Name:	
Enrolment No:	

UPES
ODD SEMESTER SUPPLEMENTARY EXAM, September 2023

Course: Applied Statistical Analysis	**Semester: 3**
Program: B.Tech (CSE-Spl. Buss. Analytics & Opt.)	**Time: 03 hrs.**
Course Code: CSBA 2009	**Max. Marks: 100**

Instructions: All questions are Compulsory

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SECTION A
(5Qx4M=20Marks)

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S. No.		Marks	CO
Q 1	Draw comparison between descriptive and inferential statistics.	4	CO1
Q2	The length of alike metals produced by a hardware store is approximated by a normal distribution model having a mean of 7 cm and a standard deviation of 0.35 cm. Find the probability that the length of a randomly chosen metal is between 5.36 and 6.14 cm.	4	CO2
Q3	Calculate a t-test for the following data of the number of times people prefer coffee or tea in five time intervals. <table><tr><th>Coffee</th><th>Tea</th></tr><tr><td>4</td><td>3</td></tr><tr><td>5</td><td>8</td></tr><tr><td>7</td><td>6</td></tr><tr><td>6</td><td>4</td></tr><tr><td>9</td><td>7</td></tr></table>	4	CO3
Q4.	Write differences between Normal distribution and Poisson distribution.	4	CO4

Q5.	Create a box plot for the following dataset that shows the height of ten plants:	4	CO2
	Plant height (inches) 14 16 12 11 24 19 13 12 20 10		

SECTION B
(4Qx10M= 40 Marks)

Q1.	Explain the research process methodology with supporting diagram. OR Describe the different types of Analytics with the help of suitable diagram	10	CO1
Q2.	A random sample of ten scores obtained by the students in a Math test are as follows: 2, 16, 3, 10, 11, 4, 6, 7, 9, 12. Determine 90% confidence limits for the mean of the whole sample.	10	CO3
Q3.	Determine if there is a difference in the mean daily calcium intake for people with normal bone density, osteopenia, and osteoporosis at a 0.05 alpha level using ANOVA Test. The data was recorded as follows:	10	CO4

Normal Density	Osteopenia	Osteoporosis
1200	1000	890
1000	1100	650
980	700	1100
900	800	900

750	500	400
800	700	350

Q4.	A survey was conducted in your city. Given is the following sample data containing a person's age and their corresponding income. Find out whether the increase in age has an effect on income using the correlation coefficient formula. (Use $1\sqrt{1811181}$ as 0.074 and $1\sqrt{2091209}$ as 0.07)		10	CO4

Age	25	30	36	43
Income	30000	44000	52000	7000

SECTION-C
(2Qx20M=40 Marks)

Q1.	The following data shows the sales (in million dollars) of a company.		20	CO5

x	2015	2016	2017	2018	2019
y	12	19	29	37	45

Estimate the sales in the year 2020 using the regression line.

OR

Calculate the Chi-square value for the following data of incidences of water-borne diseases in three tropical regions.

	India	Equador	South America	Total
Typhoid	31	14	45	90
Cholera	2	5	53	60
Diarrhoea	53	45	2	100

		86	64	100	250		
Q2.	With the help of a suitable diagram explain the following terms: (4 marks each) 1. Significance level 2. Critical Region 3. Critical Value 4. Confidence Interval 5. P-Value					**20**	**CO4**