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M.Sc. (BT) (2018 Batch) (Sem.-1)
GENETICS AND MOLECULAR BIOLOGY
Subject Code : MBT-103
Paper ID : [75661]

Max. Marks : 70

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

Q1. Write briefly :

- Incomplete linkage
- Tautomerism
- Sister chromatid exchange
- Epistasis
- Thymine Dimers
- Sigma factor
- Promoter
- Zinc finger Motif in Proteins
- C-value paradox
- Chromosomal Translocation

SECTION-B

- Q2 Briefly explain how chemicals cause mutagenesis.
- Q3 Write Brief account of :
- a. QTL Mapping
 - b. Karyotype
 - c. Insertional Mutagenesis.
- Q4 Giving a suitable example enunciate Mendel's law of Independent assortment of characters.
- Q5 How does catabolite repression control prokaryotic gene expression?
- Q6 Describe molecular mechanism of capping of eukaryotic mRNA.
- Q7 Explain how DNA methylation regulates gene expression in eukaryotes.
- Q8 Explain Post translational modification of proteins and their significance.

SECTION-C

- Q9
- a. Discuss the types and function of RNA Polymerases found in eukaryotes.
 - b. Explain application of Cot curves in determining the Complexity of eukaryotic genome.
- Q10
- a. What are the applications of Back cross and Test Cross in the study of Genetics?
 - b. Regulation of initiation of transcription by RNA Polymerase II in eukaryotes.
- Q11 Describe process of replication of DNA in bacteria.