

Dr. Narendra Kumar

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- December-2018

B.Tech/M.Tech III Semester

COURSE CODE: 10B11BI311

MAX. MARKS:35

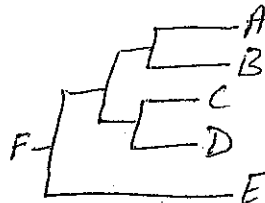
COURSE NAME: Biological Computation

COURSE CREDITS: 4

MAX. TIME: Two Hours

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

1. What are the common structural motifs in the RNA structure? Describe in details with an appropriate diagram for each one. (CO4) (5 marks)
2. Why is it important to predict the structure of RNA? Describe in the light of roles of RNA molecules. What are the major strategies for the RNA structure prediction? Give examples of computer programs used for RNA folding and the strategies they use. (CO4). (5 marks)
3. Contrast structural similarity with homology. Why is structural alignment important and what are the methods used for it? (CO5) (5 marks)
4. Write a note on the following: (CO5) (10 marks)
 - a. Threading
 - b. Homology modelling
5. Answer the following: (CO6) (5 marks)
 - a. What strategies can you use to root an unrooted tree?
 - b. Write the following tree in Newick format



6. What are the similarities and differences between BLOSUM and PAM matrices? (CO1, CO2) (5 marks)