

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch - **MICROBIOLOGY**

MAJOR ELECTIVE COURSE – II : BIOSTATISTICS AND RESEARCH

METHODOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Data that describe qualities or characteristics are known as (i) Quantitative data (ii) Continuous data (iii) Qualitative data (iv) Discrete data	K1	CO1
	2	A frequency curve differs from a frequency polygon because it is (i) Plotted on a logarithmic scale (ii) Drawn using straight lines (iii) Drawn as a smooth curve (iv) Based on cumulative frequency	K2	CO1
2	3	In a frequency distribution, mode corresponds to the (i) Class with highest frequency (ii) First class interval (iii) Last class interval (iv) Class with lowest frequency	K1	CO2
	4	Kurtosis is best interpreted by comparing a distribution with (i) Binomial distribution (ii) Normal distribution (iii) Skewed distribution (iv) Uniform distribution	K2	CO2
3	5	A correlation coefficient value of +1 indicates (i) No correlation (ii) Partial correlation (iii) Perfect positive correlation (iv) Perfect negative correlation	K1	CO3
	6	In linear regression, the variable used for prediction is called the (i) Dependent variable (ii) Independent variable (iii) Constant variable (iv) Random variable	K2	CO3
4	7	The alternative hypothesis represents (i) Researcher's claim (ii) No relationship between variables (iii) Assumption of equality (iv) Sampling error	K1	CO4
	8	The null hypothesis in an F-test usually states that (i) Variances are equal (ii) Means are unequal (iii) Samples are dependent (iv) Data are non-normal	K2	CO4
5	9	The process of literature review involves (i) Reading and summarizing studies (ii) Sample collection (iii) Hypothesis testing (iv) Data coding	K1	CO5
	10	Plagiarism detection software is mainly used to (i) Check similarity with existing works (ii) Edit references (iii) Analyze statistical errors (iv) Improve grammar	K2	CO5

Cont..

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Identify two methods used for collecting biological data.	K1	CO1
		(OR)		
	11.b.	State the importance of diagrammatic representation.		
2	12.a.	Calculate the median for a grouped frequency distribution.	K3	CO2
		(OR)		
	12.b.	Apply the concept of skewness to interpret biological data.		
3	13.a.	Illustrate different types of correlation using suitable examples.	K2	CO3
		(OR)		
	13.b.	Explain the relationship between dependent and independent variables in simple regression.		
4	14.a.	Apply population concepts in selecting an appropriate sample.	K3	CO4
		(OR)		
	14.b.	Demonstrate the steps involved in applying the χ^2 test for variance.		
5	15.a.	Apply reviewed literature in planning a scientific study.	K3	CO5
		(OR)		
	15.b.	Use the structure of a research project to prepare a research report.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the concept of tabulation of data.	K1	CO1
2	17	Apply standard deviation and standard error to interpret biological results.	K3	CO2
3	18	Describe Karl Pearson's method of correlation.	K2	CO3
4	19	Apply ANOVA to analyze experimental variation.	K3	CO4
5	20	Evaluate the ethical impact of plagiarism on scientific research and society.	K6	CO5