Roll No. .....

(12/19-II)

5203

B. Sc. EXAMINATION

(Third Semester)

BIOTECHNOLOGY

Paper VII

Molecular Biology

Time : Three Hours *Maximum Marks :* 40

Note : Q. No. **1** is compulsory. Attempt *four* other questions selecting *two* questions from each Unit. All questions carry equal marks.

1. Explain the following as per statement given below :

   (a) Histones

   (b) Start codon

   (c) Conjugation

   (d) Catabolic repression

(e) Positive regulation

(f) Exons

(g) Plasmids

(h) IS elements. 1×8=8

Unit I

2. (a) How will you prove that DNA is the genetic materials ?

(b) Write a short note on Z-DNA. 4+4=8

3. What do you mean by organization of genome ? Describe chromosomal organization and structure of eukaryotic genomes. 2+6=8

4. (a) What are Transposable Elements ? Describe the characteristics and significance.

(b) Explain the transposable elements in maize and P elements in *Drosophila*.

4+4=8

Unit II

5. What is Gene Expression ? Explain the *Trp* operon in detail with diagrams. 2+6=8

6. What is DNA Recombination ? Explain the molecular mechanism of DNA recombination in eukaryotes with well labelled diagrams. 2+6=8

7. Write short notes on the following :
   (a) Bacterial transformation
   (b) Catabolite repression
   (c) Transcriptional attenuation
   (d) Gene splicing. 4×2=8

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