

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

CLASS: MSc.
BRANCH: BIOTECHONOLOGY

SEMESTER : I
SESSION : MO/2024

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.

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| Q.1(a) | Describe about chromatin re-modeling and its Importance in genomics. | [5] | 1 4 |
| Q.1(b) | Describe the central dogma of molecular biology and its significance in genomics. | [5] | 1 4 |
| Q.2(a) | Critically assess the uses of RNAseq in the differential expression study of genes in two different tissues. | [5] | 3 5 |
| Q.2(b) | Describe databases development and their uses in genomics. | [5] | 2 5 |
| Q.3(a) | Discuss about qPCR technique its uses in the differential expression of genes in control and drought treated plant leaf. | [5] | 2 4 |
| Q.3(b) | Make a pictorial sketch explaining the use of CRISPR-Cas9 in the alteration of rubisco gene. | [5] | 2 6 |
| Q.4(a) | Write about the advances made in wheat genomics and its importance in wheat improvement. | [5] | 4 4 |
| Q.4(b) | Update about the advances being made in rice genomics and its role in assuring food security. | [5] | 3 5 |
| Q.5(a) | Justify that genomics has played an important role in plant and animal breeding program. | [5] | 4 5 |
| Q.5(b) | Justify that advances in genomics has uplifted the recombinant protein research. | [5] | 4 5 |

:::25/11/2024:::E