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K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

April – May 2023
(B.Tech) Program: Artificial Intelligence & Data Science Scheme: II
Examination: TY Semester: VI
Course Code: AIC603 Course Name: Data Analytics & Visualization

Date of Exam: 17/05/2023 **Duration: 2.5 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)	Why is D3 useful for data visualization?	2	CO5	U
ii)	Define nominal data. Give an example.	2	CO2	U
iii)	List the various interactive buttons to control a chart's behaviour.	2	CO6	U
iv)	Justify the need of API's in data analysis.	2	CO2	An
v)	List the libraries that can be used for image data. .	2	CO3	U
vi)	What are the key features of Google Charts API?	2	CO4	U
vii)	List the various data formats.	2	CO3	U
viii)	Define hypothesis with examples.	2	CO1	U
Q.2	**Solve any four questions out of six.**	**16**		
i)	Write short note on: Making the play button go	4	CO6	U
ii)	Explain data segmentation. Justify the need of data segmentation with example.	4	CO2	An
iii)	Explain in detail acquiring and visualizing data steps.	4	CO3	U
iv)	Explain with sample code : Adding animations	4	CO4	Ap
v)	Justify D3 strives to be declarative.What does it mean for D3 to be declarative and how does this affect the way you write code?	4	CO5	An

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vi)	Explain the steps of hypothesis testing with flow chart.	4	CO1	U
Q.3	**Solve any two questions out of three.**	**16**		
i)	Set up an analysis of variance table for the following per acre production data for three varieties of wheat, each grown on 4 plots and state if the variety differences are significant using one way ANOVA? (**use F-table value for 5 %=4.26)**	8	CO1	Ap
ii)	Compare: D3.js and Google Charts. How do you use the attr() method in D3 to change the attributes of a selection? Explain with code.	8	CO5	An
iii)	Explain in detail: Candlestick Charts, Bubble Charts, Surface Charts, Map Charts, Infographics	8	CO3	U
Q.4	**Solve any two questions out of three.**	**16**		
i)	Explain HTML5 Canvas basics and write a sample code using HTML5 Canvas to generate 2D square with 500 X500 filled with green colour.	8	CO4	Ap
ii)	Write short note on: Missing data treatments	8	CO2	U
iii)	Justify, "Interactive buttons, updating charts, and adding transitions are all important techniques for creating dynamic and engaging data visualizations with D3.js". Write a code for interactive buttons using D3.js.	8	CO6	An

Per acre production data

Plot of land	*Variety of wheat*		
	A	*B*	*C*
1	6	5	5
2	7	5	4
3	3	3	3
4	8	7	4

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