

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

Branch - ECONOMICS

STATISTICAL METHODS - I

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	What type of data is collected through interviews? (a) Secondary data (b) Primary data (c) Quantitative data (d) Categorical data	K5	CO1
	2	In which type of sampling is the population divided into homogeneous subgroups and then a sample is taken from each subgroup? (a) Cluster sampling (b) Stratified sampling (c) Systematic sampling (d) Simple random sampling	K5	CO1
2	3	Geographical classification arranges data based on: (a) Numerical attributes (b) Categories like age or gender (c) Spatial locations such as regions or countries (d) Time periods	K3	CO2
	4	Which diagram would be most effective for comparing categories of discrete data? (a) Histogram (b) Line graph (c) Scatter plot (d) Bar chart	K3	CO2
3	5	Which average divides the data set into two equal halves? (a) Mean (b) Median (c) Mode (d) Range	K4	CO3
	6	The _____ is calculated by taking the average of the squared differences between each data point and the mean. (a) Variance (b) Mean (c) Median (d) Standard Deviation	K4	CO3
4	7	If a distribution has a long tail on the right side, it is said to be _____ skewed. (a) Negatively (b) Positively (c) Symmetrically (d) Normally	K3	CO4
	8	Which measure of skewness would indicate a substantial deviation from normality? (a) A skewness value close to 0 (b) A skewness value between -0.5 and +0.5 (c) A skewness value greater than +1 or less than -1 (d) A skewness value of exactly 1	K3	CO4
5	9	In linear regression, the dependent variable is also known as the: (a) Predictor (b) Covariate (c) Independent variable (d) Response	K5	CO5
	10	If the values of two variables move in the same direction, _____ (a) The correlation is said to be non-linear (b) The correlation is said to be linear (c) The correlation is said to be negative (d) The correlation is said to be positive	K5	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 Scope and Limitations of Statistics.	K5	CO1
		(OR)		

Cont...

	11.b.	Determine the Sources of Secondary data.							K5	CO1																				
2	12.a.	Identify the objectives of classification.							K3	CO2																				
	(OR)																													
	12.b.	Organise the Parts of a table.																												
3	13.a.	The salaries of a group of employees are given in the following table:									K4	CO3																		
		<table><tr><td>Salaries (in Rs.000)</td><td>45</td><td>50</td><td>55</td><td>60</td><td>65</td><td>70</td><td>75</td><td>80</td></tr><tr><td>No.of persons</td><td>3</td><td>5</td><td>8</td><td>7</td><td>9</td><td>7</td><td>4</td><td>7</td></tr></table>											Salaries (in Rs.000)	45	50	55	60	65	70	75	80	No.of persons	3	5	8	7	9	7	4	7
		Salaries (in Rs.000)	45	50	55	60	65	70	75	80																				
		No.of persons	3	5	8	7	9	7	4	7																				
	Calculate the standard deviation of the salaries.																													
(OR)																														
13.b.	List the merits and demerits of Lorenz Curve.																													
4	14.a.	Interpret the following symmetrical distributions (i) Symmetrical distribution (ii) Asymmetrical distribution (iii) Positive distribution and (iv) Negative distribution									K3	CO4																		
		(OR)																												
	14.b.	From the following distribution calculate Bowley's Quartile Coefficient of Skewness																												
		<table><tr><td>Height in Cm.</td><td>70</td><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td></tr><tr><td>No of students</td><td>4</td><td>3</td><td>6</td><td>2</td><td>5</td><td>3</td><td>2</td><td>4</td></tr></table>											Height in Cm.	70	71	72	73	74	75	76	77	No of students	4	3	6	2	5	3	2	4
Height in Cm.	70	71	72	73	74	75	76	77																						
No of students	4	3	6	2	5	3	2	4																						
5	15.a.	Explain the methods of measuring correlation.							K5	CO5																				
	(OR)																													
	15.b.	Calculate Karl Pearson's Coefficient of correlation from the following data:																												
		<table><tr><td>Roll No of students</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Marks in Accountancy</td><td>48</td><td>35</td><td>17</td><td>23</td><td>47</td></tr><tr><td>Marks in Statistics</td><td>45</td><td>20</td><td>40</td><td>25</td><td>45</td></tr></table>									Roll No of students	1	2	3	4	5	Marks in Accountancy	48	35	17	23	47	Marks in Statistics	45	20	40	25	45		
Roll No of students		1	2	3	4	5																								
Marks in Accountancy	48	35	17	23	47																									
Marks in Statistics	45	20	40	25	45																									

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 methods of collecting primary data.	K5	CO1																		
2	17	Identify the types of Diagrams.	K3	CO2																		
3	18	Find mean for the following data <table><tr><td>X</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td></tr><tr><td>F</td><td>5</td><td>10</td><td>25</td><td>30</td><td>20</td><td>10</td></tr></table>	X	0-10	10-20	20-30	30-40	40-50	50-60	F	5	10	25	30	20	10	K4	CO3				
X	0-10	10-20	20-30	30-40	40-50	50-60																
F	5	10	25	30	20	10																
4	19	Calculate coefficient of skewness based on Quartiles and median from the following data: <table><tr><td>Variable</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td></tr><tr><td>Frequency</td><td>12</td><td>16</td><td>26</td><td>38</td><td>22</td><td>15</td><td>7</td><td>4</td></tr></table>	Variable	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Frequency	12	16	26	38	22	15	7	4	K3	CO4
Variable	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80														
Frequency	12	16	26	38	22	15	7	4														
5	20	Find the two regression equations for the given data : <table><tr><td>X</td><td>6</td><td>2</td><td>10</td><td>4</td><td>8</td></tr><tr><td>Y</td><td>9</td><td>11</td><td>5</td><td>8</td><td>7</td></tr></table>	X	6	2	10	4	8	Y	9	11	5	8	7	K5	CO5						
X	6	2	10	4	8																	
Y	9	11	5	8	7																	

Z-Z-Z

END