	Roll No.									
Paper Code: BT-23										

M.Tech.
(SEM II) EVEN SEMESTER EXAMINATION, 2015-16
BIOINFORMATICS

[Time: 3 hrs.]   **[Max. Marks: 100]**

Note: Attempt *ANY FIVE* questions only.

1. (a) Write the applications of bioinformatics in various industries. **[10]**

  (b) What is biological database? Describe in detail. **[10]**

2. (a) Discuss the steps involved in BLAST. **[10]**

  (b) Align the following sequences using Smith-Waterman algorithm **[10]**

    Seq1- VALLAR

    Seq2- PAMMAR

    Let: Match= +2; Mismatch= -1; Gap= -1

3. (a)   A B C **[10]**
    A 0 2 4
    B 2 0 4

    C 4 4 0   is a distance matrix for three species A, B and C.

  How many rooted and unrooted trees are possible for these sequences? Draw a

  phylogram for the same using UPGMA method.

  (b) Write about the importance of structural biology in drug discovery. **[10]**

4. (a) Discuss the steps of Computer Aided Drug Design (CADD). **[10]**

  (b) What is gene prediction? Briefly explain the various methods of gene prediction. **[10]**

5. (a) What is QSAR? Differentiate the 2D and 3D QSAR. Give the name of any two QSAR tools. **[10]**

  (b) Define the DNA microarray. Discuss the applications of microarray technique. **[10]**

6. Write short notes on *ANY FOUR*. **[5x4=20]**

      (a) *Open Reading Frame*
      (b) PHI Blast
      (c) Neighbor Joining method
      (d) PAM Matrix
      (e) Vaccine
      (f) High-scoring Segment Pairs