Roll No. Total N	o. of Pages : 02
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Total No. of Questions: 11

M.Sc. (BT) (2018 Batch) (Sem.-1)
GENETICS AND MOLECULAR BIOLOGY

Subject Code: MBT-103 Paper ID: [75661]

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 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.

### **SECTION-A**

# Q1. Write briefly:

- a. Incomplete linkage
- b. Tautomerism
- c. Sister chromatid exchange
- d. Epistasis
- e. Thymine Dimers
- f. Sigma factor
- g. Promoter
- h. Zinc finger Motif in Proteins
- i. C-value paradox
- j. Chromosomal Translocation

**1** M-75661 (S38)-2361

## **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.

**2** M-75661 (S38)-2361