

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: AIML/CSE/ECE/EEE

SEMESTER : II/ADD
SESSION : SP/2025

SUBJECT: BE24101 BIOLOGICAL SCIENCE FOR ENGINEERS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Provide a schematic diagram of a typical fluid mosaic model of a cell membrane.	[5] 1	3
Q.1(b)	Define biotechnology and mention any two areas where it intersects with engineering	[5] 1	2
Q.2(a)	Differentiate between DNA and RNA based on structure, function, and types	[5] 2	3
Q.2(b)	Discuss the functions of Carbohydrates and proteins.	[5]	2
Q.3(a)	Define cell signalling. Describe signal transduction and components involved in it.	[5] 3	3
Q.3(b)	Explain how changes in environmental conditions such as temperature and pH can affect the activity of a specific enzyme used in an industrial or biological process. Discuss all such environmental factors.	[5] 2	1
Q.4(a)	Explain why DNA has a single major function whereas proteins have diverse functions.	[5] 3	4
Q.4(b)	Describe different types of biomaterials and discuss their applications.	[5] 4	2
Q.5(a)	Discuss key ethical principles in Biological Science and Biotechnology.	[5] 3	2
Q.5(b)	Describe biosafety issues in Biotechnology and list the four biosafety levels.	[5] 4	1

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