JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- February -2019

BTech VI Semester

COURSE CODE: 10B11BI614

MAX. MARKS: 15

COURSE NAME: Advanced Algorithms for Bioinformatics

COURSE CREDITS: 4

MAX. TIME: 1 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Discuss the term algorithm with all its features. Also define all basic characteristics, parameters, types, and analysis for algorithms. [CO: 1-3] (4)

2. Write Exon Chaining algorithm. What are major parameters for the selection of putative exons? Solve the following Exon Chaining problem for n=6: [CO: 2] (1+1+3)

   (4,9,6), (1,2,1), (3,5,2), (2,6,4), (10,12,3), (8,9,2)

3. Define following with **an example of each**: [CO: 1-3] (1*6=6)

   (a) Biological and computational characteristics of gene prediction.

   (b) LCS problem

   (c) Iteration vs. Recursion

   (d) ESF alignment and its correlation with other pairwise alignments

   (e) Tower of Hanoi problem

   (f) Algorithmic applications to solve problems in biology.