



End Term Examinations (April/May 2019)

School : School of Engineering

Program: M.Tech. Bio-Engineering

Course: Biostatistics and Bioinformatics

Course Code: BEN522

Semester: II

Max Marks: 40

Duration (mins) : 120

Note: Attempt all questions.

Q1. National institute of Occupational safety and Health (NIOSH) limit the maximum possible levels of toxic materials in the work place. So, an industry measured the benzene exposure of their workers given in below table. (10)

Observation	1	2	3	4	5	6	7	8	9		
Benzene(ppm)	0.7	0.9	0.5	0.8	1.1	1.4	1.2	0.8	0.5		
Observation	10	11	12	13	14	15	16	17	18	19	20
Benzene(ppm)	0.8	0.9	0.6	0.4	1.0	0.5	0.8	0.8	0.9	1.2	1.8

(critical value= -1.720)

Find the T-distribution value for the same.

Q2. If you get a particular protein named 'Keratin'. How will you retrieve its (10)

- (a) Nucleic acid sequence
- (b) Protein sequence
- (c) Carbohydrate binding site, if present.
- (d) Protein chains
- (e) Protein structure?

Q3. Discuss the importance of biological databases in bioinformatics. (5)

Q4. a) Explain the working of BLAST based on your knowledge of sequence alignment. (5)

Or

b) Explain the concept of scoring matrices for aligning amino acid sequences. Briefly explain how PAM is derived?

Q6. What is meant by secondary database? What are the major secondary databases? (5)

Q7. Illustrate Global alignment with suitable example. (5)