

## Model Question Paper with effect from 2021(CBCS Scheme)

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### Sixth Semester B.E. Degree Examination Data Science and Visualization

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1			*Bloom's Taxonomy Level	COs	Marks
Q.01	a	What is Data Science? Explain.	L2	CO 1	10
	b	Explain Datafication.	L2	CO 1	10
OR					
Q.02	a	Explain statistical Inference	L2	CO 1	10
	b	Explain the terms with example: 1) Population 2) Sample	L2	CO 1	10
<b>Module-2</b>					
Q. 03	a	Explain the Data science Process with a neat diagram.	L2	CO 2	10
	b	Which Machine Learning algorithm to be used when you want to express the mathematical relationship between two variables? Explain.	L3	CO 2	10
OR					
Q.04	a	Explain Exploratory Data Analysis	L2	CO 2	10
	b	Which Machine Learning algorithm to be used when you have bunch of objects that are already classified and based on which other similar objects that haven't got classified to be automatically labelled? Explain.	L3	CO 2	10
<b>Module-3</b>					
Q. 05	a	Explain feature selection algorithms and selection criterion.	L2	CO 3	10
	b	Define Feature Extraction. Explain different categories of information.	L2	CO 3	10
OR					
Q. 06	a	Explain Random Forest Classifier.	L2	CO 3	10
	b	Explain Principal Component Analysis.	L2	CO 3	10
<b>Module-4</b>					
Q. 07	a	What is the need of Data Visualization? Explain its importance.	L2	CO 4	10
	b	Explain Data Wrangling with a neat diagram.	L2	CO 4	10
OR					
Q. 08	a	Explain composition plots with diagram.	L2	CO 4	10
	b	Explain i) Tools and libraries used for visualization. ii) Data Representation.	L2	CO 4	10
<b>Module-5</b>					
Q. 09	a	Explain Plotting Using pandas DataFrames, Displaying Figures and Saving Figures in Matplotlib.	L2	CO 5	10
	b	Explain formatting of strings and Plotting in Matplotlib.	L2	CO 5	10
OR					
Q. 10	a	Explain the following with respect to Matplotlib. 1) Labels, Titles, Text, Annotations, Legends. 2) Subplots	L2	CO 5	10
	b	Explain basic image operations of Matplotlib.	L2	CO 5	10

\*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.

# Model Question Paper-1/2 with effect from 2021(CBCS Scheme)

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## Sixth Semester B.E. Degree Examination DATA SCIENCE AND VISUALIZATION

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1			Bloom's Taxonomy Level	COs	Marks
Q.01	a	What is data science? List and explain skill set required in a data science profile.	L2	CO1	6
	b	Explain Probability Distribution with example.	L2	CO1	6
	c	Describe the process of fitting a model to a dataset in detail.	L2	CO1	8
OR					
Q.02	a	Explain with neat diagram the current Landscape of data science process.	L2	CO1	6
	b	Explain population and sample with example.	L2	CO1	6
	c	What is big data? Explain in detail 5 elements of bigdata.	L2	CO1	8
<b>Module-2</b>					
Q. 03	a	What is Machine Learning? Explain the linear regression algorithm.	L2	CO2	6
	b	Explain K-means algorithm with example.	L2	CO2	6
	c	Describe philosophy of EDA in detail.	L2	CO2	8
OR					
Q.04	a	Explain the data science process with a neat diagram.	L2	CO2	6
	b	Explain KNN algorithm with example.	L2	CO2	6
	c	Develop a R script for EDA.	L3	CO2	8
<b>Module-3</b>					
Q. 05	a	Explain the fundamental differences between linear regression and logistic regression.	L2	CO3	6
	b	Explain selecting an algorithm in wrapper method.	L2	CO3	6
	c	Explain decision tree for chasing dragon problem.	L3	CO3	8
OR					
Q. 06	a	Briefly explain alternating Least squares methods.	L2	CO3	6
	b	Explain different selecting criterion in feature selection.	L2	CO3	6
	c	Explain dimensionality problem with SVD in detail.	L3	CO3	8
<b>Module-4</b>					
Q. 07	a	Define data visualization and explain its importance in data analysis.	L2	CO4	6
	b	Describe different types of plots in comparison plots.	L2	CO4	6
	c	Plot the following i) density plot ii) box plot iii) violin plot iv) bubble plot	L3	CO4	8
OR					
Q. 08	a	Describe the process of data wrangling and its significance in data visualization.	L2	CO4	6
	b	Explain the variants of bar chart with example.	L2	CO4	6
	c	Explain different types of plots in relation plots.	L2	CO4	8
<b>Module-5</b>					
Q. 09	a	Develop a code for labels, titles in matplotlib.	L3	CO5	6
	b	Apply code for basic pie chart.	L3	CO5	6

	c	Explain with neat diagram Anatomy of a Matplotlib Figure and Plotting data points with multiple markers.	L2	CO5	8
OR					
Q. 10	a	Describe the process of creating a box plot in Matplotlib. with suitable programming example.	L2	CO5	6
	b	Apply code for scatter plot on animal statistics using matplotlib.	L3	CO5	6
	c	Develop a code for bar chart, pie chart in matplotlib.	L3	CO5	8