2 1 MAY 2022

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)
End Semester Exam
April-May (2021-2022)
Program: (B.Tech.) Computer Engineering
Examination: Semester: VIII

Course Code: **1UCEDLC8021** and Course Name: **Applied Data Science**

Duration: 03 Hours   Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Define Data Science	2	CO1	U
ii)	List the different types of Data Visualization Techniques	2	CO2	U
iii)	What is Box & Whisker plot	2	CO2	U
iv)	List the different types of sampling techniques	2	CO4	U
v)	What is correlation & covariance	2	CO3	U
vi)	List the types of data distribution techniques	2	CO4	U
vii)	What is True positive & False Negative	2	CO6	U
viii)	What is p-value	2	CO5	U
Q.2	Solve any four questions out of six.	16		
i)	Illustrate on Data Visualization in detail	4	CO1	U
ii)	Illustrate with example on Jaccard Distance and Jaccard Similarity	4	CO2	Ap
iii)	Discuss about axioms of probability and Random variables	4	CO2	U
iv)	Illustrate on different sampling techniques	4	CO4	U
v)	Explain Estimates of location	4	CO3	U
vi)	Explain in detail about ROC & AUC	4	CO6	U
Q.3	Solve any two questions out of three.	16		
i)	Explain what is source of missing value and how to deal with it. What is Outlier also provide solution to handle it	8	CO3	Ap

ii)	Explain what is SVD ? Find the SVD of A, where $A = \begin{bmatrix} 3 & 2 & 2 \\ 2 & 3 & -2 \end{bmatrix}$	8	CO2	Ap
iii)	Illustrate the concept of hypothesis testing & Design and explain flow diagram for Hypothesis testing.	8	CO5	Ap
Q.4	**Solve any two questions out of three.**	**16**		
i)	What is LU decomposition ? Find an LU decomposition of $\begin{bmatrix} 3 & 1 & 6 \\ -6 & 0 & -16 \\ 0 & 8 & -17 \end{bmatrix}$	8	CO2	Ap
ii)	Explain in detail how to Evaluate model after training and testing with suitable example	8	CO6	Ap
iii)	Explain what is Normal distribution & Central limit theorem in detail with uses of it	8	CO4	U