



US – 389

IV Semester B.Sc. Examination, May 2017  
(F+R)  
(CBCS – 2015-16 and Onwards/2012-13 and Onwards)  
**BIOTECHNOLOGY – IV**  
**Molecular Biology**

Time : 3 Hours

Max. Marks : 70

**Instruction** : Draw neat labelled diagrams wherever necessary.

SECTION – A

I. Write short notes on the following :

(5×2=10)

- 1) Nucleotides.
- 2) SOS repair.
- 3) Central dogma.
- 4) Introns.
- 5) Insertional elements.

SECTION – B

II. Answer **any four** of the following :

(4×5=20)

- 6) Explain the types and functions of RNA.
- 7) Describe briefly transduction in bacteria.
- 8) Give an account of prokaryotic and eukaryotic ribosome.
- 9) Explain recombination in maize by transposons.
- 10) Give an account of mRNA splicing in eukaryotes.

SECTION – C

III. Answer **any three** of the following :

(3×10=30)

- 11) Explain replication of DNA in prokaryotes.
- 12) What are the causes of DNA damage ? Explain excision repair mechanism.
- 13) a) What is genetic code ? Enumerate its properties.  
b) Write a note on prokaryotic RNA-polymerase.

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- 14) Describe the process of translation in eukaryotes.
- 15) Write a detailed account of trp operon concept of gene regulation.

## SECTION – D

IV. Answer the following in **one** word or a sentence **each** :

(10×1=10)

- 16) Name the form of DNA having left handed helix.
- 17) Who proposed clover-leaf model of tRNA ?
- 18) Name the protein produced by lac Z-gene.
- 19) Which is the enzyme that synthesises mRNA in Eukaryotes ?
- 20) What is core enzyme ?
- 21) What is translocation ?
- 22) Name the initiating amino acid in prokaryotes.
- 23) Which is the enzyme present in ribosome that helps in formation of peptide bond ?
- 24) What are inverted repeats ?
- 25) Name the RNA present in 30s subunit of ribosome.