

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - BIOCHEMISTRY

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	Various method of collecting primary data include: (a)questionnaire method (b)indirect oral investigation (c)direct personal interview (d)all of the above	K1	CO1
	2	The frequency distribution according to individual variate value is called: (a)discrete frequency distribution (b)cumulative frequency distribution (c)percentage frequency distribution (d)continuous frequency distribution	K2	CO1
2	3	Median of the data 1,4,3,5,0 (a) 1 (b) 3 (c) 4 (d) 5	K1	CO2
	4	Coefficient of correlation has maximum value: (a)+1 (b) -1 (c) 0 (d) none of these	K2	CO2
3	5	If A and B be two arbitrary events then: a) $P(A \cap B) = P(A)P(B)$ b) $P(A \cup B) = P(A) + P(B)$ c) $P(A/B) = P(A \cap B)P(B)$ d) $P(A \cup B) \leq P(A) + P(B)$	K1	CO3
	6	In a Poisson distribution if n is the number of trials and P is the probability of success than the mean value is given by: (a) $M=np$ (b) $m=np(1-p)$ (c) $m=(np)^2$ (d) $m=p$	K2	CO3
4	7	In sampling the lottery method is used for: (a) Interpretation (b) Theorization (c) Randomization (d) Conceptualization	K1	CO4
	8	The value of F-ratio would be approximate (a)3.40 (b) 3.52 (c) 3.88 (d) 3.97	K2	CO4
5	9	Which of the following is a key advantage of qualitative research? (a) It allows for generalization of findings to larger populations. (b) It provides rich, detailed data that captures participants' experiences. (c) It minimizes researcher bias. (d) It uses statistical analysis to validate results.	K1	CO5
	10	The ethical implications of a study involving deception, which of the following factors is most important? (a) The number of participants involved (b) The potential benefits outweighing the risks of deception (c) The researcher's reputation (d) The funding source of the research	K2	CO5

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.	Explain the different types of Classification of Data.	K4	CO1
		(OR)		

Cont....

Cont...

1	11.b.	Construct a O-Give curve for the following data						K4	CO1	
		Age	0-6	6-12	12-18	18-24	24-30			30-36
		Frequency	10	13	16	20	15			10
2	12.a.	Find the Median for the following data:						K4	CO2	
		Class intervals	20-30	30-40	40-50	50-60	60-70			
		No,of.labours	3	5	20	10	5			
	(OR)									
	12.b.	Calculate the Standard deviation from the following:								
Mark		10	20	30	40	50	60			
No.of student		8	12	20	10	7	3			
3	13.a.	A card is drawn from a pack of 52 cards find the probability of getting a king (or) a heart (or) a red card.						K5	CO3	
	(OR)									
	13.b.	Write down the properties and application of Poisson Distribution.								
4	14.a.	A sample of 10 adult female Rana hexadactyla yielded a mean blood sugar level of 45mg% with a SD of 8mg%. Estimate the population mean of the blood sugar level with 95% confidence.						K6	CO4	
	(OR)									
	14.b.	Medical examination of students of city colleges showed that 432 girls out of 1437 and 152 boys out of 441 had defective eyesight. Test whether there is any association between sex and defect in vision.								
5	15.a.	Explain the types of research.						K6	CO5	
	(OR)									
	15.b.	Compare the experimental and non-experimental design.								

SECTION -C (30 Marks)

Answer ANY THREE questions

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

ALL questions carry EQUAL Marks (5 × 10 = 50)

Module No.	Question No.	Question	K Level	CO																		
1	16	Draw a Histogram, a Frequency Polygon for the following data	K4	CO1																		
		<table><tr><td>Class interval</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td><td>80-90</td><td>90-100</td><td>100-110</td><td>110-120</td></tr><tr><td>No. of laboures</td><td>4</td><td>10</td><td>11</td><td>13</td><td>18</td><td>14</td><td>11</td><td>5</td></tr></table>			Class interval	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	No. of laboures	4	10	11	13	18	14	11	5
		Class interval			40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120										
No. of laboures	4	10	11	13	18	14	11	5														
2	17	Calculate Karl Pearson's coefficient of correlation from the following data:	K4	CO2																		
		<table><tr><td>X</td><td>5</td><td>7</td><td>3</td><td>1</td><td>9</td><td>12</td><td>8</td><td>3</td></tr><tr><td>Y</td><td>8</td><td>9</td><td>5</td><td>4</td><td>9</td><td>13</td><td>7</td><td>9</td></tr></table>			X	5	7	3	1	9	12	8	3	Y	8	9	5	4	9	13	7	9
		X			5	7	3	1	9	12	8	3										
Y	8	9	5	4	9	13	7	9														
3	18	State and Prove the Baye's theorem.	K5	CO3																		
4	19	Two horticultural plots were each divided into six equal sub-plots. Organic fertilizer is added to plot 1 and chemical fertilizer is added to plot 2. The yield of fruits from plot1 and plot2 in kg/sun-plot,is given below.can we say the yield due to organic fertilizer is higher than due to chemical fertilizer?	K5	CO4																		
		<table><tr><td>Plot 1</td><td>6.2</td><td>5.7</td><td>6.5</td><td>6.0</td><td>6.3</td><td>5.8</td></tr><tr><td>Plot2</td><td>5.6</td><td>5.9</td><td>5.6</td><td>5.7</td><td>5.8</td><td>5.7</td></tr></table>			Plot 1	6.2	5.7	6.5	6.0	6.3	5.8	Plot2	5.6	5.9	5.6	5.7	5.8	5.7				
		Plot 1			6.2	5.7	6.5	6.0	6.3	5.8												
Plot2	5.6	5.9	5.6	5.7	5.8	5.7																
5	20	Elaborate the methods of successful research proposal for funding agencies.	K6	CO5																		

Z-Z-Z END