

## B.Sc. Semester-5 Examination

SE 305

Bio-Technology

March-2024

Time : 2-30 Hours

[Max. Marks : 70]

Q.1. What Standard Deviation? Discuss its properties, merits and demerits and its relation with variance. Calculate Variance and SD of the following weight of the children below 5 years:  
25, 17, 16, 14, 20, 22, 15, 12. (14)

OR

Q.1.A. In a study about eye flu, the number of people affected in a town was noted as

Age in years	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of People affected	3	5	16	18	12	7	4

Find Mean and Standard Deviation. (7)

Q.1.B. What is Normal Distribution? Discuss its characteristics. (7)

Q.2. What is Bioinformatics? Discuss its goals, scope and applications in detail. (14)

OR

Q.2.A. Define Biological databases? Explain various nucleotide sequence databases. (7)

Q.2.B. Explain list of information retrieval system from biological databases. (7)

Q.3 Define Scoring matrices? Discuss various scoring matrices in detail with suitable examples. (14)

OR

Q.3.A. Write a detailed note on BLAST with its significance in homology searching. (7)

Q.3.B. Discuss elements of Phylogenetic theory and write significance of MEGA. (7)

Q.4. Discuss goals and importance of Structural and functional genomics. (14)

OR

Q.4.A. Explain pharmacogenomics and pharmacogenetics for drug development research. (7)

Q.4.B. Write a detail note on Personalized medicine and its future prospects. (7)

Q.5. Short Questions (Attempt any 7) (14)

1. Define Range and its significance.
2. The middle value of any ordered array of numbers is .....
3. What are measures of dispersion?
4. What is the role of Swiss-prot?
5. Write difference between similarity and identity?
6. Define Global alignment and how it is different from local alignment.
7. Enlist significance of biological databases.
8. What is Dot matrix?
9. Why Nutrigenomics is important niche area of genomics?
10. Write any two importance of Metagenomics
11. Define SNP and its significance.
12. What is FASTA?

