Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering
End Sem Examination Dec-2023
CS3ED03 Data Visualization

Programme: B.Tech. Branch/Specialisation: CSE All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Data can be visualized using- **1**
(a) Graphs (b) Charts (c) Maps (d) All of these

ii. Which are pros of data visualization? **1**
(a) It can be accessed quickly by a wider audience
(b) It can misrepresent information
(c) It can be distracting
(d) None of these

iii. Which is used to query and edit graphical settings? **1**
(a) anova() (b) par() (c) plot() (d) cum()

iv. Which of the following plots are often used for checking randomness in time series? **1**
(a) Autocausation (b) Autorank
(c) Autocorrelation (d) None of these

v. The purpose of fisher.test() is _____ test for contingency table. **1**
(a) Chisq (b) Fisher (c) Prop (d) Stem

vi. Which are cons of data visualization? **1**
(a) It conveys a lot of information in a small space
(b) It makes your report more visually appealing
(c) visual data is distorted or excessively used
(d) None of these

vii. Which method shows hierarchical data in a nested format? **1**
(a) Treemaps (b) Scatter plots
(c) Population pyramids (d) Area charts

P.T.O.

viii. Data visualization is also an element of the broader _____. **1**
(a) Deliver presentation architecture
(b) Data presentation architecture
(c) Dataset presentation architecture
(d) Data process architecture

ix. Common use cases for data visualization include- **1**
(a) Politics (b) Sales and marketing
(c) Healthcare (d) All of these

x. Which one of the following is most basic and commonly used techniques? **1**
(a) Line charts (b) Scatter plots
(c) Population pyramids (d) Area charts

Q.2 i. What is data visualization? Explain it with example. **2**
ii. What are the three main goals of data visualization? **3**
iii. What are the advantages of data visualization? **5**
OR iv. Explain basic principles of data visualization. **5**

Q.3 i. What is information spaces? **2**
ii. Explain Fisheye Views – applications and non-linear magnification. **8**
OR iii. Write short notes- **8**
(a) Abstraction in computer graphics
(b) Abstraction in user interfaces

Q.4 i. How do you use color in your visualizations? **3**
ii. Explain translation, rotation and scaling of objects in 2 dimensions. **7**
OR iii. Define the terms legend, interval, axes, scales in a chart. **7**

Q.5 i. Explain discrete event visualization. **4**
ii. Explain interactive 3D illustrations with images and text. **6**
OR iii. Explain continuous time-series visualization. **6**

Q.6 Attempt any two:
i. Explain animation in D3.js with example. **5**
ii. What is scaler vector graphics? Explain. **5**
iii. What are data visualization techniques? Explain in detail. **5**

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Scheme of Marking
Data Visualisation- CS3ED03 (T)

Q.1	i)	d. All of the above		**1**
	ii)	a. It can be accessed quickly by a wider audience.		**1**
	iii)	b. par()		**1**
	iv)	c. Autocorrelation		**1**
	v)	b.Fisher		**1**
	vi)	c. visual data is distorted or excessively used.		**1**
	vii)	a.Treemaps		**1**
	viii)	b. data presentation architecture		**1**
	ix)	d. All of the above		**1**
	x)	a. Line charts		**1**
Q.2	i.	Definition	1 mark	**2**
		Example	1 mark	
	ii.	Each goal	1 mark	**3**
	iii.	Advantages Each point	(1mark*5)	**5**
OR	iv.	Basic principles of Data Visualization	(**1mark*5)**	**5**
Q.3	i.	Definition	2 mark	**2**
	ii.	Fisheye Views – Applications	4 marks	**8**
		Non-Linear Magnification	4 marks	
OR	iii.	a) Abstraction in Computer Graphics	4 Marks	**8**
		b) Abstraction in User Interfaces.	4 Marks	
Q.4	i.	Use color in your visualizations	(As per explanation)	**3**
	ii.	Translation	2.5 marks	**7**
		Rotation	2.5 marks	
		Scaling	2 marks	
OR	iii.	Legend	2 marks	**7**
		Interval	2 marks	
		Axes	2 marks	
		Scales	1 marks	
Q.5	i.	Description	2 marks	**4**
		Example	2 marks	
	ii.	3D illustrations with Images and Text	(As per explanation)	**6**
OR	iii.	Description	3 marks	**6**
		Example	3 marks	
Q.6		Attempt any two:		
	i.	Description	3 marks	**5**
		Example	2 marks	
	ii.	Description	3 marks	**5**
		Example	2 marks	
	iii.	Each point	1 mark	**5**

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