

Total No. of Questions : 8]

SEAT No. :

PB4010

[6262]-363

[Total No. of Pages : 2

**T.E. (Honors) (Computer Engineering)
DATA SCIENCE AND VISUALIZATION
(2019 Pattern) (Semester - I) (310501)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

Q1) a) State and explain how Naïve bays Theorem is used to solve classification problems. **[6]**

b) Explain the following- **[6]**

- i) Data Science
- ii) Big data

c) Write a note on association rules and its applicability. **[6]**

OR

Q2) a) What is clustering? Explain K-means clustering algorithm. **[6]**

b) Explain how simple linear regression is used for stock prize prediction (Assume the suitable dataset). **[6]**

c) Write a note on **[6]**

- i) Distribution Model-Based Clustering
- ii) Hierarchical Clustering

Q3) a) Write a note on the following. **[9]**

- i) Gini Index
- ii) Information gain
- iii) Entropy

b) What is a feedforward neural network? Explain with suitable example. **[8]**

OR

P.T.O.

- Q4)** a) Explain Decision Tree algorithm. Also explain how to select the best attribute for the root node and for sub-nodes. [9]
- b) What is a neuron? Explain the architecture of artificial neurons. [8]

- Q5)** a) What are the challenges related to data visualization? [6]
- b) Write a note on 'Display media for dashboard'. [6]
- c) What are the advanced data visualization techniques? Explain any 1. [6]

OR

- Q6)** a) Explain dashboard design principles in detail. [9]
- b) Explain where and how bar-graphs, Scatterplots and histograms can be used to visualize the data. [9]

- Q7)** a) Explain Entity - Relationship (ER) Data Modelling. [6]
- b) Write a note on the perception model. [6]
- c) Discuss the challenges of clustering High-dimensional data. [5]

OR

- Q8)** a) What are the key steps in data modelling process? Enlist and explain. [6]
- b) Explain multidimensional data model with one example. [6]
- c) What do you mean by principal Component Analysis? Explain with example. [5]

