JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
B.Tech. (Semester VI), Test 2 (April 2016)

Course Code: 10B1WBI515   Max. Marks: 25
Course Name: Advanced Algorithms for Bioinformatics
Course Credit: 4   Max. Time: 1:30 Hrs

Attempt all questions. Carrying of mobile phones will be treated as the case of unfair means. Calculator is allowed.

Q.1. Identify the optimal solution for following set of weighted intervals using exon chaining procedure:
    (4, 7, 5), (8, 9, 1), (11, 14, 7), (2, 4, 3), (5, 9, 6), (1, 3, 3), (10, 13, 6)   (3)

Q.2. Compute the bucket and hashing for a (6, 3) motif through random projection algorithm.   (4)

Q.3. Apply Gibbs sampling to identify new starting positions from a set of given 5 sequences for any l-mer of size 7. Run the algorithm for at least one iteration.   (5)

Q.4. Explain Planted Motif Search (PMS) with a suitable example.   (3)

Q.5. What are the applications of randomized algorithms for motif finding? Discuss Greedy profile motif search to find the P-most probable l-mer.   (4)

Q.6. Explain following with an example of each:
(a) Spliced Alignment   (b) Median String Search
(c) Donor and Acceptor sites and their significance   (d) Test Code Statistics   (1.5*4=6)