Registration No :

Total Number of Pages : 01

B.Tech
PBT6I102

6th Semester Regular / Back Examination 2018-19
BIOINFORMATICS
BRANCH : BIOTECH
Max Marks : 100
Time : 3 Hours
Q.CODE : F198
Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.
The figures in the right hand margin indicate marks.

Part- I

Q1   **Only Short Answer Type Questions (Answer All-10)**   **(2 x 10)**
  a) What is NCBI?
  b) What is Pfam?
  c) Why Protein data bank is used?
  d) Differentiate EMBL and TrEMBL?
  e) Write the full form of KEGG pathway?
  f) What is an ORF?
  g) Differentiate between local and global alignment?
  h) What are splice sites?
  i) What is threading?
  j) What is the use of Ramchandran Plot in Homology modeling?

Part- II

Q2   **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)**   **(6 x 8)**
  a) How data is retrieved from metacyc?
  b) What are the steps adapted in multiple sequence alignment?
  c) What you understand by molecular mechanics?
  d) Write the sequences of dynamic programming?
  e) In molecular modeling Force field is a special case of energy functions or inter atomic potentials. Justify the version?
  f) What is Gap penalty?
  g) How substitution matrix is constructed by 'Log Odds Matrices'?
  h) What is rational drug designing?
  i) Differentiate between Rigid ligand-Rigid receptor and flexible ligand –Rigid receptor dockings?
  j) What is Mote Carlo sampling?
  k) How Dot matrix method is used in sequence alignment?
  l) What is signature molecular descriptor?

Part-III
Only Long Answer Type Questions (Answer Any Two out of Four)

Q3   Hidden Markov Model (HMM) is a statistical Markov model in which the system being modeled is assumed to be a Markov process with unobservable (i.e. hidden) states. Prove it?   **(16)**

Q4   How a linear-time algorithm is used for finding a maximum-length ORF in a splice graph?   **(16)**

Q5   Explain in detail about Lipinski's Rule of five?   **(16)**

Q6   What is the mechanism of molecular dynamic simulation?   **(16)**