

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.

B.Sc.PBPBT - END SEMESTER EXAMINATIONS - NOV'2024

SEMESTER - V

20UPBCT5011 - Bioinstrumentation, Bioinformatics and Biostatistics

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. What are the main components of a light microscope?
2. Describe the working principle of a pH meter.
3. Analyze the differences between genomic and proteomic approaches in understanding biological systems.
4. Calculate the mean, median, and mode for a dataset: 2, 4, 6, 8, 10.
5. What is the purpose of haematoxylin staining in microscopy?
6. Compare the gas chromatography with thin-layer chromatography.
7. Explain the concept of bioinformatics and its importance in modern biology.
8. Create a graphical representation of a dataset to illustrate central tendency and dispersion.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Compare and contrast light microscopes and electron microscopes.
10. Design a microscopic preparation protocol for studying leaf anatomy, including fixation, dehydration, embedding, sectioning, and staining.
11. Develop a chromatographic method for separating and identifying a mixture of amino acids.
12. Compare and contrast BLAST and FASTA algorithms for sequence similarity searches.
13. Derive the mathematical relationship between variance and standard deviation.
