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Total No. of Pages: 02

Total No. of Questions: 11

Master of Science (Bio Technology)(Sem. – 1)

GENETICS AND MOLECULAR BIOLOGY

Subject Code: MBT-103

M Code: 75661

Date of Examination : 14-01-2023

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **SEVEN** questions carrying **FIVE** marks each and students have to attempt any **SIX** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Explain the following in brief:

- a) Define linkage.
- b) Outcome of crossing over.
- c) Establishment of linkage maps.
- d) Ploidy and its genetic implications.
- e) Applications of pedigree analysis.
- f) Telomere structure and its importance.
- g) Principle of QTL-mapping.
- h) Complexity of a genome.
- i) Role of rRNA in translation.
- j) Post translational modifications.

SECTION-B

2. Explain extra chromosomal inheritance using examples.
3. Give a detailed account of Mendelian Principles. Provide supporting examples also.
4. Explain methods and applications of Karyotyping.
5. What are homeotic genes? Give examples. Explain their role in animal development.
6. Write a detailed note on organization of Eukaryotic chromosomes.
7. Explain various factors that determine the complexity of eukaryotic genomes.
8. Discuss features of the genetic code. Also explain regulation of gene expression.

SECTION-C

9. What is mutation? Explain types, causes and detection of mutations. Also compare germinal and somatic mutants.
10. Explain the term Developmental Genetics. Discuss role of various genes involved in early development, maternal effect and pattern formation.
11. Compare features of prokaryotic and eukaryotic transcription process in detail. Provide a detailed account of accessory proteins involved in the process of transcription.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.