PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023
(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	The other name of cumulative frequency curve is a) Histogram b) Historigram c) Ogive d) Pie diagram	K1	CO1
	2	The mean of 10, 15, 20, 25, 30, 35, 40, 45, 5 is a) 20 b) 25 c) 30 d) 35	K2	CO1
2	3	When the coefficient of skewness is zero, the frequency curve is a) U shaped b) J shaped c) Bell shaped d) V shaped	K1	CO2
	4	When $b_{xy} = -0.2$ and $b_{yx} = -0.8$, r = a) 0.16 b) 0.4 c) – 0.4 d) – 0.16	K2	CO2
3	5	Finding the value of the function corresponding to an intermediate value of the argument is the problem is a) Interpolation b) Extrapolation c) Inverse interpolation d) None of these	K1	CO3
	6	Find x if $x_0 = 0.6$, n = 2.6 and h = 0.2. a) 12 b) 1.2 c) 1.12 d) 1.22	K2	CO3
4	7	Trend of a time series refers to a) Long term increase only b) Long term decrease only c) Long term tendency d) Short term tendency	K1	CO4
	8	Period of a cycle of a time series cannot be a) 13 Years b) 7 Years c) 5 Years d) 6 Months	K2	CO4
5	9	MS Excel is a a) Database Management Software b) Workbook Software c) Presentation Software d) Spreadsheet Software	K1	CO5
	10	Which one is not a function in ms excel? a) PROPER b) AVERAGE c) COUNT d) CLEAR	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.	Construct a Histogram and frequency polygon for the following data. <table><tr><td>Age (in years)</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>No. of Persons</td><td>3</td><td>10</td><td>14</td><td>17</td><td>30</td><td>15</td><td>12</td></tr></table>	K3	CO1
		(OR)		
	11.b.	The following data were obtained while observing the life span of a few lights of a company. Apply standard deviation and also determine its coefficient of variation. <table><tr><td>Life Span (Years)</td><td>4-6</td><td>6-8</td><td>8-10</td><td>10-12</td><td>12-14</td></tr><tr><td>No. of Neon Lights</td><td>10</td><td>17</td><td>32</td><td>21</td><td>20</td></tr></table>		
2	12.a.	Analyze the relationship between two variables by using Karl Pearson's coefficient of correlation. <table><tr><td>Rainfall (cms) (X)</td><td>32</td><td>35</td><td>31</td><td>38</td><td>27</td><td>42</td><td>57</td><td>21</td></tr><tr><td>Production (Million Tons) (Y)</td><td>52</td><td>67</td><td>53</td><td>47</td><td>41</td><td>55</td><td>63</td><td>72</td></tr></table>	K4	CO2
		(OR)		
	12.b.	Analyze the following data by applying Spearman's Rank correlation coefficient. <table><tr><td>X</td><td>180</td><td>155</td><td>170</td><td>174</td><td>160</td><td>172</td><td>166</td><td>172</td><td>172</td></tr><tr><td>Y</td><td>170</td><td>165</td><td>180</td><td>180</td><td>164</td><td>169</td><td>170</td><td>170</td><td>174</td></tr></table>		
3	13.a.	Construct the different methods of calculating interpolation.	K3	CO3
		(OR)		
	13.b.	By Binomial method, estimate the Earning per Share (EPS) of 2018-2019. <table><tr><td>Year</td><td>2017-2018</td><td>2018-2019</td><td>2019-2020</td><td>2020-2021</td><td>2021-2022</td></tr><tr><td>EPS (Rs.)</td><td>21.39</td><td>?</td><td>13.74</td><td>12.67</td><td>13.97</td></tr></table>		
4	14.a.	Classify the components of time series.	K4	CO4
		(OR)		
	14.b.	Analyze the given data by using 5-yearly moving averages to determine the trend and short term fluctuation: <table><tr><td>Year</td><td>2012</td><td>2013</td><td>2014</td><td>2015</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>2021</td></tr><tr><td>No. of Students</td><td>332</td><td>311</td><td>357</td><td>392</td><td>402</td><td>405</td><td>410</td><td>427</td><td>405</td><td>438</td></tr></table>		
5	15.a.	Explain the computation procedure to find Range, Quartile and Standard Deviation by using MS Excel.	K2	CO5
		(OR)		
	15.b.	Explain the computation procedure to find correlation between two variables using MS Excel.		

SECTION -C (30 Marks)
Answer ANY THREE questions
ALL questions carry EQUAL Marks   (3 × 10 = 30)

Mo dule No	Ques tion No.	Question	K Level	CO
1	16	The following are the annual profit (Rs. in Lakhs) of the 170 companies. Analyze the data by using mean, median and mode. | Annual Profit (in Lakhs)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80 | | No. of Companies | 3 | 15 | 27 | 48 | 42 | 26 | 7 | 2 |	K4	CO1
2	17	Analyze the average relationship between two variables by forming the two regression equations and also estimate Demand when Price is 20. 	Price (Rs.)	10	12	13	12	16	15	 | Demand | 40 | 38 | 43 | 45 | 37 | 43 |	K4	CO2
3	18	From the following data, identify the number of rural students whose IQ exceeds 102 by using Newton's backward difference formula. 	IQ	70-80	80-90	90-100	100-110	110-120	 | No. of Rural Students | 100 | 200 | 100 | 80 | 20 |	K3	CO3
4	19	Fit a linear trend equation by the method of least squares and estimate the net profit in 2023. | Year	2015	2016	2017	2018	2019	2020	2021 | | Net Profit (Rs. Crores) | 32 | 36 | 44 | 37 | 71 | 72 | 109 |	K3	CO4
5	20	Explain the procedure of forming regression equations and moving average method using data analysis toolpak in MS Excel.	K2	CO5

Z-Z-Z   END