

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

**CLASS: M.Sc./PRE-PHD
BRANCH: BIOTECHONOLOGY**

**SEMESTER : I
SESSION : MO/2025**

SUBJECT: BT407 GENOMICS

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.

Nil-----

		CO	BL
Q.1(a)	Describe reverse genetics and its importance in genomics research.	[5] 1	4
Q.1(b)	Explain the chromosome packaging and its significance in genomics.	[5] 1	4
Q.2(a)	Enumerate the NGS technologies and critically evaluate its applications in genomics.	[5] 3	5
Q.2(b)	Discuss about comparative genomics and its uses in a newly sequenced genome of interest.	[5] 2	5
Q.3(a)	Explain about digital PCR technique and its uses in the differential expression of genes in control and salt stress plant root.	[5] 2	5
Q.3(b)	Make a pictorial sketch explaining the use of site directed mutagenesis in the alteration of hexokinase gene.	[5] 2	6
Q.4(a)	Discuss the advances being made in rice genomics and its role in assuring food security.	[5] 3	5
Q.4(b)	Write about the advances made in peanut genomics and genomics applications towards increasing the peanut yield under adverse conditions.	[5] 4	4
Q.5(a)	Critically justify that genomics has played an important role in developing the value-added crops.	[5] 4	5
Q.5(b)	Justify that advances in genomics have uplifted the research being carried out towards drug discovery.	[5] 4	5

:::25/11/2025:::E