

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
MSc DEGREE EXAMINATION DECEMBER 2023  
(Third Semester)  
Branch – BIOCHEMISTRY

**BIostatistics & RESEARCH METHODOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- Who is regarded as the father of biostatistics?  
i) Fischer ii) Karl Pearson  
iii) Francis Galton iv) Francis Bacon
- Which among the following is the squared value of standard deviation?  
i) Mode ii) Variance  
iii) Standard error iv) Regression
- Which symbol denotes an impossible event?  
i)  $\beta$  ii)  $\alpha$  iii)  $\mu$  iv)  $\phi$
- Find the statement whose validity is tested on the basis of a sample?  
i) Statistical hypothesis ii) Null hypothesis  
iii) Simple hypothesis iv) Composite hypothesis
- The list of technical terms used is called \_\_\_\_\_.  
i) Abbreviation ii) Glossary iii) Reference iv) Appendix

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- a Discuss the graphical methods of representing a quantitative data.  
OR  
b Illustrate Histogram & Pie-chart with suitable examples.
- a Internal exam scores for a Pharmaceutical chemistry class are provided below.  
Scores represent percent of items marked correct on the exam.  
87 99 75 87 94 75 35 88 87 93  
Find the Mean, Median, and Mode for the above data.  
OR  
b A simple sample of 1000 members is found to have a mean 3.42cm. Could it be reasonably regarded as a simple sample from a large population whose mean is 3.30cm and S.D is 2.6cm. Compute the 'Z' value.
- a Organize the properties & importance of Binomial distribution.  
OR  
b Examine the properties and role of Poisson distribution.
- a Evaluate the "t"- test and mention its applications.  
OR  
b Analyze Chi square test with suitable examples.
- a Illustrate the Layout of thesis.  
OR  
b Recommend a suitable note for the Article publication in scientific journal.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. a Categorize the types of data with suitable examples.

OR

- b Explain the diagrammatic and graphical representation of data.

12. a Evaluate the measures of central tendency and calculate its mean and the standard deviation for the following data about the systolic BP of volunteers in a particular area.

Systolic BP (mmHg)	91-100	101-110	111-120	121-130	131-140	141-150
Frequency	08	14	20	26	24	18

OR

- b Formulate the regression analysis.

13. a Enumerate the multiplication rule and conditional probability-Bayes' theorem.

OR

- b Interpret the theoretical probability distributions.

14. a The varieties of A, B, C wheat were grown in 4 plots each and the following yields in tons per acre were obtained.

	A	B	C
	8	7	2
	4	5	5
	6	5	4
	7	3	4

Test the significance of the difference between the yield of the varieties.

OR

- b Categorize type I & II errors and explain about the level of significance and P-value.

15. a Critically analyse the types of research with examples.

OR

- b Give a detailed note on research design.

Z-Z-Z

END