22MBP316N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch – **APPLIED MICROBIOLOGY**

BIOSTATISTICS & RESEARCH METHODS FOR MICROBIOLOGY

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 are collected or sourced from the internet is called a) Documentary sources of data b) Internal secondary sources of data c) External secondary sources of data d) All of the above	K1	CO1
	2	The method of collection of the data of the population of a country is an example of a) Sample method b) Census method c) Both of them d) None of them	K2	CO1
2	3	If each item is reduced by 15 then A.M. is a) reduced by 15 b) increased by 15 c) reduced by 10 d) none of these	K1	CO2
	4	The normal curve is perfectly symmetrical about the a) mean b) median c) mode d) none of these	K2	CO2
3	5	The co-efficient of variation is 40, and mean is 30. The S.D. is a) 8·5 b) 12 c) 7·75 d) 9	K1	CO3
	6	If the regression coefficients are 4 and 16, then the correlation coefficient is a) 8 b) 12 c) 24 d) 10	K2	CO3
4	7	The rejection probability of Null Hypothesis when it is true is called as? a) Level of Confidence b) Level of Significance c) Level of Margin d) Level of Rejection	K1	CO4
	8	If two unbiased dice are rolled together, what is the probability of getting no difference points a) 1/2 b) 1/3 c) 1/5 d) 1/6	K2	CO4
5	9	Published information in a particular subject area is discussed in a) Journals b) Research proposal c) Literature review d) Bioethics	K1	CO5
	10	An eight-digit code that identifies serials, such as journals, newspapers, and magazines is called as a) ISSN b) ISBN c) INSS d) INSB	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.	The mean of virology students is 28·8. Find the missing frequency: **Class** 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 **Frequency** 4 | 6 | 20 | ? | 7 | 3	K3	CO1
		(OR)		
	11.b.	What do you understand by polygon? Give an example.	K3	
2	12.a.	Assume that there are 20 rose bushes and the number of flowers on each bush is, 9, 2, 5, 4, 12, 7, 8, 11, 9, 3, 7, 4, 12, 5, 4, 10, 9, 6, 9, 4 Calculate the Standard Deviation.	K4	CO2
		(OR)		
	12.b.	Elaborate on the Standard Deviation (SD).	K4	
3	13.a.	The regression equations are $8x - 10y + 66 = 0$ and $40x - 18y = 214$. Find correlation co-efficient of variates.	K3	CO3
		(OR)		
	13.b.	Find the mean of x and y from the regression lines $2x - y + 3 = 0$ and $4x - 5y + 1 = 0$.	K4	
4	14.a.	Why is ANOVA used for statistical analysis?	K3	CO4
		(OR)		
	14.b.	Comment on additional probability theorem.	K5	
5	15.a.	Give an account on graphs and significant figures presentation in research.	K3	CO5
		(OR)		
	15.b.	List out the guideline for articles preparation.	K5	

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	The median and mode of the following frequency distribution are known to be 27 and 26 respectively. Find the values of 'a' and 'b': **Value** 0-10 | 10-20 | 20-30 | 30-40 | 40-50 **Frequency** 3 | A | 20 | 12 | b	K4	CO1
2	17	Briefly explain about the SD with the help of examples.	K4	CO2
3	18	Calculate Coefficient of variation from following data: X 5 | 9 | 14 | 18 | 20 | 24 | 30 F 3 | 12 | 24 | 38 | 21 | 12 | 5	K4	CO3
4	19	Explain in detail about the Chi-square test.	K5	CO4
5	20	Outline the structure of Research project.	K5	CO5

Z-Z-Z END