

Exam. Code : 206603

Subject Code : 4663

M.Sc. Bio-Informatics 3rd Semester

**ADVANCED ALGORITHMS FOR
COMPUTATIONAL BIOLOGY**

Paper—BI-632

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Candidates are to attempt **5** questions, **one** from each Section. **Fifth** question may be attempted from any Section. **All** questions carry equal marks.

SECTION—A

1. What is an algorithm ? Discuss the principle and techniques of algorithm design. 15
2. What is simulated annealing ? Discuss optimization techniques. 15

SECTION—B

3. What is Hidden Markov Model ? Discuss binding profile HMM. 15
4. What are physical genome maps ? Discuss mapping by fingerprinting. 15

SECTION—C

5. What are machine learning techniques ? Discuss the applications of artificial neural networks in secondary structure prediction. 15
6. What is support vector machine ? Discuss its applications. 15

SECTION—D

7. Explain the application of genetic algorithm in docking. 15
8. What is clustering ? Discuss clustering algorithms. 15