

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Makeup EXAMINATION-APRIL 2018

B.Tech (BI) VI Semester

COURSE CODE: 10B11BI614

MAX.MARKS: 25

COURSE NAME: Advanced Algorithms for Bioinformatics

MAX. TIME: 1.30 Hrs

COURSE CREDITS: 3

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in square brackets. Calculator is allowed.

Q.1. Compare brute force and median string search algorithms and overall procedure for motif search problem with a common example. [4]

(CO-1, 2)

Q.2. Why motifs are biologically significant? Explain their significance with a real example of DNA sequence motif. [3]

(CO-1, 2)

Q.3. Why random projection algorithm performs better than other standard algorithms? Justify your answer with an example. [5]

(CO-3)

Q.4. Explain profile search problem through an example of given sequences:

ATAGACAGACGAT, GTAGACAGACTTA, GTCATGAGCGCTA, GACATGAGCGTCT

Generate consensus for an l-mer of size 5 (with any single mutation) for a flexible position in the given sequences. [5]

(CO-2)

Q.5. Discuss Greedy profile motif search algorithm with an example. [5]

(CO-1, 3)

Q.6. Discuss how search tree can be used to improve performance of motif search algorithms? [3]

(CO-3)