

Roll No.....

Enrolment No.....

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School of Engineering Sciences and Technology
Department of Computer Science & Engineering
Supplementary/Improvement Examination - 2023

Subject: Data Analytics with Python

Subject Code: BTCSE MOOCS-2 / BTCSE MOOCS-2 Lateral Entry

TIME: 3 Hours**MAX. MARKS: 75**

- Note:** 1) Immediately write your Roll No. and Enrolment No. after receiving the Question Paper.
 2) Do not write anything on the Question Paper.
 3) Scientific Calculator is allowed without Memory Feature.
 4) Please follow proper numbering while answering the questions.

SECTION – A (35 Marks)

❖ Attempt ALL questions. Each question is of 5 marks.

Q. No.	Questions	CO*	BL*
1.	What do you understand by sampling? Explain different types of sampling methods with proper examples.	CO1	L1, L2
2.	Discuss in detail about data transformation.	CO2	L2, L3
3.	Why is hypothesis testing required? Differentiate between a T-test and Z-test.	CO3	L3, L4
4.	What do you understand by ROC? Explain with proper example.	CO4	L2, L3
5.	How does maximum likelihood estimation help in computing the parameters of logit function?	CO4	L3, L4
6.	Compare K-means clustering with Hierarchical Clustering Techniques.	CO5	L2, L3
7.	Write an explanatory note on CART.	CO5	L1, L2

SECTION – B (40 Marks)

❖ Attempt any FOUR questions. Each question is of 10 marks.

Q. No.	Questions	CO*	BL*
1.	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.	CO2	L5, L6
2.	Three different kinds of food are tested on three groups of rats for 5 weeks. The objective is to check the difference in mean weight (in grams) of the rats per week. Apply one-way ANOVA using $\alpha = 0.05$ significance level to the following data:	CO3	L4, L5, L6

	Food I	Food II	Food III		
	8	4	11		
	12	5	8		
	19	4	7		
	8	6	13		
	6	9	7		
	11	7	9		
3.	Create the relationship model for the data given in table below and also predict Y for $X_1=72$ and $X_2=38$ respectively.			CO4	L3, L5, L6
	Observations	X1	X2		
	1	56	28		
	2	85	45		
	3	40	55		
	4	55	67		
	5	36	22		
4.	Write an explanatory note on logistic regression.			CO4	L2, L3,
5.	What is the chi-square test, write its formula? How do you calculate chi-squared? How do you interpret a chi-square test? What is a good chi-square value?			CO4	L3, L5
6.	Explain the following terms: a) Confusion Matrix b) Precision and Recall c) F-Score			CO5	L2, L3, L4

CO* - Course Outcomes from Syllabus, BL* - Bloom's Taxonomy Levels (1: Remembering, 2: Understanding, 3: Applying, 4: Analyzing, 5: Evaluating, 6: Creating)

END