Total No. of Questions : 5]

SEAT No. :

PE-1514

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T.Y. B.Sc.
COMPUTER SCIENCE
CS-354 : Foundations of Data Science
(Rev. 2019) (CBCS) (Semester - V)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicates full marks.***

Q1) Attempt any eight of the following : **[8 × 1 = 8]**

a) What is the importance of JSON and XML file formats in Data Science?

b) Enlist different data visualization libraries used in data science.

c) What is data discretization?

d) Define mean and median.

e) What is the importance of hypothesis testing in statistics?

f) What are outliers in data?

g) Define Euclidean distance.

h) What is a boxplot?

i) Define variance?

j) What is a pie chart?

Q2) Attempt any four of the following : **[4 × 2 = 8]**

a) Explain how parameter estimation methods work in inferential statistics.

b) Describe different types of data visualization charts such as Scatter plots and Pie charts.

c) Describe the significance of word clouds in data visualization.

d) Explain the problems with unstructured data and how they can be managed.

e) How can data visualization improve data analysis and decision-making?

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Q3) Attempt any two of the following : **[2 × 4 = 8]**

a) Explain data transformation techniques such as Rescaling and Normalization.

b) What is visual encoding? Discuss its importance in data visualization.

c) Explain different types of data representation methods.

Q4) Attempt any two of the following : **[2 × 4 = 8]**

a) Discuss the challenges faced while cleaning noisy data.

b) Explain the role of Dendrograms and Treemaps in visualizing hierarchical data.

c) What are different data formats used in data science? Provide examples.

Q5) Attempt any one of the following : **[1 × 3 = 3]**

a) Discuss the advantages of 3D scatter plots and Bubble plots in data visualization.

b) Differentiate between equal - width binning and equal frequency binning.

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