

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

**CLASS: MSc
BRANCH: BIOINFORMATICS & COMPUTATIONAL BIOLOGY**

**SEMESTER : I
SESSION : MO/2024**

SUBJECT: BI101 CELL & MOLECULAR BIOLOGY

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)	Explain diagrammatically the experiment conducted by Miller and Urey to prove the chemical theory of origin of life on the Earth.	[5] 1	2
Q.1(b)	How will you differentiate between plant and animal cells ? Explain with their contrasting features.	[5] 2	4
Q.2(a)	Give a brief account on protein structures.	[5] 2	2
Q.2(b)	Explain how gene transcription takes place in eukaryotic system.	[5] 1	2
Q.3(a)	Define Bioenergetics. Differentiate between aerobic and anaerobic respiration	[5] 2	2
Q.3(b)	Discuss important factors affecting the rate of enzymatically catalyzed reaction.	[5] 2	1
Q.4(a)	Write a note on Epistasis and Multiple Alleles.	[5] 1	2
Q.4(b)	Define polygenic inheritance with a suitable example.	[5] 1	2
Q.5(a)	Describe DNA microarray technique and its applications.	[5] 4	1
Q.5(b)	Elucidate CRISPR gene editing technique and give its limitations.	[5] 4	1

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