.		CO6	C
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Apply AI techniques for infectious disease informatics and outbreak detection to improve early warning systems using data-driven models.		CO5	A

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
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b)	Apply feature selection techniques on proteomic and genomic data to improve model performance.	CO3	A
c)	Analyze computational methods for identifying homologous sequences across species using biological databases, alignment techniques, and scoring systems.	CO2	An
