25ITU103 / 22ITU103N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - **INFORMATION TECHNOLOGY**

STATISTICS FOR INFORMATION TECHNOLOGY- 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	Less than O - give and More than O - give intersect at (a) Mean (b) Median (c) Mode (d) Geometric Mean	K1	CO1
	2	The interquartile range (IQR) is a measure of (a) Central tendency (b) Skewness (c) Dispersion (d) Mean absolute deviation	K2	CO1
2	3	If two variables moves in the same direction, the correlation is (a) Negative (b) Zero (c) Positive (d) None of these	K1	CO2
	4	From the regression equation of X on Y, when Y = 50, a = 70 and b = 0.45, then the value of X is (a) X = 80.2 (b) X = 47.5 (c) X = 86.8 (d) X = 92.5	K2	CO2
3	5	In Newton's interpolation methods, the independent variable values should be (a) Equally spaced (b) Randomly spaced (c) In descending order only (d) Unequal intervals	K1	CO3
	6	Lagrange's method can be applied when differences are (a) unequal (b) equal (c) symmetrical (d) None	K2	CO3
4	7	The main assumption of the least squares method for trend estimation is that the trend is (a) Nonlinear (b) Linear over time (c) Cyclic (d) Random	K1	CO4
	8	Which method divides the current value of a time series by the corresponding trend value? (a) Simple Average (b) Ratio to Trend (c) Moving Average (d) Variate Difference	K2	CO4
5	9	The Excel function =QUARTILE.INC(A1:A10,3) returns (a) Minimum value (b) Median value (c) Third quartile (d) Maximum value	K1	CO5
	10	The Excel function used to calculate the sample standard deviation is (a) =STDEV() (b) =STDEVP() (c) =VAR() (d) =STDEV.P()	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 construction procedure of bar diagram and pie diagram.	K3	CO1
		(OR)		
	11.b.	Calculate the quartile deviation and coefficient of quartile deviation from the following data: Size: 6, 9, 12, 15, 18 Frequency: 7, 12, 19, 10, 2		

Cont...

<table>
<tr><td rowspan="3">2</td><td>12.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="3">K4</td><td rowspan="3">CO2</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>12.b.</td><td>Obtain 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></td></tr>
<tr><td>3</td><td>13.a.</td><td>Define interpolation and state its uses</td><td rowspan="3">K5</td><td rowspan="3">CO3</td></tr>
<tr><td rowspan="2"></td><td colspan="2">(OR)</td></tr>
<tr><td>13.b.</td><td>The following table gives the census population of a town for the years. Estimate the population for the year 2015 by using an appropriate interpolation formula.
<table>
<tr><td>Year</td><td>1981</td><td>1991</td><td>2001</td><td>2011</td><td>2021</td></tr>
<tr><td>Population (in lakhs)</td><td>36</td><td>66</td><td>81</td><td>93</td><td>101</td></tr>
</table></td></tr>
<tr><td rowspan="3">4</td><td>14.a.</td><td>Describe about the time series and its components.</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>Calculate seasonal indices by the ratio to moving average method, from the following data:
<table>
<tr><td>Year</td><td>I Quarter</td><td>II Quarter</td><td>III Quarter</td><td>IV Quarter</td></tr>
<tr><td>2007</td><td>68</td><td>62</td><td>61</td><td>63</td></tr>
<tr><td>2008</td><td>65</td><td>58</td><td>66</td><td>61</td></tr>
<tr><td>2009</td><td>68</td><td>63</td><td>63</td><td>67</td></tr>
</table></td></tr>
<tr><td rowspan="3">5</td><td>15.a.</td><td>Write the description of the following statistical functions
(i) VAR( ) (ii)MIN() (iii)TREND
(iv) SLOPE ( )</td><td rowspan="3">K3</td><td rowspan="3">CO5</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>15.b.</td><td>Mention the steps to forecast trend in Excel</td></tr>
</table>

SECTION -C (30 Marks)

Answer **ANY THREE** questions

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

<table>
<tr><th>Module No.</th><th>Question No.</th><th>Question</th><th>K Level</th><th>CO</th></tr>
<tr><td>1</td><td>16</td><td>Calculate mean, median and mode from the following data.
<table>
<tr><td>Marks</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></tr>
<tr><td>No. of students</td><td>4</td><td>16</td><td>60</td><td>100</td><td>40</td><td>6</td><td>4</td></tr>
</table></td><td>K4</td><td>CO1</td></tr>
<tr><td>2</td><td>17</td><td>Calculate Karl Pearson's coefficient of Skewness from the data given below.
<table>
<tr><td>Age</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></tr>
<tr><td>No. of persons</td><td>12</td><td>8</td><td>25</td><td>24</td><td>20</td><td>21</td></tr>
</table></td><td>K4</td><td>CO2</td></tr>
<tr><td>3</td><td>18</td><td>Given $\log_{10} 654=2.8156$, $\log_{10} 658 = 2.8182$, $\log_{10} 659 = 2.8189$, $\log_{10} 661 = 2.8202$, find by Lagrange's interpolation formula $\log_{10} 656$.</td><td>K4</td><td>CO3</td></tr>
<tr><td>4</td><td>19</td><td>Elucidate the method of measuring seasonal variation by simple average method.</td><td>K3</td><td>CO4</td></tr>
<tr><td>5</td><td>20</td><td>Narrate the steps to compute measures of dispersion using Excel.</td><td>K4</td><td>CO5</td></tr>
</table>

Z-Z-Z END