RAN-2103001106020002

# RAN-2103001106020002

## B.Sc. (Biotechnology) (Sem. VI) Examination March - 2026

## BT-18 : Introduction to Bioinformatics (Old)

**Time: 2 Hours ]** **[ Total Marks: 50**

**સૂચના : / Instructions**

(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book.

(2) Figures to the right indicate full marks.

(3) Draw neat and labeled diagrams wherever necessary.

Seat No.:

Student's Signature

**Q. 1 Give Specific Answer (Any Four):** **(08)**

A. State the objectives of bioinformatics.

B. Mention any two databases related to metabolic pathways.

C. Define the term "Topology" as used in the CATH classification system.

D. What is meant by an accession number in biological databases?

E. Explain the term "percentage identity" in BLAST output.

F. What do you understand by iterative alignment?

**Q. 2 Attempt Any Two:** **(14)**

A. Elaborate on the scope and significance of bioinformatics.

B. Describe protein structure prediction servers available in India.

C. Discuss protein sequence databases in detail.

**Q. 3 Explain in detail Any Two:** **(14)**

A. Explain the role and features of Protein Data Bank (PDB) as a protein structure database.

B. Describe the Smith-Waterman algorithm used for pairwise sequence alignment.

C. Discuss the different types of gap penalties used in sequence alignment.

**Q. 4 Write Short note (Any Two):** **(14)**

A. Explain the working and applications of BLAST.

B. Compare global and local sequence alignment methods.

C. Describe the Dot Plot technique for sequence comparison.

———