

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3161613****Date:06/06/2022****Subject Name:Data Analysis and Visualization****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- Q.1** (a) What is cluster? Explain types of cluster and cluster analysis with proper example. **03**
- (b) Figure out missing value from the given below table using KNN algorithm and also visualize error and detection graph. **04**

ID	Sub1_mark	Sub2_mark
1	75	73
2	62	50
3	74	?
4	99	43

- (c) Analyze this; assume there are 5(A-E) countries connected with each other through network. Network connection capacity is minimum 2 and maximum 3, so find the shortest path that all countries connected each other easily with the help of ANN algorithm and also visualize your final circuit in pie chart. **07**
- Q.2** (a) List out the models used in clustering algorithm? Explain K-means Algorithm with example. **03**
- (b) Describe why we used Random Forest Algorithm in data analysis. Explain its proper steps with diagram. **04**
- (c) How many types of visualization are used in time series analysis? Explain all with proper visualization. **07**

OR

- (c) Describe why we need data visualization explains with example? And also explain use and types of data visualization. **07**
- Q.3** (a) Define Statistics and Probability. Explain its types and terminology in details. **03**
- (b) Explain Data Dimensionality with linear algebra with its approaches. **04**
- (c) Describe Correlation. Generate one table including data of 10 student's enrolment number and one subject marks and also visualize correlation in scatter plot. **07**

OR

- Q.3** (a) List out PCA algorithm steps with proper example. And why we used PCA in data visualization? **03**

- (b) Express how Decision Making is useful for visualization of data. Explain with its steps. **04**
- (c) Explain Regression method with proper visualization example. **07**
- Q.4** (a) Define Classification. Explain difference between cluster and classification with visualization. **03**
- (b) Describe NN algorithm. Explain difference between ANN and KNN algorithm. **04**
- (c) Illustrate the steps of KNN algorithm with proper example (compulsory draw circuits). **07**
- OR**
- Q.4** (a) Define why we used most of time classification process in data visualization. **03**
- (b) Describe KNN & ANN algorithm. And also the reason why we used NN algorithm in data analysis. **04**
- (c) Illustrate the steps of ANN algorithm with proper example (compulsory draw circuits). **07**
- Q.5** (a) Define D3.js. Why we used this JavaScript in data visualization? **03**
- (b) How we create best dashboard using data visualization? Explain. **04**
- (c) Explain data science for driving growth in E-commerce. **07**
- OR**
- Q.5** (a) Write with example how we visualize data using D3.js. **03**
- (b) Explain principles of dashboard design using data visualization design. **04**
- (c) How data visualization useful in E-commerce? Explain it briefly. **07**
