GIET UNIVERSITY, GUNUPUR – 765022

RD19MSC038

Roll No: | | | | | | |

Total Number of Pages : 1 AR-19 M.SC

M.Sc 1ST SEMESTER REGULAR EXAMINATIONS, NOV/DEC 2019-20

BTPC104-BIOINFORMATICS & BIOSTATISTICS

Time: 3 Hours Max Marks: 80

The figures in the right hand margin indicate marks.

SECTION A

Q.1 Answer any four of the following: [4 X4 =16]

a What is Sequence Alignment? Differentiate between Local and Global alignment with example?
b What is protein structure? How to visualize a protein structure?
c What is dot matrix? How to do dot matrix analysis?
d What is homology modeling? Differentiate between threading and homology modeling.
e What is probability distribution? Write down various probability distribution functions used in statistically analysis?
f Find out the mean and variance of first ten natural numbers?

OR

2. Answer all questions from the following [2 x 8 =16]

a What is NCBI ? Name the nucleotide database of NCBI.
b What is PDB? Why it is important?
c What is BLAST? Where it is available to use?
d What are the significance of Sequence Alignment?
e Write down two important softwares used for homology modeling?
f What is Multiple Sequence Alignment? Name a tool use in producing MSA?
g What is variance? How it is related to standard deviation?
h Differentiate between paired t-Test and un-paired t-Test?

SECTION-B

Answer all Questions: [16 x4 =64]

3.a What is FASTA? How to carry out FASTA and explain with its algorithm?

OR

b What is Similarity Search? Explain the BLAST algorithm to carry out the similarity search.

4.

a What is global alignment? How to do it using Needleman Wunsch Algorithm?

OR

b What is scoring matrices? Explain detail about PAM matrix?

5.

a What is molecular modeling? Write down steps to carry out the homology modeling?

OR

b What is to generate Hidden Markov Model (HMM)? Explain its application in biological research

6.

a What is Biostatistics? Write down the application of statistics in biological search?

OR

b Calculate the mode and variance of the following

CI:	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
f:	5	11	14	22	32	18	17	11