

**Roll No.**

**Total No. of Pages :02**

**Total No. of Questions : 09**

**M.Sc.(BT) (2016 to2017) (Sem.-2)**

# MOLECULAR BIOLOGY

**Subject Code : MSBT-110**

**M.Code : 15014**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

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

## SECTION-A

- 1. Write brief note on the following :**
- a) Define C-value paradox.
  - b) What is the location of satellite DNA in eukaryotic chromosomes?
  - c) Which enzyme is required for maintaining the length of chromosomes in eukaryotes?
  - d) What are Group I introns?
  - e) Give the role of cAMP in lac operon of *E.coli*.
  - f) What are ribozymes? Give their significance.
  - g) Give any two difference between the mRNA formed in prokaryotes and eukaryotes.
  - h) Briefly explain wobble hypothesis.
  - i) Which DNA polymerase play role in excision repair.
  - j) What is the mode of replication in :
    - i) plasmid DNA
    - ii)  $\lambda$  phage DNA

## SECTION-B

2. Give diagrammatic representation of genomic DNA organisation in eukaryotes.
3. What is transposition? Give any three transposable elements present in prokaryote.
4. Explain briefly tryptophan operon and its regulation.
5. How posttranslational modification regulates protein expression in eukaryotes?
6. How many types of structural changes occur in chromosomes leading to mutation?

## SECTION-C

7. Explain the transcriptional regulation of gene expression in prokaryotes.
8. What is RNA editing? Why is it needed? What is its significance?
9. Give schematic explanation of DNA replication occurring in
  - a) M13 virus
  - b) Retrovirus.

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