

Total No. of Questions : 8]

SEAT No. :

P-7863

[Total No. of Pages : 2

[6181]-405

**B.E. (Artificial Intelligence and Data Science)**

**DATA MODELING AND VISUALIZATION**

**(2019 Pattern) (Semester - VII) (417522)**

*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 side indicate full marks.
- 4) Assume suitable data if necessary.

**Q1)** a) Explain need of Graphics and computing in data visualization. How exploratory graphics is useful in visualization. [10]

b) Write a short note on Statistical Historiography in data visualization. [8]

OR

**Q2)** a) Explain data handling in data modeling and visualization. [10]

b) Explain the types of Data Visualization with suitable example. [8]

**Q3)** a) Discuss various functions available in matplotlib. [7]

b) Explain effective graph layout techniques in data visualization. [6]

c) Differentiate Force-directed Techniques and Multidimensional Scaling. [4]

OR

**Q4)** a) Explain in detail force-directed techniques in multidimensional Scaling. [7]

b) Explain Bipartite Graph and its applications. [6]

c) Describe the key steps involved in the process of data wrangling. [4]

*P.T.O.*

- Q5)** a) Describe in detail data aggregation with its importance for group operations. [8]
- b) Explain Group by Mechanics technique in data modeling and visualization. [6]
- c) Explain the steps involved in Split Apply Combine strategy. [4]

OR

- Q6)** a) Explain Cross Tabulation and its uses with suitable example. [8]
- b) Write a short note on (Any Two) [10]
- i) Data Aggregation
- ii) Pivot Tables
- iii) Periods and Periods Arithmetic

- Q7)** a) Discuss Data Reconstruction and its types in data modeling and visualization. [7]
- b) Explain ultrasound images and its applications in data modeling and visualization. [6]
- c) Explain Dbschema Pro Modeler in data modeling and visualization. [4]

OR

- Q8)** a) Write a short note on :- [7]
- i) PET Images
- ii) Magnetic Resonance Images
- b) Explain ER/Studio with its applications. [6]
- c) Explain SQL Database Modeler in data modeling and visualization. [4]

