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25STU101 / 22STU101N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch- **STATISTICS**

DESCRIPTIVE STATISTICS

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	When the researcher uses the data of an agency, then the data is called (a) Quantitative data (b) Qualitative data (c) Secondary data (d) Primary data	K1	CO1
	2	In chronological classification, data are classified on the basis of (a) attributes (b) time (c) classes (d) location	K2	CO1
2	3	Sum of deviations from mean is (a) zero (b) one (c) minimum (d) maximum	K1	CO2
	4	The distribution having two modes is called (a) unimodal (b) bimodal (c) trimodal (d) multimodal	K2	CO2
3	5	The second central moment represents (a) Mean (b) Variance (c) Skewness (d) Kurtosis	K1	CO3
	6	Bowley's coefficient of skewness is based on (a) Mean and Mode (b) Mean and Median (c) Quartiles (d) Moments	K2	CO3
4	7	The correlation coefficient lies in the interval (a) $-1 \leq r \leq 0$ (b) $-1 < r < 1$ (c) $0 \leq r \leq 1$ (d) $-1 \leq r \leq 1$	K1	CO4
	8	The widely used statistical tool for prediction is (a) regression analysis (b) correlation analysis (c) ANOVA (d) ANACOVA	K2	CO4
5	9	The equation $Y = a + bX$ represents (a) Non-linear (b) Parabolic (c) linear (d) Exponential	K1	CO5
	10	Which function returns the most frequently occurring number in data set (a) MODE( ) (b) MEDIAN( ) (c)COUNT( ) (d) AVERAGE( )	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks $(5 \times 7 = 35)$

<table>
<tr><th>Module No.</th><th>Question No.</th><th>Question</th><th>K Level</th><th>CO</th></tr>
<tr><td rowspan="3">1</td><td>11.a.</td><td>Describe the construction of bar diagram and pie diagram.</td><td rowspan="3">K2</td><td rowspan="3">CO1</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>11.b.</td><td>Distinguish between primary data and secondary data.</td></tr>
<tr><td rowspan="3">2</td><td>12.a.</td><td>Calculate the median from the following data
<table>
<tr><th>Weight (in gms)</th><th>No. of apples</th><th>Weight (in gms)</th><th>No. of apples</th></tr>
<tr><td>410 – 419</td><td>14</td><td>450 – 459</td><td>45</td></tr>
<tr><td>420 – 429</td><td>20</td><td>460 – 469</td><td>18</td></tr>
<tr><td>430 – 439</td><td>42</td><td>470 – 479</td><td>7</td></tr>
<tr><td>440 – 449</td><td>54</td><td></td><td></td></tr>
</table></td><td rowspan="3">K3</td><td rowspan="3">CO2</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>12.b.</td><td>The annual salaries of a group of employees are given in the following table
<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>
Compute the standard deviation of the salaries.</td></tr>
<tr><td rowspan="2">3</td><td>13.a.</td><td>Find Bowley's coefficient of skewness for the following frequency distribution:
<table>
<tr><td>No. of children per family</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>No. of families</td><td>7</td><td>10</td><td>16</td><td>25</td><td>18</td><td>11</td><td>8</td></tr>
</table></td><td rowspan="2">K3</td><td rowspan="2">CO3</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td rowspan="3"></td><td>13.b.</td><td>The first four moments of a distribution about X = 2 are -2,12,-20 and 100. Calculate the moment about mean. Also calculate β_2 and show whether the distribution is leptokurtic or platykurtic.</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">4</td><td>14.a.</td><td>Calculate Karl – Pearson's coefficient of correlation from the following data.
<table>
<tr><td>X</td><td>1</td><td>3</td><td>5</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>Y</td><td>3</td><td>4</td><td>8</td><td>10</td><td>12</td><td>11</td></tr>
</table></td><td rowspan="3">K4</td><td rowspan="3">CO4</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>14.b.</td><td>In a correlation study the following values are obtained: $\bar{X} = 65$, $\bar{Y} = 67$, $\sigma_x = 2.5$, $\sigma_y = 3.5$, r = 0.8. Find the two regression equations that are associated with the above values.</td></tr>
<tr><td rowspan="3">5</td><td>15.a.</td><td>Write short notes on fitting an exponential curve of the form $Y=ae^{bX}$.</td><td rowspan="3">K4</td><td rowspan="3">CO5</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>15.b.</td><td>Write the description of the following statistical functions
(i) TREND ( ) (ii) MIN ( )
(iii) SKEW ( ) (iv) VAR.S ( )</td></tr>
</table>

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks $(3 \times 10 = 30)$

Module No.	Question No.	Question	K Level	CO
1	16	Explain various types of classification of data.	K3	CO1
2	17	The number of telephone calls received in 245 successive one-minute intervals at an exchange are shown in the following frequency distribution: No. of calls: 0, 1, 2, 3, 4, 5, 6, 7 Frequency: 14, 21, 25, 43, 51, 40, 39, 12 Evaluate mean, median and mode.	K3	CO2
3	18	Calculate the first four moments about the mean and also the value of β_1 and β_2 from the following data: Marks: 0-10, 10-20, 20-30, 30-40, 40-50, 50-60, 60-70 No. of students: 8, 12, 20, 30, 15, 10, 5	K4	CO3
4	19	The ranks of the 15 students in two subjects A and B are given below. The two numbers within brackets denote the ranks of the same student in A and B respectively. (1, 10), (2, 7), (3,2), (4,6), (5,4), (6, 8), (7,3), (10, 1), (9, 1), (10, 15), (11, 19), (12, 5), (13,14), (14, 12), (15, 13). Find the Spearman's rank correlation coefficient.	K3	CO4
5	20	Enumerate the steps to compute measures of dispersion using Excel.	K4	CO5

Z-Z-Z END